

How to Use This Catalog

The *2002-2003 UH Mānoa Catalog* is a comprehensive guide to Mānoa programs, course offerings, faculty, facilities, services, tuition, financial aid, academic policies, and other information of general importance to UH Mānoa students. The information contained in this *Catalog* is not necessarily complete. Where applicable, names and contact numbers for other publications and offices, which may offer additional information about specific areas of interest, have been included.

The *Catalog* is divided into five major sections:

- Information about the University and the campus, student services, academic policies, tuition and financial aid.
- Information about the individual colleges and schools and their academic programs.
- Descriptions of courses offered.
- Lists of administrators, faculty, and staff with their academic backgrounds.
- Appendix, glossary, and index.

If you are a prospective freshman or transfer undergraduate student, consult the sections on undergraduate education, Mānoa General Education Core and graduation requirements, tuition, financial aid, and student life. In addition, you should read the program section of the department, college or school that interests you. Before selecting classes, read the course descriptions for prerequisites, credit hours, and other relevant information. For additional information on specific programs of study, consult the department chair, program director, or major adviser.

If you are a prospective graduate student, consult the graduate education section of this *Catalog* and the chair of the program in which you are interested for information regarding admission requirements, degree options, registration, and related procedures.

If you are a continuing student, keep this *Catalog* handy as a source of general information. Familiarity with its contents can smooth your progress toward your degree.

Although every effort is made to keep the *Catalog* correct and current, inevitably there will be some changes in courses offered and program requirements. You should, therefore, check the *Schedule of Classes* and your department, college, or school for the most current information.

Web Information. This year's *Catalog*, along with previous UHM catalogs, can be found on our Web site at: www.catalog.hawaii.edu

General Campus Information. For further information on UH Mānoa, contact:

UH Mānoa General Information
Campus Center 212
2465 Campus Road
Honolulu, HI 96822
Tel: (808) 956-7235 (V/T)
Web: www.hawaii.edu/

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Suggestions/Comments. We try to make each edition of the *Catalog* more helpful than the last and welcome your comments on how to improve the next *Catalog*. Send them to the Catalog Coordinator in the Colleges of Arts and Sciences and Student Academic Services, 2500 Dole St., Krauss 22, Honolulu, HI 96822.



University of Hawai'i at Mānoa

2002-2003 Catalog

This *Catalog* was prepared to provide information and does not constitute a contract. The University reserves the right to change or delete, supplement, or otherwise amend at any time and without prior notice the information, requirements, and policies contained in this *Catalog*.

The University recognizes its obligation to provide program accessibility for persons with disabilities. Contact the KOKUA Program at (808) 956-7511 (V/T) to obtain information as to the existence and location of services, activities, and facilities that are accessible to persons with disabilities. This *Catalog* is available in alternate format upon request by persons with disabilities.

The University of Hawai'i at Mānoa is accredited by the Western Association of Schools and Colleges (WASC), Association of Senior Colleges and Universities, 985 Atlantic Avenue, Suite 100, Alameda, CA 94501, tel: (510)748-9001, fax: (510)748-9797, e-mail: wascsr@wascsenior.org, Web: www.wascweb.org

Chancellor's Message

Aloha kākou and thank you for considering the University of Hawai'i, in the lush Mānoa Valley, as the venue for your pursuit of higher learning. We would be delighted to welcome you into our ʻohana, or family.

At Mānoa, the flagship campus of the University of Hawai'i System, we value and respect the contributions of each and every individual. Uniquely situated between the East and the West, Hawai'i is an excellent model of diversity – in its people, in its natural setting, and in its cultures. This diversity is one of many driving forces that unites rather than divides us, both on our campus and in the wider community.

Students as well as community friends have access to some of the finest scholars in a wide range of fields – some of which are exclusive to the University of Hawai'i. No other institution of higher learning can match the breadth of courses in Hawaiian, Asian and Pacific Islands Studies offered at Mānoa. More languages are taught here than at any other U.S. institution outside of the U.S. Department of State. Whether you are a first time, continuing, or non-traditional student, you will have unparalleled access to nationally and internationally renown programs such as astronomy, ocean sciences, tropical agriculture, biomedical research, travel industry management, and urban and regional planning. We are also one of only a few land, sea, and space grant institutions in the country.

These are just a few of the many reasons to chose the University of Hawai'i at Mānoa for your higher education. We invite you to review our *Catalog* and discover *your* reason.

Aloha pumehana,



Deane Neubauer
Interim Chancellor
University of Hawai'i at Mānoa

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The University of Hawai‘i

The University of Hawai‘i System

The University of Hawai‘i is a postsecondary education system composed of 10 campuses throughout the 50th state. In addition to the flagship campus at Mānoa, it includes the nearly 3,000-student University of Hawai‘i at Hilo on the island of Hawai‘i and the smaller University of Hawai‘i–West O‘ahu, which offers an upper division program, on the leeward side of O‘ahu. The UH Community Colleges system has four campuses on O‘ahu and one each on Maui, Kaua‘i, and Hawai‘i, making college classes accessible and affordable and easing the transition from high school to college for many students.

The mission of the University of Hawai‘i system is to provide quality college and university education and training; create knowledge through research and scholarship; provide service through extension, technical assistance, and training; contribute to the cultural heritage of the community; and respond to state needs. The campuses, organized under one board, differentially emphasize instruction, research, and service. The system’s special distinction is found in its Hawaiian, Asian, and Pacific orientation and international leadership role. Common values bind the system together: Hawai‘i’s gracious spirit of aloha; academic freedom and intellectual vigor; institutional integrity and service; quality and opportunity; diversity, fairness, and equity; collaboration and respect; and accountability and fiscal integrity.

All campuses use a semester calendar, with two terms per academic year, plus summer sessions.

The University seal contains a torch and a book titled *Mālamalama* in the center of a circular map of the Pacific, surrounded by the state motto, *Ua mau ke ea o ka ‘āina i ka pono* (“The life of the land is perpetuated in righteousness”). The University motto, inscribed in both the Hawaiian and English languages on Founders’ Gate at the Mānoa campus is *Maluna a‘e o nā lāhui a pau ke ola ke kanaka* (“Above all nations is humanity”). The motto is reflected in the ethnic diversity of UH students: 21 percent Caucasian, 18 percent Japanese, 13 percent Filipino, 14 percent Hawaiian or part Hawaiian, 7 percent Chinese, and 27 percent other.

University governance is vested in the Board of Regents, appointed by the governor of Hawai‘i. The regents in turn appoint a president of the University.

The UH Mānoa Campus

The University of Hawai‘i at Mānoa is a research university of international standing. It creates, refines, disseminates, and perpetuates human knowledge; it offers a comprehensive array of undergraduate, graduate, and professional degrees through the doctoral level, including law and medicine; it carries out advanced research; and it extends services to the community. Students have special opportunities for Asian, Pacific, and Hawaiian educational experiences and involvement in research activities, service learning, and co-curricular activities.

University of Hawai‘i at Mānoa has widely recognized strengths in tropical agriculture, tropical medicine, oceanography, astronomy, electrical engineering, volcanology, evolutionary biology, comparative philosophy, comparative religion, Hawaiian studies, Asian studies, Pacific Islands studies, and Asian and Pacific region public health. UH Mānoa offers instruction in more languages than any U.S. institution outside the Department of State.

The main UH campus, located in Mānoa Valley on the island of O‘ahu, began in 1907 as a land-grant college of agriculture and mechanic arts. With the addition of a College of Arts and Sciences in 1920, the college became the University of Hawai‘i. In 1972, it became the University of Hawai‘i at Mānoa to distinguish it from the other units in the growing UH system.

Today 17,000-plus people are enrolled in Mānoa courses, on campus or via distance delivery, studying toward bachelor’s degrees in 87 fields of study, master’s degrees in 89, doctorates in 57, first professional degrees in law and medicine, and a number of certificates. In addition, 69 percent of Mānoa students are undergraduates, 57 percent are women, and 72 percent attend school full-time. The mean age of students is 26.

The beauty of Mānoa valley serves as a backdrop for a unique yet inviting campus. Wander through the campus and find an authentic Japanese tea house and garden, a studies center that is a replica of a Korean king’s throne hall, and a Hawaiian taro patch. New structures include the striking Pacific Ocean Science and Technology building on campus and a privately donated marine biology facility on Coconut Island.

The University of Hawai‘i at Mānoa is accredited by the Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges. Professional programs are individually accredited by appropriate agencies.

A popular campus symbol is the rainbow, a frequent sight in Mānoa valley. Green and white are UH Mānoa’s colors.

2002-2003 Calendar

August 2002

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4	5	6	7	8	9	10
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September 2002

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October 2002

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November 2002

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December 2002

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January 2003

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August 16 (F)
 August 26 (M)
 September 2 (M)
 September 3 (T)
 September 9 (M)
 September 13 (F)

October 2 (W)
 October 25 (F)

November 1 (F)

November 5 (T)
 November 11 (M)
 November 13 (W)
 November 15 (F)

November 26 (T)
 November 27 (W)
 November 28 (Th)
 November 29 (F)
 December 12 (Th)
 Dec. 13-14 (F-Sa)
 Dec. 16-20 (W-F)
 December 22 (Su)
 December 25 (W)
 January 1 (W)

2002 Fall Semester

*Orientation/academic advising/registration for continuing, new, and unclassified students

The deadlines for graduate admission vary by field of study and are listed in the Graduate Admissions Application. However, the Graduate Division begins processing applications around October 1 for the following fall semester.

August 16 (F) Holiday: Statehood Day
 August 26 (M) First day of instruction
 September 2 (M) Holiday: Labor Day
 September 3 (T) *Last day to drop courses (tentative)
 September 9 (M) *Last day to register/add courses/change grading option (tentative)
 September 13 (F) Last day for undergraduates to file fall degree applications
Last day for classified graduate students to file fall degree applications
Last day for returning classified graduate students to file for spring readmission
 October 2 (W) Last day for restricted withdrawals
Last day of final examinations for master's Plan A and doctorates
 November 1 (F) **Spring admission application deadline for undergraduate and unclassified students
 Last day for instructors to submit "I" removal grades to Records Office
 Last day to apply for credit by examination for fall semester
 November 5 (T) Holiday: Election Day
 November 11 (M) Holiday: Veterans Day
 November 13 (W) *Theses and dissertations due in Graduate Division*
 November 15 (F) *Last day to file petition for admission to doctoral program (only by currently enrolled Mānoa campus master's candidates graduating at end of semester)*
 November 26 (T) *Last day to submit master's Plans B and C final examination results*
 November 27 (W) Last day for examinations before finals
 November 28 (Th) Holiday: Thanksgiving Day
 November 29 (F) Instructional holiday
 December 12 (Th) Last day of instruction
 Dec. 13-14 (F-Sa) Study days
 Dec. 16-20 (W-F) Final examinations
 December 22 (Su) Commencement; semester ends
 December 25 (W) Holiday: Christmas Day
 January 1 (W) Holiday: New Year's Day

2003 Spring Semester

*Orientation/academic advising/registration for continuing, new, and unclassified students

The deadlines for graduate admission vary by field of study and are listed in the Graduate Admissions Application. However, the Graduate Division begins processing applications around May 1 for the following spring semester.

January 13 (M) First day of instruction
 January 20 (M) Holiday: Martin Luther King Jr. Day
 January 21 (T) *Last day to drop courses (tentative)
 January 27 (M) *Last day to register/add courses/change grade option (tentative)
 January 31 (F) Last day for undergraduates to file spring degree applications
Last day for classified graduate students to file spring degree applications

* Refer to *Schedule of Classes*. ○ = Important academic dates. □ = Important dates for graduate students. **Bold** = Holidays
 **Some programs have earlier deadlines. Check with your department or school.
Italics indicate academic dates of significance for graduate students.

February 17 (M)	Holiday: Presidents' Day
March 3 (M)	<i>Last day for returning classified graduates to file for summer readmission</i> Fall admission application priority deadline for undergraduate and unclassified students
March 14 (F)	Last day for restricted withdrawals <i>Last day of final examinations for master's Plan A and doctorates</i>
March 24-28 (M-F)	Spring recess
March 26 (W)	Holiday: Kūhiō Day observed
April 1 (T)	Last day for instructors to submit "I" removal grades to Records Office Last day to apply for credit by examination for spring semester <i>Last day for returning classified graduate students to file for fall readmission</i>
April 4 (F)	<i>Theses and dissertations due in Graduate Division</i>
April 18 (F)	Holiday: Good Friday
April 23 (W)	Last day for examinations before finals
April 24 (Th)	<i>Last day to submit master's Plans B and C final examination results</i>
May 7 (W)	Last day of instruction
May 8-9 (Th-F)	Study days
May 12-16 (M-F)	Final examinations
May 18 (Su)	Commencement; semester ends

2003 Summer Session

May 26 (M)	Holiday: Memorial Day observed
May 27 (Tu)	First day of instruction (first term)
June 2 (M)	**Fall admission application deadline for undergraduate and unclassified students Last day for undergraduates to file summer commencement degree applications
June 3 (T)	<i>Last day for classified graduate students to file summer commencement degree applications</i>
June 11 (W)	Holiday: Kamehameha Day observed
June 13 (F)	<i>Last day of final examinations for master's Plan A and doctorates</i>
June 16 (M)	<i>Last day to file petition for admission to doctoral program (only by Mānoa campus master's candidates who graduated in the spring or are graduating at the end of the summer session)</i>
July 4 (F)	Holiday: Independence Day
July 5 (Sa)	First term ends
July 7 (M)	<i>Theses and dissertations due in Graduate Division</i> First day of instruction (second term)
July 17 (Th)	<i>Last day to submit master's Plans B and C final examination results</i>
August 15 (F)	Holiday: Statehood Day
August 17 (Su)	Commencement; summer session ends

February 2003

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June 2003

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August 2003

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* Refer to *Schedule of Classes*. ○ = Important academic dates. □ = Important dates for graduate students. **Bold** = Holidays
 **Some programs have earlier deadlines. Check with your department or school.
Italics indicate academic dates of significance for graduate students.

Undergraduate Education



Admission

Admissions and Records Office
 Student Services Center 001
 2600 Campus Road
 Honolulu, HI 96822
 Tel: (808) 956-8975
 Toll free (in U.S.): (800) 823-9771
 Fax: (808) 956-4148
 E-mail: ar-info@hawaii.edu
 Web: www.hawaii.edu/admrec/

Admission requirements for UH Mānoa are similar to those of comparable state institutions of higher education. Applicants are advised to consult appropriate UH Mānoa

colleges and schools for specific information since individual academic programs may have special admission policies and procedures.

The following regulations and procedures are subject to change without prior notice. Prospective students should consult the most current *Catalog* and/or an adviser before applying for admission.

International students should refer to “Admission of International Applicants” within this section of the catalog.

Admission of Classified Students

Classified undergraduates are those admitted to approved programs of study leading to University of Hawai‘i

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at Mānoa baccalaureate degrees. Students who have earned 0–24 credit hours are freshmen; those with 25–54 credit hours are sophomores; those with 55–88 credit hours are juniors; and those with 89 or more credit hours are seniors.

Freshmen and sophomores are lower division students, while juniors and seniors are upper division students.

Admission of Freshmen

Students applying for admission as freshmen must submit an application, official scores from the Scholastic Assessment Test (SAT-I) or American College Test (ACT), high school transcripts, and recommendations from school officials. Applicants taking the General Education Development (GED) high school–equivalency test must submit GED results in addition to high school transcripts. Applicants who have been home-schooled must submit GED results in addition to high school transcripts and official ACT scores. A high rating in one area will not ensure admission, nor will poor performance in an area exclude applicants if other evidence shows they may be successful in university-level work.

SAT-I or ACT. Candidates for fall admission should take the SAT-I or ACT no later than December of their senior year in high school. Candidates for spring admission should take the test before July. Information is available from high school counselors or from the testing agencies. For SAT-I, contact College Entrance Examination Board, c/o Educational Testing Service, P.O. Box 592, Princeton, NJ 08540. For ACT, contact American College Testing Program, P.O. Box 414, Iowa City, IA 52243.

High School Record. Applicants should have grades high enough to place them in the upper 40 percent of their graduating class, and they should be recommended by their principal or a designated school representative.

Minimum Unit Requirements. Applicants should complete 22 units of high school work (grades 9–12) of which at least 17 are college preparatory. The term “unit” means satisfactory completion of a full school year’s course of study or the equivalent in laboratory and shop exercises. A listing of courses and grades from the ninth through twelfth grades must be included. College-preparatory subjects must include at least four units in English; three in mathematics, including college-preparatory geometry and second-year algebra; three in natural sciences; three in social sciences; and four additional units, which may include higher mathematics, additional science, additional social studies, and foreign language. All other courses for which the high school grants credit may be offered to satisfy the remaining unit requirements, although there should be no less than a half-unit nor more than two units in any one subject.

Students entering curricula in engineering, mathematics, and biological and physical sciences must meet the special mathematics requirements listed in the college sections of this *Catalog*.

Profile of Admitted Students. All applications are evaluated on an individual basis. Generally, successful applicants attain a B-average for all college-preparatory

high school course work, achieve SAT-I (or equivalent) scores of 510 (verbal) and 510 (math), and rank in the upper 40 percent of their graduating class.

Nonresident applicants should await notice of acceptance before coming to Hawai‘i. By Board of Regents policy, the number of nonresidents admitted is limited.

Admission decisions are made independent of the availability of financial aid and housing. Students must apply separately for financial aid and housing. (See the “Tuition, Fees, and Financial Aid” and “Student Life” sections of this *Catalog*.)

Admission of Transfer Applicants

Transfer applicants are those currently or previously enrolled at a college or university other than the University of Hawai‘i at Mānoa. To obtain an application form, refer to “Application Procedures” within this section of the *Catalog*.

Applicants who have earned at least 24 semester credit hours of work in courses comparable to Mānoa campus offerings at a regionally accredited U.S. college or university must submit an application and have each postsecondary institution previously attended send an official transcript (including withdrawals, courses taken, and grades received) directly to the Admissions and Records Office. Unofficial transcripts, hand-carried transcripts, faxed transcripts, and student copies of transcripts or grade reports will not be accepted.

Applicants who have earned fewer than 24 acceptable credit hours or who have enrolled in an unaccredited institution must submit high school transcripts and official SAT-I or ACT scores in addition to official transcripts from all postsecondary institutions previously attended.

Transfer applicants are expected to present a satisfactory academic record in courses comparable to Mānoa campus offerings. Nonresident candidates must present a better than average record. The number of nonresidents admitted is limited by Board of Regents policy.

Applicants enrolled at another college or university must have a final transcript submitted to the Admissions and Records Office at the end of the current term. Until this is received, any acceptance is provisional. Failure either to submit the transcript within a reasonable time or to complete the semester’s work satisfactorily will result in denial of admission or, in the case of registered students, cancellation of registration.

Credit hours in courses taken at U.S. regionally accredited colleges or universities that are substantially equivalent to Mānoa campus offerings and in which grades of D (not D-) or better have been earned will be transferred. Grades and grade points from other institutions are not transferred. Credit/no credit and pass/fail credits may be accepted if the standard for these credits is equivalent to that at the Mānoa campus (see “Grades” within this section of the *Catalog*).

However, not all transfer credits accepted will necessarily satisfy curricular requirements toward a particular degree. The University applies no more than 60 credit hours from non-UH junior or community colleges to satisfy degree requirements.

Transfers from unaccredited colleges or universities must also meet Mānoa campus admission standards for new freshmen. Students who complete a minimum of 30 credit hours with an average of C or better at the Mānoa campus may be granted credit for the courses completed at unaccredited institutions that are candidates for accreditation. These courses, which must be substantially equivalent to University of Hawai'i at Mānoa courses, will be counted only as lower division credits to a maximum of 60 credit hours.

The department or program in which the student is pursuing a degree may decide that certain courses required for the major that were taken in the past must be retaken. Courses that are declared outdated for the major will still count toward the General Education Core if they meet core requirements. Students should consult with their respective academic adviser in their major field of study for details.

International applicants should refer to "Admission of International Applicants" within this section of the *Catalog*.

Transfer Applicants from UH System Campuses

For admission purposes, students who wish to transfer to UH Mānoa from another UH system campus should refer to the "Admission of Transfer Students" section above.

Effective fall 1994, students who have earned an articulated associate in arts (AA) degree from a University of Hawai'i Community College shall be accepted as having fulfilled the General Education Core requirements at the University of Hawai'i at Mānoa. However, students must also complete all specialized lower division, major, college, degree, and graduation requirements. Additionally, competency in a foreign language and five writing-intensive courses are required. With planning, most, if not all, of these requirements may be incorporated into the AA degree; if not, they are required in addition to the associate in arts degree.

Transfer students who have not completed the AA degree are advised that some of their courses taken at other UH campuses may apply directly to the UH Mānoa General Education Core requirements. The *Transfer Handbook*, a publication on articulated courses, is available for reference at all UH campuses. Campus advisers can provide more details on the subject.

Evaluating Transfer Credits

In general, UH Mānoa accepts credits earned at institutions fully accredited by U.S. regional accrediting associations, provided that such credits are substantially equivalent to courses at UHM, and have been completed with a grade of D (not D-) or better. An evaluation of transfer credits will be undertaken only after a student has been admitted to a program leading to a degree and has confirmed his or her intention to enroll.

Transfer decisions about courses taken at other University of Hawai'i campuses are guided by the University of Hawai'i Articulation Agreement. For additional information, you may refer to the Web address: www2.admrec.hawaii.edu/transfer/creditransfer.asp

Only course credits are accepted in transfer. Grades and grade points from other institutions do not transfer to UHM.

Notable Restrictions on Transfer Credit

Although all qualified courses may be transferred from two-year colleges, UHM applies no more than 60 credits from non-UH community or junior colleges toward the credits required for a bachelor's degree. Other notable restrictions on transfer credit include:

- Courses taken out of sequence (backtracking): Credit is not awarded for lower level courses if they are taken subsequent to or concurrently with a higher level course for which they are explicit or implicit prerequisites.
- College Level Examination Program (CLEP): Students wishing CLEP general examination credit must take the test before completing 24 credits of college-level work. Credits awarded for general and subject examinations do not count toward meeting the 24-credit requirement for admission as a transfer student nor do they exempt other applicants from submitting SAT-I/ACT scores and high school transcripts.
- Correspondence school credit: No more than 30 credits of correspondence course work from regionally accredited U.S. colleges and universities will be accepted in transfer.
- Life experience: UHM does not award credits for life experience. By individual arrangement, enrolled students may arrange for credit by examination.
- Military service or schooling: Course work taken through military schools may be considered for credit with the consent of the appropriate University department. The student's DD-214 or DD-295 form must be submitted. Credits awarded for military schooling do not count toward meeting the 24-credit requirement for admission as a transfer student nor exempt other applicants from submitting SAT-I/ACT scores and high school transcripts.
- Courses with nontraditional grades: Courses completed with nontraditional grades such as CR (credit), P (pass), S (satisfactory) may be transferable only if the grade represents a D (not D-) or better. Generally, courses with nontraditional grades will only be accepted as elective credit and will not fulfill University, college, school, or departmental requirements.
- Courses receiving no credit: Courses not accepted for transfer credit include, but are not limited to, the following:
- Courses from unaccredited institutions: Course work taken at any institution not fully accredited by a regional U.S. accrediting association is not transferable. After completing a minimum of 30 credits at UHM with a GPA of 2.0 or better, a student may be granted credit for course work completed at unaccredited institutions which were candidates for accreditation at the time of the student's attendance there. No more than 60 credits from such institutions may be applied to degree requirements at UHM.

- Developmental or remedial courses
- Repeated or duplicate courses: Transfer credit is generally not awarded for courses that duplicate material for which academic credit has already been given. Credit will not be awarded for a repeated course in which a passing grade was previously earned, nor for more than one version of a cross-listed course.
- Courses that provide instruction in a particular religious doctrine
- Vocational or technical courses
- Mathematics courses considered below college level: Such courses include, but are not limited to basic math, business math, college algebra and trigonometry.

Admission of International Applicants

Foreign students wishing to apply should request an application, instructions, and supplementary information for international students.

If admitted, foreign students on nonimmigrant visas must show proof of adequate health insurance before completing the registration process. Health insurance is available for purchase at the beginning of each semester. Students should await official notice of acceptance before coming to Hawai'i.

Additional Requirements

Transcripts. In addition to the application, applicants must present evidence of having completed or received the equivalent of a U.S. high school diploma. Official transcripts of all secondary and postsecondary work must be sent directly to the Admissions and Records Office by each institution attended. Certified photocopies of the certificates and results of any qualifying examinations (e.g., General Certificate of Education) must also be submitted. Certified English translations must be attached to documents and transcripts written in a foreign language.

Applicants enrolled in a secondary school or another college or university must have a final transcript submitted to the Admissions and Records Office at the end of the current term. Until this is received, any acceptance is provisional. Failure to submit the transcript or to complete the semester's/year's work satisfactorily will result in denial of admission and/or cancellation of registration.

Examinations. Applicants also must submit official results of the Scholastic Assessment Test (SAT-I) or American College Test (ACT) and the Test of English as a Foreign Language (TOEFL). These examinations are normally required of all foreign applicants, including students who either have been admitted to or have matriculated at other universities. SAT-I applications may be obtained by writing to the College Entrance Examination Board, c/o Educational Testing Service, P.O. Box 592, Princeton, NJ 08540. ACT applications may be obtained by writing to the American College Testing Program, P.O. Box 414, Iowa City, IA 52243. TOEFL applications may be obtained by writing to Educational Testing Service, P.O. Box 899, Princeton, NJ 08541. Applicants attending a U.S. high school may submit results of the College Board's English Language Proficiency Test (ELPT) in lieu

of the TOEFL. ELPT applications may be obtained by writing to The College Board, P.O. Box 6200, Princeton, NJ 08541-6200.

ACT or SAT-I Exemptions. Students who have earned at least 24 semester hours of acceptable credits—excluding English Language Institute and/or English as a Second Language courses—are exempt from submitting the ACT or SAT-I results. The credits must have been completed at a regionally accredited U.S. college or university and must be equivalent to University of Hawai'i at Mānoa offerings.

TOEFL Requirements and Exemptions. Applicants are required to score a minimum of 173 (computer-based) or 500 (paper-based) on the TOEFL. The following applicants are exempt from the TOEFL examination: (a) those whose native language is English; (b) those who hold a bachelor's or master's degree from a regionally accredited university in the United States or a recognized university in Australia, Britain, Canada (excluding Quebec), Ireland, or New Zealand; (c) those who score 510 or better on the verbal section of the SAT I; or (d) those who have completed six years of continuous schooling through the high school or college level in one of the countries listed above under (b). Admission to summer ELI classes does not imply a waiver of the TOEFL exam for fall or spring semester admission.

English Language Institute. International and immigrant students admitted to the University whose native language is not English are referred to the English Language Institute to determine if they must take the ELI placement tests and the Mānoa Writing Placement examination. If a student does not fulfill this obligation, ELI will place a hold on the student's registration. Please contact the Department of Second Language Studies for additional information.

Admission of International Exchange Students

Students matriculating at a university outside the United States may apply for admission as an international exchange student in the third or fourth year of study, through the Program for International Exchange Study (PIES). Admission may be granted for a maximum of two semesters as a "Visiting Student." Priority is given to students from institutions with a formal exchange agreement with UH; however, other qualified students from any foreign institution may also be considered.

Those sponsored by their home government or an external scholarship program such as Fulbright or Rotary International may also be admitted as exchange students, either as a classified, degree-seeking student, or as a non-degree visiting student. Exchange students may enter the US under either the F-1 or J-1 visa, depending on the funding source and preferences of the sponsoring agency.

Exchange students must submit standard admission materials, official TOEFL scores of 173 (computer-based) or 500 (paper-based) unless exempt (see "Admission of International Applicants" for exemption criteria), and for those engaged in non-degree study, a special PIES application. For further information, contact International Student Services, Student Services Center, 2600 Campus Road, Honolulu, HI 96822 or visit www.hawaii.edu/issmanoa.

Admission of Returning Students

A student who experiences a break in enrollment without having taken a leave of absence or who has been suspended or dismissed must apply for readmission. A student who has attended another college or university subsequent to attendance at the University of Hawai'i at Mānoa must apply as a transfer student (see "Admission of Transfer Applicants"). Readmission is not automatic because of enrollment limitations and changes in academic regulations. Students who are readmitted will be subject to the General Education Core, major, and graduation requirements in effect at the time of readmission. Questions concerning readmission should be directed to the student academic services office in the college to which the student is applying.

Admission of Unclassified Students

Persons who wish to take Mānoa campus courses but do not wish to enroll in degree programs may apply for admission as unclassified students through the Admissions and Records Office. Undergraduate applicants must meet the admission standards for a regular classified, degree-seeking undergraduate. Post-baccalaureate applicants must submit official verification of a baccalaureate or an advanced degree earned at a regionally accredited U.S. college or university or at a foreign university recognized by the University of Hawai'i at Mānoa.

Classified applicants receive admission priority; thus, unclassified applicants may be denied admission because of enrollment restrictions.

Persons interested only in taking courses offered by Outreach College should refer to the "Outreach College" section of the *Catalog* or should inquire at Outreach College, Krauss 101, 2500 Dole Street, Honolulu, HI 96822.

Early Admission/Dual Enrollment Program

High school students who have demonstrated exceptional academic achievement, have completed most of their high school graduation requirements, and can no longer benefit from high school offerings may enroll concurrently in Mānoa campus courses while enrolled in high school. Eligibility is restricted to high school juniors and seniors.

Students wishing to take advantage of this program should follow the procedures for "Admission of Freshmen." Eligible students must present outstanding high school grades and SAT-I or ACT scores, be recommended by school authorities, and have the permission of their parent(s) or legal guardian to participate in the Early Admission/Dual Enrollment Program.

Regular Mānoa campus admission deadlines, normal tuition and fee schedules, course prerequisites, and admission requirements other than high school graduation all apply to the Early Admission/Dual Enrollment Program.

Application Procedures

To obtain an admission application form and/or related information, prospective students should consult their high school counselors (in Hawai'i) or write to the Admissions and Records Office, 2600 Campus Road, Honolulu, HI 96822. The application is also available online (apply.hawaii.edu). The application is valid only for the semester specified. For deadline information refer to the "Calendar."

For information regarding application procedures for non-U.S. citizens and/or nonnative speakers of English, refer to "Admission of International Applicants."

Deadlines

Applications for the fall semester are accepted between September 1 and June 1; for the spring semester between June 1 and November 1. Some professional schools and individual programs may have earlier deadlines. Consult the appropriate student academic services dean for specific deadlines.

In addition to the application form, applicants must submit official test scores and arrange to have official transcripts of all schools, colleges, universities, and business and postsecondary schools attended sent directly from each institution involved. Unofficial transcripts, hand-carried transcripts, faxed transcripts, and student copies of transcripts or grade reports will not be accepted. All other required credentials, as noted in the application, should also be sent with the application form. No applications, even those received before the closing date, will be acted upon after enrollment is filled for a program. Applications and documents submitted to the University are deemed the property of the University and therefore will not be returned to the applicant nor be available for copying.

Application Fee

Applications must be accompanied by a nonrefundable, nontransferable \$25 application fee for Hawai'i residents or \$40 for nonresidents. The application and fee are valid only for the semester specified on the application.

Special Instructions

Student Identification Numbers

The University of Hawai'i at Mānoa requires the use of U.S. social security numbers as student identification numbers. A U.S. citizen should indicate his or her social security number on his or her application. The University issues student identification numbers to students who are not eligible to receive social security numbers.

Student Ethnicity Data

Students are urged to supply racial/ethnic information on applications and other forms when requested, since the University must provide a number of federal, state, and educational agencies with this data each year. Whenever

such information is lacking, University personnel must make an educated guess. Self-identification is preferable.

Change of Address

Students are responsible for keeping the University's Admissions and Records Office (Student Services 001) informed of their correct mailing address.

Financial aid applicants and recipients are responsible for keeping the Financial Aid Services Office (Student Services 112) informed of their correct mailing address.

Misrepresentation

By University policy, all applicants for admission are *required* to list all current and previous enrollment in any postsecondary institution on the application form. Applicants for admission who fail to inform the University of such enrollment at the time of application or who submit, or have submitted on their behalf, any required information or document that is inaccurate, incorrect, or fraudulent or that has been altered without proper authorization may be denied admission to the university. If the omissions and/or alterations are discovered after the student is enrolled, the student's admission may be rescinded and his or her enrollment canceled. Credits earned at any unreported school or college are not accepted in transfer. The student or prospective student may also be referred to the Student Conduct Committee for possible disciplinary sanctions.

Academic Advising

The Mānoa campus provides academic advising for undergraduate students through the student academic services office in the appropriate college or school. Academic advisers bring to their responsibilities as educators not only knowledge of academic disciplines but also an understanding of the rationale that underlies the curricula of the colleges, schools, and the University. Students are strongly encouraged to seek advising assistance early in their University careers.

Academic advising includes the following activities:

1. Assisting students in clarifying, articulating, and attaining academic and life goals;
2. Facilitating each student's academic adjustment to the campus;
3. Educating students to assess academic progress and to develop appropriate educational plans;
4. Explaining and clarifying college or school course and graduation requirements and academic rules and regulations;
5. Counseling students on family, peer group, and other personal issues as they relate to academic progress, which may include referral to appropriate University programs and community agencies; and
6. Serving as advocates and mediators for students.

Student services advisers complement departmental advisers, who are specialists in their subjects and advise declared majors about major requirements and graduate or professional degrees in their discipline.

Registration and Enrollment

Registration Procedures

Registration is open to those students formally admitted to the Mānoa campus by the appropriate admissions office and to students in good standing who are continuing in an approved program of study. New, transfer, and returning classified students who are admitted to the University are required to pay a nonrefundable, nontransferable partial advance tuition deposit to confirm their admitted status. Admitted students may be barred from registration until they have complied with all University requirements including but not limited to medical clearances, the purchase of health insurance by nonimmigrant foreign students, and required English language placement testing. Students may also be barred from registering until they have cleared all academic or financial obligations.

Students are given specific appointment times in which to register. All registration activity is conducted by touch-tone telephone or by personal computer through the World Wide Web. Each student's registration time will be available by touch-tone telephone or through the Web approximately two weeks before registration.

Information on registration procedures is contained in the *Schedule of Classes* booklet, which includes registration dates, registration instructions, and the time and place of course meetings. The *Schedule of Classes* is distributed by the Admissions and Records Office and is available shortly before registration begins each fall and spring semester. The *Schedule of Classes* is also available on the Web: www.pae.hawaii.edu.

Unclassified students and auditors register after classified students.

Registration is not complete unless all tuition and fees have been paid by the payment deadline.

Auditors

Auditors are regularly admitted students who enroll for informational instruction only and attend classes with the consent of the instructor. Auditors receive no credit, and they do not take course examinations. The extent of their classroom participation is at the instructor's discretion. Auditors are not generally allowed in art studios, laboratory science, mathematics, elementary and intermediate Hawaiian and foreign languages, creative writing, English composition, physical education, speech and other performance courses, or in classes where they might displace credit students. Audit courses are entered on student transcripts with a grade of L and are subject to regular tuition and fee charges. Audit courses are not counted in determining a student's enrollment status.

Late Registration

Students who failed to register during the designated registration period may still register for credit during the first 10 days of instruction (see the "Calendar"). There is a fee for late registration.

Enrollment at Other Campuses

After admission to the Mānoa campus, students who plan to take courses at other campuses, either within or outside the UH system, must notify their respective college student academic services office before enrolling at the other campus and must have official transcripts sent directly to the Mānoa campus Admissions and Records Office upon completion of those courses.

Concurrent Registration

Students may enroll concurrently at two University of Hawai'i system campuses and pay tuition, as well as all mandatory fees required by both campuses provided (a) they are officially enrolled at the home campus for at least one-half of the credit load for the semester; (b) they are in good academic standing at both campuses; (c) they are registering for courses applicable to their academic program but not available at the home campus; and (d) they have the approval of their home campus adviser and of the second campus. For specific application policy and forms, see the home campus adviser. A student who fails to comply with all these conditions may be disenrolled.

Multiple Registration

Students who do not meet the above criteria may enroll at more than one UH system campus at the same time, and they must pay full tuition and fees at all campuses. Multiple registrants must meet the admissions requirements and deadlines of each campus.

Maximum Registration

Undergraduate and post-baccalaureate unclassified students who request enrollment in 20 or more credit hours of work in any semester must obtain special approval of their college student academic services office and process their changes during the Change of Registration period after instruction begins. Students may not register for courses in Outreach College, for credit or audit, in excess of the maximum registration allowed by the college or school in which they are enrolled unless given permission for an overload by the college or school.

Enrollment Status

For academic purposes, students may be classified as either part-time or full-time students. A full-time undergraduate carries a minimum of 12 credit hours. Undergraduate students carrying fewer than 12 credits are classified as part-time. Audited courses are not counted in determining the enrollment status of a student.

Change of College or Major

Classified students may apply for transfer from one college to another during the fall or the spring semester. Application for transfer must be made on a form supplied by the student academic services office of the college or school that the student wishes to enter. The application must be approved by the dean of that college or school. Deadlines for transfers within the University are deter-

mined by individual student academic services offices. Contact the college or school directly for deadlines. Students planning to transfer into professional schools should consult the dean's office for deadlines. Students wishing to enter the College of Education should follow the procedures specific to that college.

Changes of college, school, curriculum, or major are not permitted during registration periods.

Unclassified students who wish to become degree candidates must complete the regular application process.

Changes in Registration

All deadlines for adding courses, partial withdrawal, or complete withdrawal are subject to change. Refer to the current *Schedule of Classes* for applicable deadlines and procedures.

To Add a Course

Courses may be added during the first 10 days of instruction.

To Drop a Course (Partial Withdrawal)

A course may be dropped through the sixth day of instruction without notation on the student's record. Thereafter, grades of W will be posted. The colleges and schools differ in their policies, but, in general, a course may be dropped from the seventh day of instruction up to Friday of the ninth week of instruction with the consent of the instructor and the approval of the student's college or school dean.

After the ninth week no withdrawals are permitted except for unusual or extenuating circumstances beyond the control of the student. These withdrawals require the consent of the student's college or school dean, and consent may be given only after the dean consults the instructor.

If students do not officially complete the withdrawal procedure, an F or NC, as appropriate, may be awarded by the instructor in place of a passing grade.

Students are advised that dropping courses after the sixth day of instruction may jeopardize their chances for registration in the same courses in succeeding semesters. Students are also advised that many colleges, especially graduate and professional schools, do not look with favor on records with excessive W grades. Employers and scholarship grantors share this attitude.

Complete Withdrawal

Students withdrawing completely from the University up to the sixth day of instruction will have this withdrawal action, but not their course registration, noted on their records. These students will not have a W grade for each course noted on their records.

Students withdrawing completely from the University from the seventh day through the ninth week of instruction will have a W grade for each course noted on their records.

After the ninth week complete withdrawals are not permitted except for unusual or extenuating circumstances beyond the control of the student. These withdrawals

require the approval of the student's college or school dean. Students who receive approval will also have a W grade for each course noted on their records.

Applications for complete withdrawal are available at the student academic services office of the student's college or school. Signatures as indicated on the form must be obtained, and the completed form must be turned in to the Mānoa campus Cashier's Office. The official date of withdrawal is the date recorded by the Cashier's Office.

The refund schedule for withdrawals is noted in the "Tuition, Fees, and Financial Aid" section of this Catalog.

When withdrawing, a continuing, classified undergraduate student who has completed at least one semester at the Mānoa campus may choose to apply for a leave of absence. Students who do not obtain a leave of absence are required to apply for readmission by submitting the Common Application Form to the Admissions and Records Office by the specified deadline and be readmitted before they register.

Credits and Grades

Work accomplished by students is usually recognized in terms of credit hours, grades, grade points, and grade point averages.

Minimum credit requirements for baccalaureate degrees are set by each college or school. Students must have a minimum of a C average (a minimum GPA of 2.0). Some colleges, schools, and degree programs have higher requirements. Students should check with their college or school adviser.

Credit Hours

Credit hours (or credits) for course work are determined on a semester or semester-equivalent basis for work satisfactorily accomplished. Credit hours granted for specific courses are listed in this *Catalog* and in the *Schedule of Classes* published each semester.

Grades

Grades awarded are A, B, C, D, F, CR (credit), NC (no credit), I (incomplete), and L (audit). A grade of A indicates excellent achievement, B above average, C average, D minimal passing, and F failure.

A grade of I is given to a student who has not completed a small but important part of a semester's work if the instructor believes that the incomplete was caused by conditions beyond the student's control. Each student receiving a grade of I should consult his or her instructor promptly to determine the steps to be taken and the deadline to complete the course work for changing the grade of I to a final grade. The designated November and April deadlines (see the "Calendar") refer to the dates by which instructors must report adjusted grades. Student deadlines for completing their course work must be adjusted accordingly.

An instructor recording a grade of I on the final grade sheet will also record the grade that will replace the I if the

work is not made up by the deadline; that grade is computed on the basis of what grades or other evidence the instructor does have, averaged together with Fs or zeros for all incomplete work (including the final examination, if it has not been taken). If the work is completed prior to the deadline, the instructor will report a change of grade, taking the completed work into consideration. If the instructor does not submit a grade to replace the incomplete, the grade of I will be replaced by an F or an NC (as appropriate) as of the April or November deadline. All grades of I must be cleared by a student's college prior to graduation.

Credit/No Credit Option

The credit/no credit option encourages students to broaden their education by venturing into subjects outside their fields of specialization without risking a relatively low grade. The CR designation denotes C-caliber work or better. However, students should be aware that some colleges and many graduate and professional schools evaluate CR as C and NC as F. The same is true of some employers and scholarship awarding agencies.

Certain courses may be designated as mandatory CR/NC. In addition to any such mandatory CR/NC courses, no more than 40 credit hours of CR may be counted toward the degree. Neither CR nor NC is computed in the grade point average. The CR/NC option must be exercised during the registration period. The CR/NC option is limited to elective courses; this option is not allowed for any course taken to fulfill a University, college, school, or department nonelective requirement, with the exception of those courses offered for mandatory CR/NC.

Grade Points

Grade points are given for all courses in which grades of A, B, C, D, or F are reported. They are computed as follows: for each credit hour received in a course, 4 grade points are granted if the grade is A; 3 if B; 2 if C; 1 if D; and 0 if F.

Students entering as undergraduates are not given grade points for work done outside UH Mānoa.

Grade Point Averages

Grade point averages (GPA) are determined by dividing the total number of grade points by the total number of credit hours for which a student has received letter grades (excluding I, NC, CR, W, or L).

The semester GPA is calculated on any one semester's credits and grade points. The cumulative GPA is calculated on all such work taken at UH Mānoa.

Repeating Passed Courses

Students may repeat for a letter grade a course in which they received a D grade. No additional credit toward the degree will be granted; the two grades for the course will be included in the GPA. Students may not repeat a course for which they received a grade of C or better or CR.

Repeating Failed Courses

Students may repeat, for a letter grade only, any course in which an F was received. If this is done at the University of Hawai'i at Mānoa, credit hours and grade points for each attempt are included in the GPA. Students may repeat (but not for a letter grade) CR/NC courses in which they received a grade of NC.

Duplicate Credits

Academic credit is generally not awarded for courses or examinations that duplicate material for which academic credit has already been given. Repeating passed courses (see above) yields no additional credit, nor does taking more than one version of a cross-listed course. (In the Course Descriptions, less obvious duplications may contain notations like, "credit not given for both 200 and 201"; "credit for only one of . . ."; etc.)

Graduate Credit for Seniors

Seniors at the Mānoa campus may earn credit toward an advanced degree for some courses completed during their last semester as undergraduates provided that (a) the courses taken are in excess of the requirements for the bachelor's degree and (b) such courses fulfill requirements in the prospective graduate field. To obtain such credit, students are required to file a petition form available at the Graduate Division at the time of registration for the courses. For more information, refer to the "Graduate Education" section of this Catalog.

Backtracking

Backtracking is not permitted. Additional credit and grade points are not awarded for lower-level courses if they are taken after or concurrently with the advanced course for which they are explicitly or implicitly prerequisites.

Students should direct any questions about the applicability of this policy to the student academic services office of their college or school.

Excess Credit Policy

A student who by the end of any semester has earned 24 credit hours beyond those required for graduation and has fulfilled all specific program and University requirements may be graduated by action of the student's college or school.

Unless an extension has been granted by the college's or school's student services dean, students may be put on probation if they have taken 24 credit hours beyond those required for graduation but still have not completed their specific program requirements.

Grade Reports

Grade reports are mailed to students after the end of each semester/session. Grades are also available by touch-tone telephone or by personal computer connected to the World Wide Web. Grades are available approximately two

weeks after the end of the final examination period each semester. Grades for courses taken through Outreach College do not follow this schedule.

Examinations**Course Examinations**

Final examinations are required in all undergraduate courses (except writing courses, directed reading, creative arts, research, seminars, internships, and field experiences) and must be taken during the scheduled examination period. No examinations (other than laboratory tests and short quizzes) are allowed during the two calendar weeks before the last day of instruction. Take home final exams may be distributed at any time but may not be required to be turned in before finals. The schedule of final examinations is published in the *Schedule of Classes*.

Language Courses

Students who plan to continue the study of a language begun elsewhere must take a placement test to determine the course in which they should enroll.

Native speakers of a foreign language or bilingual speakers may not enroll in nor receive credit for courses in that language. Such courses are designed for nonnative speakers.

For specific regulations governing courses that native or bilingual speakers may take for credit, students should consult the department chairs of European languages, East Asian languages, or Hawaiian and Indo-Pacific languages.

Advanced Placement Examination

The advanced placement examinations are administered in high schools by the Educational Testing Service for the College Entrance Examination Board for students who have completed specific college-level courses in high school. For the University's credit policy, students should consult the Admissions and Records Office or their student academic services office.

Credit by Examination

Students who wish credit by examination for basic courses in calculus, general biology, general chemistry, economics, English literature, psychology, and sociology should consult the Counseling and Student Development Center. Students apply to the center, pay the fee, and take the corresponding general or subject examination under the College-Level Examination Program (CLEP). A satisfactory score on these examinations, as determined by the appropriate department, yields course credit. However, students wishing CLEP general examination credit must take the exam before they have completed 24 credit hours of college-level work.

If a written exam is appropriate in other courses, it is prepared under the auspices of the department concerned, is more comprehensive than the usual "final examination,"

and is designed to serve as the scholastic equivalent of the course.

Applicants must be enrolled classified students; must present evidence that they have a mastery of the content of the courses (but have not received college credit); must apply, with department approval, to the dean's office by the specified deadline; and must pay the current fee. Applications are available in the college's or school's student academic services office.

Courses passed by examination do not carry grades or grade points.

Recognition of International Baccalaureate

The University of Hawai'i at Mānoa recognizes the international baccalaureate for course credit. Students should submit higher-level examination scores to the Admissions and Records Office. Course credit is granted for acceptable scores. Contact the Admissions and Records Office for more information.

Academic Programs

Undergraduate Certificate Programs

The University offers a number of undergraduate certificate programs, some of which are interdisciplinary. Generally, certificates are awarded to students who take at least 12–15 credit hours of specified courses.

Undergraduate certificate programs are offered in the following areas:

- Aging
- Environmental Studies
- Ethnic Studies
- East Asian Languages
- European Languages
- Hawaiian and Indo-Pacific Languages
- Interpretation and Translation
- Music
- Marine Option
- Peace Studies
- Russian Area Studies
- Women's Studies

Bachelor's Degree

Objectives

The baccalaureate degree program provides the student with a coherent undergraduate education that includes a comprehensive set of integrated learning opportunities. There are three basic components to undergraduate education: (a) the University-wide General Education Core requirements, which are usually completed during the first two years of the University experience; (b) individual college or school requirements; and (c) an academic specialization comprising a major, as well as a minor or electives that complement and enrich the other requirements.

Requirements

General Education Core and Graduation Requirements. The General Education Core and graduation requirements are based on the conviction that an educated person has access to a shared body of knowledge; a comprehension of the major divisions of learning; and an understanding of the commonality in our ways of thinking, of experiencing self, and of acquiring new knowledge and skills. The common body of knowledge focuses broadly on heritage; values; political, economic, and social life; and a relationship with nature. Its study requires critical reading and listening, careful judgment, and clear exposition. The common thread in general education is the interconnectedness of human knowledge. See the "Mānoa General Education Core and Graduation Requirements" section for more information.

College or School Requirements. Colleges or schools may specify which General Education Core courses should be taken to meet their requirements. They may also have additional requirements. Students should refer to specific college or school sections for more information.

Major or Academic Specialization Requirements. Each program leading to the bachelor's degree is built around a field of concentration—the major, which consists of a specific number of credit hours and required courses in a particular field or discipline, together with related courses in other subjects that are associated with and contribute to that discipline.

Students must satisfy the degree requirements for the selected major and, if applicable, the minor or concentration selected. Detailed information can be found in the appropriate major or academic specialization sections.

Minor Requirements. Limited concentrations of courses in an area other than the major (i.e., a minor) are offered in some programs. A minor is defined as relating to an approved baccalaureate degree, with courses completed in or coordinated by a single academic department. A minor course of study consists of a minimum of 15 credit hours of non-introductory course work (200-level courses that have a college-level course prerequisite and upper division courses) that is completed with a grade of C or better.

Minors are currently offered in American studies, art, Asian studies, biology, botany, chemistry, computer science, dance, economics, English, geography, geology and geophysics (four concentrations), Hawaiian, history, Chinese, Japanese, Korean, mathematics, merchandising, microbiology, music, philosophy, physics, political science, religion, sociology, speech, theatre, and zoology.

Graduation Requirements and Policies

Progress Toward the Bachelor's Degree

Students are expected to complete their academic work and apply for a degree in a timely manner (see "Excess Credit Policy"). The department or program in which the

student is pursuing a degree may decide that certain courses required for the major that were taken in the past must be retaken. Courses that are declared outdated for the major will still count toward the General Education Core if they meet core requirements. Students should consult with their academic adviser in their major field of study for details.

Residency Requirements

Students must earn a minimum of 30 credit hours in residence (i.e., taking credit courses or their equivalent by examination) at the University of Hawai'i at Mānoa. However, meeting the residency requirements does not necessarily mean that degree requirements have been met; the latter are determined by individual colleges.

A degree candidate must be registered and in attendance during the semester or summer session in which he or she completes the requirements for his or her degree, unless permission has been given for graduation in absentia by the appropriate college or school dean.

Application for Degree

An application for graduation must be obtained at the student academic services office of the appropriate college or school and then submitted with the degree fee to the Cashier's Office. This must be done by the deadlines specified in the "Calendar."

Honors

Academic Distinction

Graduating with Honors

Honors degrees are granted only to participants in the UH Mānoa Honors Program (see "Colleges of Arts and Sciences").

Graduating with Distinction

Graduating seniors not in the Honors Program who have completed 30 or more credit hours of work at the University with a cumulative GPA of 3.5 are eligible for graduation "with distinction" subject to the following stipulations:

1. The 30 or more credit hours at Mānoa campus must come from courses carrying grade points (this excludes CR/NC);
2. The cumulative GPA of the total college work (which encompasses academic work at the Mānoa campus and all other colleges and universities, if any) must be at least 3.5. This academic work includes both transferable and nontransferable credits carrying grade points but excludes CR/NC or other non-letter grade options such as pass/fail; and
3. Candidates for second degrees are not eligible.

Honor Societies

Alpha Epsilon, *National Honor Society for Extension Service*

Alpha Kappa Delta, *International Sociology Honor Society*

Alpha Omega Alpha, *National Honor Society in Medicine*

Beta Alpha Psi, *National Accounting Honor Society*

Beta Gamma Sigma, *National Business Honor Society*

Beta Phi Mu, *International Library Science Honor Society*

Chi Epsilon, *National Civil Engineering Honor Society*

Delta Phi Alpha, *National German Honor Society*

Epsilon Sigma Phi, *National Extension Honor Society*

Eta Kappa Nu, *National Electrical Engineering Honor Society*

Eta Sigma Delta, *International Hospitality Management Honor Society*

Gamma Sigma Delta, *National Agriculture and Human Resources Honor Society*

Golden Key National Honor Society, *National Undergraduate Honor Society*

Kappa Tau Alpha, *National Journalism Honor Society*

Lambda Delta, *Freshmen Honor Society*

Mortar Board, *Senior Honor Society*

Mu Kappa Tau, *Marketing National Honor Society*

Omicron Delta Epsilon, *International Honor Society in Economics*

Phi Alpha Theta, *National Honor Society in History*

Phi Beta Kappa, *National Liberal Arts and Sciences Honor Society*

Phi Delta Kappa, *National Education Honor Society*

Phi Eta Sigma, *National Freshmen Honor Society*

Phi Kappa Phi, *National Honor Society (general)*

Phi Theta Kappa, *International Honor Society for Two-Year Colleges*

Phi Upsilon Omicron, *National Home Economics Honor Society*

Pi Delta Phi, *National French Honor Society*

Pi Kappa Lambda, *National Music Honor Society*

Pi Lambda Theta, *National Education Honor Society*

Pi Sigma Alpha, *National Political Science Honor Society*

Pi Tau Sigma, *National Mechanical Engineering Honor Society*

Psi Chi, *National Honor Society in Psychology*

Sigma Delta Pi, *National Spanish Honor Society*

Sigma Phi Alpha, *National Dental Hygiene Honor Society*

Sigma Pi Sigma, *National Physics Honor Society*

Sigma Theta Tau, *National Honor Society in Nursing*

Sigma Xi The Scientific Research Society, *National Sciences Honor Society*

Tau Beta Pi, *National Engineering Honor Society*

For further information on these honor societies, contact the appropriate academic unit.

Academic Probation, Suspension, and Dismissal

All undergraduates and unclassified students who fail to meet the minimum academic requirements of the University or their college, school, or program may be placed on probation, suspended, or dismissed. The guidelines that follow are generally applied. Further information may be

obtained from the student academic services office of the student's college or school.

Undergraduate and unclassified students seeking exemption for cause from regulations and requirements contained in this *Catalog* should consult the dean of student academic services of their college or school. The University reserves the right to withhold the degree or to request the withdrawal of a student for cause.

Probation

Students may be placed on academic probation at the end of any semester in which their cumulative GPA falls below 2.0 or in which they fail to maintain the minimum academic requirements of their college, school, or program. Probationary students continue work at the University but must achieve a current GPA of at least 2.0 in each probationary semester to be allowed further registration. Failure to meet these conditions may result in suspension or dismissal.

Unless an extension has been granted by the college or school's student academic services dean, students may be put on probation if they have taken 24 credit hours beyond those required for graduation but still have not completed their specific program requirements.

Regulations governing academic probation will be applied at the end of each semester.

Suspension

Students may be suspended when they fail to achieve a cumulative GPA of at least 1.7 after attempting 24 credit hours or when they fail to meet the terms of probation.

Students registered for the first term of summer session or for Outreach College's winter or summer accelerated session at the time of the suspension may choose to complete that term or withdraw within five working days after notification of suspension.

Regulations governing academic suspension are applied at the end of each semester.

Applications for Return from Suspension

Students who wish to return after suspension should apply to the Office of Admissions and Records—for the fall semester between November 1 and June 1 and for the spring semester between June 1 and November 1.

Suspended students who attend another institution will be considered "transfer students" when reapplying to the University and must meet all transfer requirements. They will have their work evaluated by the college or school in order to determine eligibility for readmission.

Students who take no courses after being suspended for the required one semester are eligible to be readmitted into the college or school from which they have been suspended provided they submit an application form by the official deadline. However, readmission is not automatic if the student stays out beyond the required period.

Students readmitted after suspension are placed on probation and must meet the terms and conditions of probation as specified above. Failure to do so will result in dismissal.

Dismissal

Students who have been suspended and who subsequently fail to maintain the minimum academic requirements of the University or their college, school, or program or fail to meet the terms of probation may be dismissed. Such students will be readmitted only in unusual circumstances. Students admitted on probation may be dismissed if they fail to maintain the minimum academic requirements or to meet the terms of probation.

Regulations governing academic dismissal are applied at the end of each semester.

Once dismissed, a student is not eligible for readmission to any degree- or credit-bearing program at the University of Hawai'i at Mānoa for a minimum of one academic year. However, a student currently enrolled in an Outreach College course who is notified of an academic dismissal after the authorized period for withdrawal without cause may complete the Outreach College term.

The following conditions apply to students who have been dismissed one or more years:

1. To apply for readmission as a classified or unclassified student at UH Mānoa, the student should do so on the admissions application form, following established procedures and deadlines. The student must meet the standard admission criteria applicable to all students. The Colleges of Arts and Sciences require a written statement from the student explaining the circumstances of the dismissal and a rationale for reinstatement. If readmitted, the student is placed on academic probation and must meet established terms of probation;
2. To enroll in UH Mānoa's Outreach College, the student is eligible if he or she has attended any UH system campus or other regionally accredited college or university subsequent to the dismissal and earned a cumulative post-dismissal GPA of 2.0 or better for a minimum of 12 earned credits. Transcripts will be required to establish eligibility; or
3. To enroll in UH Mānoa's Outreach College, the student who has not earned a cumulative post-dismissal GPA of 2.0 or better for a minimum of 12 earned credits at another UH system campus or other regionally accredited college or university subsequent to dismissal may petition the dean of Outreach College for special enrollment consideration.

Other Provisions

Upon finding that a student is suffering from a physical or mental condition detrimental to the student or to the University, the dean of student services will, on medical advice, recommend proper action to the appropriate college or school's student academic services dean. The dean may request that the student be withdrawn officially, without prejudice or academic penalty. Readmission is contingent upon review and recommendation by the college or school's student academic services dean and the dean of student services.

Leave of Absence

Continuing classified undergraduate students may apply for a leave of absence for a specified period of one or two semesters if they (1) have just completed their prior semester (fall or spring) at the University of Hawai'i at Mānoa, (2) are in good academic standing (neither on probation nor subject to suspension or dismissal) and (3) are not enrolled. Students may not take more than two regular semesters of leave before graduation; additional semesters of leave will be granted only under extenuating circumstances. The granting of a leave of absence indicates a continuing relationship with the University and allows students to resume studies at a specific time without applying for readmission. Students who take a leave of absence will continue to be subject to the core, major, and graduation requirements in effect at the time their leave began.

Students have two options for taking an official leave of absence: (1) a planned leave and (2) a leave taken at the time of withdrawal from the University. To apply for a planned leave for the upcoming semester, students should submit an application for leave of absence prior to the beginning of the semester in which the leave is to be taken. Application for a leave can also be submitted at the time of complete withdrawal from the University. Applications for a leave of absence are available in the student academic services office at the student's college or school. The date of return from leave must be specified at the time of application.

Students who do not reenroll at the University at the end of their leave of absence will be considered to have withdrawn without notice; they will be required to apply for readmission to the University and will be subject to the core, major, and graduation requirements in effect at the time of readmission.

Students should be aware that taking a leave of absence may affect their residency status and eligibility for programs such as financial aid, intercollegiate athletics, etc. Upon return from an approved leave of absence, students may also find that registration in courses with fixed faculty/student ratios may be dependent upon availability of space.

Special Programs

New Student Orientation

The New Student Orientation (NSO) programs assist first-time freshmen and new transfer students in their transition to the University of Hawai'i at Mānoa, expose new students to broad-based educational opportunities on campus, and introduce students to college life. NSO also offers sessions for parents, families, and friends of incoming students where they learn more about what UHM has to offer new students. Following the summer orientation programs and during the first weeks of the fall semester, NSO's Welcome Program provides a variety of campus

events that showcase on-campus co-curricular opportunities and resources. For more information on current activities, access the NSO Web page at www.hawaii.edu/nso or call the NSO office at (808) 956-3667.

Coordinator: L. Opulauoho

First Year at Mānoa

The First Year at Mānoa (FYM) initiative unifies new and preexisting learning communities, programs and services targeted at freshmen and transfer students in a coherent package. From New Student Orientation, which gives students the opportunity to prepare for their first semester to the First Year Advising Center, which provides ongoing advising services, FYM programs ease the transition of new students into the academic and social communities of the University. FYM programs provide students with the opportunity to develop personal relationships with faculty and fellow students so that they become actively engaged in their education. In addition, FYM programs help students become familiar with the wide array of resources and programs available to them at the University.

Coordinator: J. Oka

First Year Center (FYC)

The First Year Center (FYC) is an integral part of the First Year at Mānoa. The FYC provides a user-friendly place for freshman and transfer students to access information and get assistance with academic matters such as degree requirements, course selection and registration, and choice of major. The FYC is staffed by professional academic advisers and student peer mentors who are familiar with campus resources available to support first year students.

For more information, please call (808) 956-7273 or visit the FYC Web site at www.cassas.hawaii.edu/FAC.

Coordinators: M. Taniguchi and V. Mori

Learning Communities

Learning communities create a collaborative academic and social learning environment of faculty and students. There are various models for learning communities at the UHM campus, including Access to College Excellence (ACE), Freshman Seminars (FS), Mānoa Connections (MACs), and Rainbow Advantage (RAP).

Access to College Excellence (ACE)

The Access to College Excellence (ACE) program provides freshmen with an exciting interactive group learning experience in their first semester. ACE students join a group of 15 other students who take three preselected courses together, often according to their area of academic interest. They meet weekly in a one-credit class, CAS 110, with an upper-division student mentor who provides information on academic and support services and leads discussions relevant to the academic interests of the group. The group also participates in extracurricular activities that enhance the first-year experience. For more

information, please call (808) 956-7273 or visit the ACE Web site at <www.cassas.hawaii.edu/ace>.

Co-Coordinator: P. Wilmeth

Freshman Seminars (FS)

Freshman Seminars offer freshmen a variety of courses, which enable them to learn in small class environments. (Classes are limited to 10 students.) The purpose of this program is threefold:

1. To create an intimate learning community for faculty and students who place a high value on the human dimension of education;
2. To provide students with small classes in which they take an active and responsible part and in which they receive constant peer stimulation, support, and feedback; and
3. To offer advanced students an opportunity to gain experience in leadership and mastery over their major by teaching it.

Although the subject matter varies from course to course, several opportunities are integrated into all seminars to unite them: 1) service learning, 2) opportunities to explore new technologies, and 3) integration of information retrieval.

The three credit seminars are mainly – but not limited to – General Education Core classes led by qualified advanced students under the direction of department faculty. These seminars provide valuable learning experiences for both the students taking the class and the students leading the class. Courses vary each semester, but may include: art, ethnic studies, geology and geophysics, political science, sociology, speech, educational psychology, and a 2 credit integrated seminar. They are listed in the Schedule of Classes under each department.

Freshman Seminars learning communities typically include one or two three credit seminars and LIS course that teaches students the fundamentals of using information retrieval and technology.

For more information, please call (808) 956-7142 or go to Web site: www.fs.hawaii.edu.

Director: M. Watts

Mānoa Connections (MACs)

Mānoa Connections (MACs) are the newest in learning communities on the UH campus, offering students a unique opportunity to work closely with professors and to look at ideas through a number of viewpoints. Class material is integrated in a way that enables students to see how issues are related in different subjects. Instructors work closely with students to help them understand concepts and develop the critical thinking skills necessary at a university level. For more information, please call (808) 956-9864 or go to Web site: www.lc.hawaii.edu.

Coordinator: J. Oka

Rainbow Advantage Program (RAP)

The Rainbow Advantage Program (RAP) is a tightly woven learning community, which provides a supportive

academic environment promoting a sense of community and shared values. Students are actively engaged in their education and participate in a variety of approaches to learning. Students, who are admitted to the University as freshmen, are invited to apply to this program (enrollment is limited to 100 students). They then take four courses together (15 credits) for the year. Six of these credits are received in a year-long foundation course, which fosters the learning of communication and research skills and serves to integrate all of the other courses. RAP also provides a myriad of experiences that help to fuse academics with what is traditionally called “the real world.” RAP attempts to prepare students for productive careers, fulfilling personal lives, enlightened citizenship, and lifelong learning.

The following is a partial list of the kinds of activities and academic pursuits in which the students will engage:

- Service learning is a mandated component of the program. Students do community service work throughout the year.
- Students have the resources of a librarian who is part of the faculty of the learning community. This person serves to integrate information literacy into the content and context of the course.
- Students have access to mentors from the wider community. These mentors offer a variety of experiences, from personal conversations about the value of liberal education to allowing students to shadow them at their job.

For more information, please call (808) 956-4040 or go to Web site: www.rap.hawaii.edu.

Director: M. Watts

Honors Program

Sinclair Library 504-B
2425 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8391
Web: www.honors.hawaii.edu

Director: J. Caron

The Honors Program is designed to combine the advantages of a small selective-admissions college with the resources available only at a large research university. For further information, contact the Honors Program office.

Selected Studies (lower division)

Selected Studies provides academically promising freshmen and sophomores the opportunity for enriched general education in A-sections—small, intensive, and sometimes experimental versions of the required core courses. Students may qualify for Sophomore Honors, and special academic advising is available. Admission is by invitation to students whose high school records and aptitude test scores, or whose recommendations from high school or University faculty, indicate they have the qualities

needed to profit from the opportunity. Students may also apply on their own initiative. A full list of A-section courses is available in the “Courses” section of this *Catalog* under Honors (HON).

Sophomore Honors

A certificate for sophomore honors is awarded to students in Selected Studies who complete a significant portion of their freshman and sophomore studies in A-sections and other appropriate courses that demand high academic achievement and who achieve at least a GPA of 3.5 therein and overall. Students who believe they have qualified should petition the Honors Council early in their junior year.

Honors (upper division)

Honors degrees are granted only to participants in the University of Hawai‘i at Mānoa Honors Program. Successful completion entitles the student to a bachelor’s degree with “honors,” “high honors,” or “highest honors.” Any regularly registered undergraduate may apply for admission in the second semester of the sophomore year or during the junior year.

As juniors, students complete a Junior Honors Seminar and a course on research methods. As seniors, students pursue a two-semester program of independent research culminating in a Senior Honors Project. Honors students are expected to present their projects at the annual Undergraduate Research Symposium and Exhibit.

Study Abroad Center

Moore 115
1890 East-West Road
Honolulu, HI 96822
Tel: (808) 956-5143
Fax: (808) 956-9319
E-mail: uhmsac@hawaii.edu
Web: www.studyabroad.org

Director: S. Rai

The Study Abroad Center (SAC) is a unit of the Office of the Chancellor. SAC collaborates with various UH Mānoa academic departments to provide opportunities for students to study, and faculty members to teach and conduct research, in another country. SAC develops, implements, and evaluates UH Mānoa study abroad programs. In addition, the center provides informational, advisory, and support services to students and faculty members concerning international educational opportunities.

SAC programs are offered for a summer term, a semester, or an academic year. The essence of SAC programs is to acquire knowledge through academic work and to develop a cross-cultural understanding through cultural immersion. Students earn UH Mānoa credits for course work completed abroad. The courses offered in these study abroad programs may be used to fulfill a student’s major, language,

core, graduation, or elective course requirements. Any Study Abroad course may be used as the “wild card” option. Students on Study Abroad may use the wild card to satisfy an appropriate 3-credit diversification and/or focus requirement. Courses taken overseas will appear on UH Mānoa transcripts as UH Mānoa courses.

SAC provides faculty members with opportunities to develop courses and publications based upon research and teaching experiences within the global arena. In addition, faculty members who lead study abroad programs have a wide range of responsibilities in their capacity as “in-country” resident directors.

SAC programs and course offerings may vary each academic term.

Semester and Year Programs

SAC offers semester programs in Australia, Denmark, England, France, and Spain. The Year-in-Japan program is offered only for a full academic year. Students enrolled in these programs must register for a minimum of 12 credit hours each term. All programs offer several content courses that are taught in English. Each fall term, the Japan and China Executive MBA Internships are offered under the aegis of the Study Abroad Center.

Summer Programs

SAC summer programs require enrollment in a minimum of 6 credit hours. Course offerings include, but are not limited to, architecture and design social sciences, International Business (Copenhagen), humanities/social sciences (Paris), business economics (various locations in Asia), European art and architecture (various locations in Western and Eastern Europe), French (Annecy and Angers), German and Political Science (Berlin), Italian (Florence), Japanese (Kobe), Mandarin (Hainan), Russian (Vladivostok), and Spanish (Mendoza).

Self-Designed Study Abroad Programs

Students can design a study abroad program different from those offered by SAC and receive UHM credits. Such a program may fall under the category of the Self-Designed Study Abroad Program. A Self-Designed Study Abroad Program can be created for countries and/or cities where UHM does not have an existing study abroad program. Students have conducted Self-Designed Study Abroad Programs in Austria, Brazil, Costa Rica, Greece, Guadalajara, India, Israel, Nepal, New Zealand, Salamanca, Taiwan, Tokyo, and Vietnam.

Admission Requirements

SAC programs are designed primarily for undergraduate students who have completed a minimum of 24 credits with a cumulative GPA of 3.0. Admission to intensive language programs require a minimum of one year of language study at the college level. For program brochures, detailed information, and an application, contact the Study Abroad Center.

General Education Core and Graduation Requirements

What Are My UHM Core & Graduation Requirements?

You follow the UHM Core & Graduation Requirements in place when you entered the University of Hawai'i system (i.e., any UH Community College, UH West O'ahu, UH Hilo, UH Mānoa).

- Entered UH Fall 2001 or later: see pages below.
- Entered UH Spring 2001 or earlier: you may choose either the set of requirements listed below or the set beginning on page 27 of this *Catalog*. Discuss your decision with an academic adviser to see which set of requirements will be more beneficial to you.

What Should I Know if I'm a Transfer Student?

You follow the UHM Core & Graduation Requirements in place when you entered UH (see above). However, you may have already satisfied some requirements through transfer credits. An academic adviser can explain your requirements after examining which courses transferred to UHM. Consult pages 9-11 of this *Catalog* for information about transferring credit from other colleges/universities.

Core and Graduation Requirements for Students Entering UH Fall 2001 or Later

You must meet three sets of graduation requirements to graduate from the University of Hawai'i at Mānoa:

- 1) General Education Core and Graduation requirements
- 2) College or School requirements (e.g., Colleges of Arts & Sciences; School of Nursing)
- 3) Major requirements (e.g., psychology, accounting)

The section below describes the General Education Core & Graduation requirements. You also should become familiar with the requirements for your college/school and for your major. With careful planning, you may be able to select courses that simultaneously satisfy more than one requirement.

Please Note:

Consult your adviser for an updated list of Core courses. Additional courses may have been approved after the publication of this *Catalog*. All students should be aware that Mānoa's individual schools and colleges may: a) have additional program requirements; b) require specific General Education courses to meet their program requirements.

General Education Overview

UHM Core Requirements (31 credits)

Foundations Requirements (12 credits) p. 24

Written Communication (FW) (3 credits)

Symbolic Reasoning (FS) (3 credits)

Global and Multicultural Perspectives (FG) (two courses, 6 credits)

Diversification Requirements (19 credits) p. 25

Arts, Humanities, and Literatures (6 credits)

Arts (DA*)

Humanities (DH*)

Literatures (DL*)

Social Sciences (DS*) (6 credits)

Natural Sciences (3 credits biological science, 3 credits physical science, 1 credit science lab)

Biological Science (DB*)

Physical Science (DP*)

Laboratory (science) (DY*)

UHM Graduation Requirements

Focus Courses (course requirement) p. 25

Hawaiian, Asian, & Pacific Issues (one course) (H)

Contemporary Ethical Issues (one course) (E)

Oral Communication (one course) (O)

Writing Intensive (five courses) (W)

Hawaiian or Second Language (competence at the 202 level) p. 26

(Some colleges/schools have waived or modified this requirement. Consult your college/school adviser.)

* These abbreviations appear in course descriptions to designate those courses that meet specific requirements. See the "Courses" section in the back of this *Catalog* to view course descriptions.

UH transfer students:

If you earned an associate in arts (AA) degree from a University of Hawai'i Community College, consult an adviser because you have already fulfilled the General Education Core (Foundations and Diversification) requirements. However, you still need to meet the General Education Graduation requirements (Focus and Language), college/school requirements, and major requirements to graduate.

General Education

General Education requirements are designed to help students acquire knowledge, skills, and ways of thinking that provide a foundation for lifelong learning. The UHM requirements reflect the unique resources of UHM: the depth of its Hawaiian assets and the breadth of its multiculturalism. The General Education curriculum gives students a global sense of human diversity while paying special attention to the heritages of Hawai'i, the Pacific, and Asia.

There are two components to the General Education requirements: Core requirements and Graduation requirements. Core requirements include Foundations and Diversification requirements. Graduation requirements include Focus requirements and Hawaiian or a Second Language.

Honors Program

Selected Studies students and Honors students should consult the Honors Program for the honors courses that fulfill the General Education Core and Graduation requirements.

UHM Core Requirements**Foundations Requirement: 12 credits**

Foundations courses are intended to give students skills and perspectives that are fundamental to undertaking higher education. Foundations courses may be offered as components of learning communities that also include courses fulfilling major or Diversification requirements. However, courses taken to fulfill the Foundations requirement may not be used to fulfill Diversification or Focus requirements.

All UHM students are expected to fulfill all Foundations requirements before achieving sophomore standing. Transfer students should consult their adviser.

Written Communication (FW): 3 credits

Students will be introduced to the rhetorical, conceptual, and stylistic demands of writing at the college level; the course gives instruction in composing processes, search strategies, and composing from sources. This course also provides students with experiences in the library and on the internet and enhances their skills in accessing and using various types of primary and secondary materials.

To enroll in a course that meets the Written Communication requirement, students must first take the Mānoa Writing Program writing placement examination. First-year students with appropriate scores on the examination will be invited to submit a fuller writing sample that may earn course credit and thus fulfill this requirement. Contact the Mānoa Writing Program for exam information.

Courses Approved to Date

- ENG 100* Composition I
- ENG 100A* Composition I
- ENG 101/101L* Composition II/Composition I Lab
- English Language Institute 100* Expository Writing: A Guided Approach

* Manoa Writing Program's Writing Placement Exam required.

Symbolic Reasoning (FS): 3 credits

Courses fulfilling this requirement will expose students to the beauty and power of formal systems, as well as to their clarity and precision; courses will not focus solely on computational skills. Students learn the concept of proof as a chain of inferences. They learn to apply formal rules or algorithms. They also learn to engage in hypothetical reasoning. In addition, the course aims to develop the ability of students to use appropriate symbolic techniques in the context of problem solving, and in the presentation and critical evaluation of evidence.

Courses Approved to Date

- ICS 141 Discrete Mathematics for Computer Science I
- ICS 241 Discrete Mathematics for Computer Science II
- MATH 100 Survey of Mathematics
- MATH 140* Trigonometry and Analytic Geometry
- MATH 203* Calculus for Business and the Social Sciences
- MATH 215* Applied Calculus I
- MATH 241* Calculus I
- MATH 251 Accelerated Calculus I
- PHIL 110 Introduction to Logic

* Math Department's Precalculus Assessment required.

Global and Multicultural Perspectives (FG): 2 courses, 6 credits

Global and Multicultural Perspectives courses provide thematic treatments of global processes and cross-cultural interactions from a variety of perspectives. Students will gain a sense of human development from prehistory to modern times through consideration of narratives and artifacts of and from diverse cultures. At least one component of each of these courses will involve the indigenous cultures of Hawai'i, the Pacific, and Asia.

Courses Approved to Date

To satisfy this requirement students must take two courses from two different groups.

Group A	Group B	Group C
■ ANTH 151	■ ANTH 152	■ GEOG 151
■ ART 175	■ ART 176	■ MUS 107
■ HIST 151	■ GEOG 102	■ REL 150
■ HIST 161A	■ HIST 152	
	■ HIST 162A	

For non-UH transfers only

■ HIST 155 (Students who have completed two semesters of Western Civilization may take HIST 155 instead of two courses from the groups listed above.)

Diversification Requirement: 19 credits

The Diversification requirement is intended to assure that every student has a broad exposure to different domains of academic knowledge, while at the same time allowing flexibility for students with different goals and interests.

Students can complete this requirement over the full four years of their academic program. Thus, students may satisfy the Diversification requirement by taking approved lower- or upper-division courses for which they meet course prerequisites. Some courses that satisfy the Diversification requirement may also simultaneously satisfy Focus or major requirements.

Diversification courses must come from different departments than the courses used to satisfy the Foundations Global Multicultural Perspectives requirement.

Approved Diversification Courses

Approved courses are identified in this catalog on pages 337 to 498 with the following letters after the course description:

DA = Arts	DP = Physical Science
DB = Biological Science	DS = Social Science
DH = Humanities	DY = Laboratory (science)
DL = Literatures	

■ Arts, Humanities, and Literatures (DA, DH, DL): 6 credits

To satisfy this requirement, students must take six credits; the six credits must include two different areas. Arts area courses are designated "DA," Humanities area courses as "DH," and Literatures area courses as "DL" in the course descriptions on pages 337 to 498.

■ Natural Sciences (DB, DP, DY): 7 credits

To satisfy this requirement students must take seven credits: three credits in biological sciences (DB), three credits in physical sciences (DP), and one credit of science laboratory (DY). Approved courses are identified in this catalog with the appropriate letters after the course description.

■ Social Sciences (DS): 6 credits

To satisfy this requirement, students must take six credits from two different departments. Approved courses are identified in this catalog with the letters "DS" after the course description.

UHM Graduation Requirements**Focus Requirements**

The Focus requirements identify important additional skills and discourses necessary for living and working in diverse communities. These requirements can be satisfied through major and Diversification courses.

Approved Courses

Focus courses are not shown in this catalog but appear in each semester's *Schedule of Classes*. Because the approved Focus courses may change each semester, students should consult the most up-to-date *Schedule* on PA'E before they register.

■ Hawaiian, Asian, and Pacific Issues (H): 1 course

These courses focus on issues in Hawaiian, Asian, or Pacific cultures and history; they promote cross-cultural understanding between nations and cultures. Courses fulfilling this requirement are offered in departments across the curriculum. They are designated as "H" in the *Schedule of Classes*; offerings may vary each semester.

■ Contemporary Ethical Issues (E): 1 course

These courses involve significant readings on and discussion of contemporary ethical issues; they give students tools for the development of responsible ethical judgments. Courses fulfilling this requirement are offered in departments across the curriculum. They are designated as "E" in the *Schedule of Classes*; offerings may vary each semester.

■ Oral Communication (O): 1 course

Students receive training in oral delivery and give individual and group oral reports. Courses fulfilling this requirement are offered in departments across the curriculum. They are designated as "O" in the *Schedule of Classes*; offerings may vary each semester.

■ Writing Intensive (W): 5 courses, including 2 numbered 300 and above

Because writing helps students both to learn and to communicate, the University requires students to take several writing-intensive courses. Small writing-intensive classes, in which instructors work with students on writing related to course topics, are offered in nearly all departments. Students are strongly encouraged to satisfy the Written Communication (FW) requirement before they enroll in writing-intensive courses. Writing-intensive courses are designated as "W" in the *Schedule of Classes*; offerings vary each semester.

Students who transfer into the UH system have a pro-rated requirement, which is based on the number of non-UH transfer credits accepted by the UHM campus.

	FR	SOPH	JR	SR
Number of accepted credit hours:	0-36	37-54	55-88	89+
Number of required "W":	5*	4*	3*	2**

*including at least two "W" courses numbered 300 and above.
**must be courses numbered 300 and above.

Hawaiian or Second Language Requirement

Knowledge of a second language increases the student's ability to understand other people; it encourages deeper awareness of the structure of language and its relation to thought, develops sensitivity to other ways of ordering personal experience and social institutions, provides a direct way of comparing another culture to one's own, and provides greater insight into the workings of one's native language.

Requirement*

Before graduation all students must show competence at the 202 (or equivalent) level in Hawaiian or a second language by doing one of the following:

- Completing a four-semester sequence (usually 101, 102, 201, and 202) in a single language.
- Demonstrating competence by taking a UHM exam if one is offered. Check with the language department in question.
- Receiving a language-requirement waiver. For example, waivers may be given to students who are native speakers of a language other than English. Contact the College of Languages, Linguistics, and Literature for details.

In addition, students with experience in a language other than English may earn "back credits." These students may take any UH course, appropriate to their level, in which there is significant use of that language. (Appropriate level determined by Placement exam or adviser; significant use determined by the instructor.) Upon completion of this course, if students earn a C or better, they will receive between 3-16 back credits.

Only students under the current or 2001 General Education Core are eligible. Back credits may be earned for only one language. Check with the appropriate language department for details and forms.

Four-semester Sequences Offered in these Languages

Arabic, Burmese, Cambodian, Cantonese, Chamorro, Filipino, French, German, Greek, Hawaiian, Hindi, Ilokano, Indonesian, Italian, Japanese, Korean, Lao, Latin, Mandarin, Maori, Portuguese, Russian, Samoan, Sanskrit, Spanish, Tahitian, Thai, Vietnamese.

Besides the approved courses listed above, American Sign Language also fulfills the language requirement. Courses in American Sign Language are not offered at Mānoa, but the campus will consider students who complete American Sign Language courses to the second level of study as having met Mānoa's Hawaiian or Second Language requirement.

Optional: Wild Card

Through engagement in an extraordinary educational experience approved by the UHM General Education Committee, each student can earn one Wild Card. The Wild Card can be used to satisfy an appropriate Diversification or Focus requirement. Students interested in earning a Wild Card should consult an academic adviser or a faculty project sponsor.

Core and Graduation Requirements for Students Who Entered UH Spring 2001 or Earlier**

Please Note:

If you wish to switch to the new UHM fall 2001 Core (found on page 23 of this *Catalog*), see an academic adviser first.

The General Education Core and graduation requirements are based on the conviction that an educated person has access to a shared body of knowledge; a comprehension of the major divisions of learning; and an understanding of the commonality in ways of thinking, of experiencing self, and of acquiring new knowledge and skills. The common body of knowledge focuses broadly on heritage; values; political, economic, and social life; and a relationship with nature. Its study requires critical reading and listening, careful judgment, and clear exposition. The common thread in general education is the interconnectedness of human knowledge.

The General Education Core and graduation requirements, consisting both of specific courses and categories of courses with options, are intended to help students communicate clearly and effectively in standard English; appreciate and understand foreign language(s) both as a means of communication beyond their native language system and as avenues to the literature and cultures of the world; reason clearly and effectively through the application of logic and validated information; develop a clear understanding of the inherited values, ideas, and philosophies of human cultures as they find expression in works of literature, history, philosophy, religion, art, and music; develop a clear understanding of the aims and methods of science; understand the ways in which humans organize for social action and how social institutions shape human behavior; develop a deeper appreciation of the complexities and potentialities of humankind through the study of the human experience from the perspectives of the arts, humanities, and the natural and social sciences; and develop an understanding of imagination and creativity through the application of abstract and intuitive thinking.

Fulfilling the Requirements

The General Education Core and graduation requirements are fulfilled by meeting the specifications listed in the following categories. Students should note that options are provided in nearly all parts of the general education curriculum. Required course work may be challenged by examination. Final approval rests with the dean of the college or school to which a student belongs. Students may seek clarification from the student academic services office in their college or school.

Effective fall 1994, students who have earned an articulated associate in arts (AA) degree from a University of Hawai'i Community College shall be accepted as having fulfilled the General Education Core requirements at the University of

Hawai'i at Mānoa. However, students must also complete all specialized lower division, major, college/school, degree, and graduation requirements. In addition to the core requirements, competence in a second language and five writing-intensive courses are required. With planning, most, if not all, of these requirements may be incorporated into the AA degree; if not, they are required in addition to the associate in arts degree.

Warning: All students should be aware that Mānoa's individual schools and colleges may require specific General Education Core courses to meet their requirements.

Honors Program

Selected studies students and honors students should consult the Honors Program for the honors courses that fulfill the General Education Core and graduation requirements.

Basic Skills and Understanding

The courses listed for the requirements in basic skills and understanding develop communication and analytical skills. They help students communicate clearly and effectively in standard English, reason clearly and effectively, understand a foreign or Hawaiian language, and achieve a background in the history of civilization.

Written Communication Introductory Level

All entering freshmen and continuing or transfer students without credits for English 100 must take the Mānoa Writing Program examination. Students who are not exempt from the English Language Institute (see the Department of Second Language Studies within the Colleges of Arts and Sciences for possible exemptions) must take the Mānoa Writing Program examination and the ELI placement examination. On the basis of placement scores, students will be assigned to one of three categories of introductory-level writing instruction: (a) English 100 or English Language Institute 100 (for students whose first language is not English); (b) English 101 and English 101L (a supplemental 1-credit writing lab); or (c) English 197 or English Language Institute 073. The Mānoa Writing Program examination is the basis for challenge by examination for this requirement; first-year students with appropriate scores on the examination will be invited to complete the challenge through submission of a fuller writing sample.

All students must complete their assigned English or English Language Institute class within their first two semesters at the University. Students assigned to English 197 or English Language Institute 073 must complete 197 or 073 and then must complete English 100, 101/101L or English Language Institute 100 the following semester.

** Previous *Catalogs* (along with the General Education requirements published in those *Catalogs*) can be accessed on the Web at: www.catalog.hawaii.edu/

Approved Courses

English 100, or 101/101L; or English Language Institute 100

Writing-Intensive Courses (WI) †

Because writing helps students both to learn and communicate, the University requires students to take writing-intensive courses. Small writing-intensive classes, in which instructors work with students on writing related to course topics, are offered in nearly all departments. Students are strongly encouraged to take English 100, 101, or English Language Institute 100 before they enroll in writing-intensive courses.

Requirement

Students who entered the UH system as freshmen in fall 1990 or later must complete, before they graduate from the Mānoa campus, five writing-intensive courses (designated with WI in each semester's *Schedule of Classes*). At least two WI courses must be courses numbered 300 and above. Students who entered the UH system as freshmen prior to fall 1990 should consult an academic adviser to determine their WI course requirement.

Students who transfer into the UH system will be required to take, before they graduate from the Mānoa campus, the number of writing-intensive courses specified in the following chart which is based on status at time of transfer. Transfer status is based upon the number of transfer credits accepted by the Mānoa campus.

	FR	SOPH	JR	SR
Number of accepted credit hours:	0–24	25–54	55–88	89+
Year of transfer				
1987–88	2	0	0	0
1988–89	3	2	0	0
1989–90	4*	3	1	0
1990–91	5*	4*	2*	1**
1991–92	5*	5*	3*	1**
1992–Spring 99	5*	5*	3*	2**

* including at least two WI courses numbered 300 and above

** must be courses numbered 300 and above

	FR	SOPH	JR	SR
Number of accepted credit hours:	0–36	37–54	55–88	89+
Years of transfer				
Fall 1999 and after	5*	4*	3*	2**

* including at least two WI courses numbered 300 and above

** must be courses numbered 300 and above

Mathematical or Logical Thinking

Clarity of thought and expression are further developed by courses that require students to understand the use of mathematics, logic, or other formal systems.

Requirement

One semester of an approved course in mathematics, logic, or statistics.

Approved Courses

Agricultural and Resource Economics 210, 310
 Honors 120
 Mathematics 100, 111, 140, 203, 215, 241, 251
 Philosophy 110
 Quantitative Methods 250

World Civilizations

An increasingly complex world demands responsible citizenship. In turn, responsible citizenship presumes an understanding and appreciation of the heritage of the world's major civilizations. The world civilizations requirement introduces students to the political, social, economic, and cultural development of the world's major civilizations.

Requirement

Two semester courses that analyze the major civilizations of the world. Students with demonstrated knowledge of Western civilization may substitute a one-semester course in non-Western civilizations. Students with satisfactory comprehension of Eastern civilizations may, with the approval of their dean, substitute a one-semester course in Western history.

Approved Courses

History 151 and 152; or History 161A and 162A (only for freshmen in the Selected Studies Program); or History 155 (only for transfer students who have completed a two-semester sequence in Western civilizations).

Foreign or Hawaiian Language

Knowledge of a second language increases the student's ability to understand other people; it encourages deeper awareness of the structure of language and its relation to thought, develops sensitivity to other ways of ordering personal experience and social institutions, provides a direct way of comparing another culture to one's own, and provides greater insight into the workings of one's native language.

Requirement

Students who entered the UH system prior to fall 1989 must complete, before they graduate from the Mānoa campus, first-level study of a language (101 and 102 or equivalent). All students who entered the UH system in fall 1989 or later must complete, before they graduate from the Mānoa campus, second-level study of a language (201 and

† Writing-intensive courses are not shown in the *Catalog* but appear in each semester's *Schedule of Classes*.

202 or equivalent). Native and bilingual speakers of a second language may be granted a waiver for the foreign language requirement. Students with previous foreign language study must take a placement exam.

Besides the approved courses listed below, American Sign Language also fulfills the foreign language requirement. Courses in American Sign Language are not offered at Mānoa, but the campus will consider students who complete American Sign Language courses to the second level of study as having met Mānoa's foreign language requirement. For specific information on any of the foreign or Hawaiian language requirements, students should contact their adviser.

Four-semester Sequences Offered in these Languages

Arabic, Burmese, Cambodian, Cantonese, Chamorro, Filipino, French, German, Greek, Hawaiian, Hindi, Ilokano, Indonesian, Italian, Japanese, Korean, Lao, Latin, Mandarin, Maori, Portuguese, Russian, Samoan, Sanskrit, Spanish, Tahitian, Thai, Vietnamese.

Area Requirements

These requirements embody the rationale for a general education in a university environment. They are planned to develop in students a clear understanding of the values, ideas, and philosophies of cultures as they find expression in works of literature, history, philosophy, religion, art, and music and an understanding in the basic fields of both the natural and social sciences.

Arts and Humanities

Through study of artistic, literary, and philosophical masterworks and by examining the development of significant civilizations, cultures, and the nature of human communication, students should gain an appreciation of history and achievements. This experience should enable the student to approach future studies of a more specific character with a broadened perspective.

Requirement

Three 3-credit semester courses, one each from three of the following four groups.

Approved Courses

Group 1: The Arts

Mainly Theory

Art 101, 171, 172, 180
Arts and Humanities 100
Dance 150, 255
European Languages 237
Music 106, 107, 108, 253, 265, 266, 370
Theater 101, 201

Mainly Practice

Art 103, 104, 105, 107, 113, 115, 116, 123, 130
Dance 121, 122, 131, 132, 301*, 302*, 303*, 304*, 305*, 306*, 307*, 311*, 401*, 402*, 403*, 404*, 405*, 406*, 407*, 411*
English 313
Music 114*, 121*, 122*, 127*, 128*, 410B*, 410C*, 416B*, 416C*, 418*, 419*
Speech 151, 231, 251
Theater 221, 222, 240, 318

* Any combination of these 1-credit courses that totals 3 credit hours will be considered the equivalent of a one-semester course.

Group 2: History and Culture

American Studies 201, 202
Architecture 271, 272
Asian Studies 241 or History 241
Asian Studies 242 or History 242
Hawaiian Studies 107
History 231, 232, 281, 282, 288
Religion 210

Group 3: Language and Literature

East Asian Languages and Literatures 271, 272, 281, 282, 361, 362, 363B, 363C
East Asian Languages and Literatures 364 or Women's Studies 346
English 250, 251, 252, 253, 254, 255, 256, 257, 302 (320*), 321 (335*), 361 331*)
English 257Y or Women's Studies 257
Hawaiian 261
Indo-Pacific Languages 273D, 273E, 396
Languages and Literatures of Europe and the Americas 122, 227, 228, 335, 336, 339, 340, 342, 343, 351, 352, 360, 362, 363, 371
Linguistics 102
Second Language Studies 430

Group 4: Values and Meaning (AH4)

Philosophy 100, 101, 102, 103, 211, 212, 213
Religion 150, 151, 200, 201, 202, 203, 204, 205, 207

Natural Sciences

A scientifically literate person should know what science is, how scientific investigation is conducted, and that the activity of a scientist is a blend of creativity and rigorous intelligence. Independent investigation in the laboratory provide an understanding of the features of scientific hypotheses and their proofs that external accounts cannot wholly describe.

Requirement

Three 3-credit semester courses including at least one in the biological sciences and one in the physical sciences. One of the three courses must include a laboratory.

Approved Courses**Group 1: Biological Sciences**

Agronomy and Soil Science 210 or Plant Pathology 210
 Biology 101/101L or 123/123L
 Biology 102/102L or Botany 101/101L
 Biology 103/103L or Zoology 101/101L
 Biology 171/171L
 Biology 350 or Women's Studies 350
 Botany 201/201L
 Botany 450 or Zoology 450
 Cell and Molecular Biology 351
 Entomology 250
 Food Science and Human Nutrition 185
 Microbiology 130, 140, 351
 Physiology 103/103L, 141/141L, 142/142L
 Zoology 200/200L

Group 2: Physical Sciences

Astronomy 110 or 240
 Biochemistry 241
 Chemistry 151/151L
 Chemistry 152 or Environmental Biochemistry 152, and
 Chemistry 152L
 Chemistry 161/161L, 162/162L, 171/171L, 181A/181L
 Geology and Geophysics 101/101L, 103/101L, 105, 108
 Meteorology 101/101L
 Ocean and Earth Science and Technology 101
 Oceanography 201/201L
 Physics 100/100L, 122/122L, 151/151L, 152/152L, 170/
 170L, 272/272L

Group 3: Other Sciences

Biology 124/124L
 Geography 101/101L
 Information and Computer Sciences 111

Social Sciences

Every educated person should have some appreciation of the role of culture and social institutions in the shaping of individual personality and the creation of social identities. Students should also develop an understanding of the extent to which scientific inquiry is appropriate to the creation of social knowledge and of the alternative ways of organizing human institutions and interpreting social reality.

Requirement

Three 3-credit semester courses from three different departments.

Approved Courses

Agricultural and Resource Economics 220
 American Studies 211, 212
 Anthropology 150, 200
 Asian Studies 312
 Botany 105
 Economics 120, 130, 131, 230, 310, 360
 Ethnic Studies 101
 Ethnic Studies 365 or Women's Studies 360
 Family Resources 230
 Geography 102, 151, 336
 Journalism 150
 Political Science 110, 120, 130, 171, 190, 201 (221*), 271
 (272*)
 Psychology 100, 170
 Psychology 202 or Women's Studies 202
 Sociology 100, 214, 218, 231, 251
 Sociology 362 or Women's Studies 362
 Speech 364
 Textiles and Clothing 200 or Women's Studies 200
 Women's Studies 151

* Former course number - changed as of Spring 2002

Graduate Education



Graduate Division

Graduate Division
Spalding 360
2540 Maile Way
Honolulu, HI 96822
Tel: (808) 956-7541
Fax: (808) 956-4261

Associate Dean
Spalding 360
2540 Maile Way
Honolulu, HI 96822
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Assistant Dean
Spalding 359
2540 Maile Way
Honolulu, HI 96822
Tel: (808) 956-8950

Graduate Division Records Office
Spalding 352
2540 Maile Way
Honolulu, HI 96822
Tel: (808) 956-8500
(808) 956-4255 (V/T)

Graduate Division Admissions Office
Spalding 354
2540 Maile Way
Honolulu, HI 96822
Tel: (808) 956-8544
(808) 956-4257 (V/T)

E-mail: admissions@grad.hawaii.edu
Web: www.hawaii.edu/graduate/

Graduate Division Fellowships and Scholarships Office
Spalding 354D
2540 Maile Way
Honolulu, HI 96822
Tel: (808) 956-8113

Graduate education and research are inseparable in a comprehensive university. The administration of these two areas is coordinated by the vice chancellor for research and graduate education.

The vice chancellor is assisted by an associate and an assistant graduate dean.

Graduate Council

Members of the Graduate Council are appointed on the recommendation of the associate dean of the Graduate Division. The council advises the vice chancellor on graduate courses, programs, and administrative matters.

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Senate of the Graduate Division

The Senate of the Graduate Division is composed of the chairs of each graduate field of study. It functions as an advisory board to the vice chancellor on major policy matters and serves as a forum for discussion on matters pertaining to graduate study.

Chairs of the Graduate Fields of Study

The chairs of the graduate fields of study are appointed by the associate dean of the Graduate Division. The chairs in turn recommend faculty advisers or committees for graduate students working toward advanced degrees. If the associate dean of the Graduate Division concurs, he/she appoints the persons recommended by the chairs.

The chairs of the graduate fields of study serve as the liaison with the Graduate Division in matters of policy, rule changes, program effectiveness, and general graduate student affairs. They advise the Graduate Division on admission of graduate students, advise graduate students on their degree programs, review graduate student petitions, keep records on their graduate students, and certify that degree candidates have completed all requirements.

Graduate Student Organization

See the “Student Life” section for information on this organization.

WICHE Programs

See the “Tuition, Fees, and Financial Aid” section for information on these programs.

Academic Policies

The following regulations and procedures governing admission to the Graduate Division of the University of Hawai‘i at Mānoa are subject to change without prior notice. Prospective students should consult with the Graduate Division for updated policies.

Although the University attempts to accommodate the course requests of students, course offerings may be limited by financial, space, and staffing considerations or may otherwise be unavailable. Nothing in this *Catalog* may be construed to promise or guarantee registration in any course or course of study (whether required or elective) nor may anything be construed to promise or guarantee the completion of an academic program within a specified length of time.

Student Responsibility

It is the responsibility of students to know and observe all regulations and procedures relating to the program they are pursuing, as well as those of the University and Graduate Division. In no case will a regulation be waived or an exception granted because students plead ignorance of or contend that they were not informed of the regulations or procedures. Questions on regulations and their interpretation pertaining to studies at the graduate level should be addressed to the Office of the Associate Dean of the Graduate Division.

Students planning to graduate should familiarize themselves with the dates relating to application for graduation and other pertinent deadlines (see the “Calendar”). It is necessary to apply for graduation by the specified deadline in order to graduate in a particular term, whether or not the student plans to attend the commencement ceremonies.

Students must satisfy the degree requirements of the *Catalog* in force during the term for which they have been admitted to and begin course work in a degree program; or they may, with the consent of their advisers, meet graduation requirements by complying with the provisions of a later *Catalog*. Students readmitted to a degree program must meet degree requirements of the *Catalog* in force at the time of the later admission (or of a subsequent *Catalog*, as provided above). Aside from degree requirements, all students are subject to the regulations and policies stated in the *Catalog* currently in force. Exceptions to the regulations contained in the *Catalog* require the written approval of the Graduate Division, unless otherwise stated in the *Catalog*.

Students admitted to the Graduate Division are assumed to be mature adults and are expected to behave accordingly. All written work should observe high editorial standards, and high standards of academic honesty are expected. Though advisory services are provided to assist the student, the student alone is responsible for following the procedures and completing the steps required in the degree program. Requirements of the Graduate Division, both procedural and substantive, may be waived only by written request of the student and/or committee concerned and must have the written approval of the Graduate Division. Petition forms are available in department offices and the Graduate Division Records Office.

Academic Integrity

The University has adopted policies and procedures for dealing with research misconduct among its students, faculty, and staff. The guidelines, which are available in department offices and in the Office of the Associate Dean of the Graduate Division, pertain to the intentional commission of any of the following acts: falsification of research results, improper assignment of authorship, plagiarism, unprofessional manipulation of experiments or of research procedures, and misappropriation of research funds.

If a graduate student fails to maintain the standards of academic or professional integrity expected in his or her discipline or program, the student’s admission to the program may be terminated. (See the “Appendix” for further discussion of policy pertaining to academic honesty.)

Research with Human or Animal Subjects

Students intending to conduct research using human or animal subjects should be aware of federal, state, and University regulations and review processes to ensure compliance with protective standards. These regulations cover research funded by non-University sources, sponsored by the University, or conducted by or under the direction of any employee or agent of the University in connection with his/her institutional responsibilities or using any UH property or facility. These regulations also cover research involving the use of the

University's non-public information to identify or contact research subjects.

Students and University employees should refer to the "Appendix" for more information on federal research guidelines and check with their respective academic offices for guidance.

Admission

Applicants for advanced degree programs must hold a bachelor's degree from a regionally accredited U.S. college or university or its equivalent from a recognized foreign institution of higher learning. The standards of the degree in question must be equivalent in both the distribution of academic subject matter and in scholarship achievement requirements to those maintained at the University of Hawai'i at Mānoa. Generally, an applicant must have a grade point average (GPA) of 3.0 (4.0-equals-A scale) or the equivalent in the last four semesters or approximately 60 semester credits (or the equivalent in quarter credits) of his or her undergraduate record and in all post-baccalaureate work.

Completed applications are screened by the Graduate Division Admissions Office. Applications that meet the minimum requirements of the Graduate Division are forwarded to the respective field of study, where the standards applied may be more stringent than those set by the Graduate Division. There the applications are subjected to a more comprehensive and intensive review by the graduate faculty. Where admission is intensely competitive, admission decisions are reached through a comparison of the relative merits of all applicants applying in the field or in an area of concentration, if applicable, for that particular semester. The graduate field then makes a recommendation to the Graduate Division either to admit or deny the applicant. The final decision to make a formal offer of admission rests with the Graduate Division, which takes into full consideration the recommendation of the field of study. Admission is valid only for the semester for which a student was accepted.

Applicants may be denied admission for any number of reasons. Some of the more common bases of denial are undistinguished academic records and poor test scores, inadequate preparation and background for advanced academic or professional study, unclear or unfocused objectives for graduate study, or inability of the program to accommodate all qualified applicants due to limited space or lack of faculty to guide the students in specified areas of interest. It is suggested that applicants consult the chair of the selected field concerning their interests and availability of faculty members in their intended areas of study.

The Graduate Division notifies each applicant of its decision. Official notification of acceptance or rejection is generally mailed between February and June for fall admission, depending on when the completed application is received and when a decision is reached. Most of the notifications are mailed in April and May. For spring, notification is generally between October and December. In fields with intense competition, selections are often made early. Applicants should not make definite arrangements to attend the University until they receive formal notice of acceptance from the Graduate Division.

All applicants are required to specify on the application form all current and previous enrollment in any postsecondary institution. Any applicant who fails to inform the University of such enrollment or who submits or has submitted any required information or document that is fraudulent or that has been altered without proper authorization may be denied admission to the University. If the omissions and/or alterations are discovered after the student is enrolled, enrollment may be canceled and the student may be referred to the University's Student Conduct Committee for possible disciplinary action.

Application Procedures and Deadlines

Application forms and specific graduate program information should be obtained directly from the appropriate field of study (refer to graduate fields listed in the "Degrees and Certificates" section) and/or by visiting the website: www.hawaii.edu/graduate. Letters should be addressed to the graduate chair of the appropriate field of study.

For further information on general graduate admissions, write or e-mail the Graduate Division Admissions Office. Architecture, medicine and law are not part of the Graduate Division. Applicants should apply directly to the School of Architecture (see the "School of Architecture" section), John A. Burns School of Medicine (see the "School of Medicine" section) or to the William S. Richardson School of Law (see the "School of Law" section).

Application Requirements

Students applying for admission to graduate programs must submit the following:

To the Graduate Division[†]

1. Application form and appropriate fee (\$25.00 U.S. citizen, \$50.00 non-U.S. citizen—no fee waivers);
2. One official transcript from each postsecondary institution attended, sent directly from the institution or received in a sealed institutional envelope to the Graduate Division;
3. Official Test of English as a Foreign Language (TOEFL) or IELTS Academic Modules Test score report, if required (for foreign applicants, as well as some immigrant and U.S. applicants); and
4. Verification of financial status (for foreign applicants).

If more than 25 percent of a student's undergraduate course work at a U.S. institution has been graded under a nontraditional grading system (i.e., pass/fail, credit/no credit, S/U, etc.), then:

1. Transcripts must be accompanied by official course performance reports, i.e., faculty evaluations (one copy each of transcripts and performance reports);
2. Transcripts from nontraditional grading systems must include course descriptions and grade conversion information; and
3. The applicant must take the Graduate Record Examination (GRE) General Test and have the results forwarded to the Graduate Division. [Applicants to the College of Business

[†] Applicants seeking admission to the Advanced Certificate in Gerontology and the certificate only program in Public Administration should submit all materials directly to the respective program.

Administration and the Schools of Accountancy should take the Graduate Management Admission Test (GMAT) in place of the GRE. Applicants to the School of Travel Industry Management may take the GMAT instead of the GRE.]

To the Field of Study

1. Letters of recommendation if required by field of study;
2. One official transcript from each postsecondary institution attended, sent directly to the field of study by the institution, if required by the field of study.
3. Standardized test scores (excluding TOEFL and IELTS) such as GRE, GMAT, Miller Analogies Test (MAT) if required by the field of study;
4. Special application forms, statement of objectives and long-range goals if required by the field of study; and
5. Samples of work (slides, manuscripts, portfolio, or tapes), résumés, and writing samples if required by the field of study.

For details, refer to the graduate program brochure of the field of study and application instructions. Materials submitted in support of an application are not released for other purposes and cannot be returned to the applicant. Failure to fill out the application completely according to instructions may result in delays and file closure.

Application Deadlines

Please refer to the Graduate Division Admissions application booklet or graduate program brochure of the field of study for specific application deadlines. Each graduate program may have different deadlines and some programs do not have spring admissions.

Admissions—and in many cases offers of financial support, such as assistantships, scholarships, fellowships and tuition waivers—are awarded early to highly qualified applicants. Applications are processed by the Graduate Division as early as October 1 for the fall semester and May 1 for the spring semester. It is recommended that a completed graduate admissions application be submitted as early as possible.

International Applicants

International applicants must submit official academic records in the original language accompanied by certified English translations. These translations must bear either the embossed seal or inked stamp of the issuing institution or governmental agency or the original signature of the translator, and they must be complete and exact word-for-word translations of the original documents.

The following lists the *minimum academic qualifications* expected of international applicants from the following selected countries or areas for admissions consideration. These qualifications must be completed prior to enrollment. Not all regions and countries are represented and admission eligibility is determined upon review of all required application materials.

- Australia, Canada, New Zealand, South Africa: Bachelor's degree requiring at least four years of study or an honours bachelor degree.
- Baltic and East European States, former Soviet Republics: Diplom, Inzenyr, Magister, Oklevél diploma requiring four to five years of post-secondary study.
- Bangladesh, India, Myanmar, Nepal and Pakistan: Completed master's degree at the time of application or a four-five year bachelor's degree such as the B. Engineering, B. Technology, or B. Agriculture.
- United Kingdom and British patterned systems: Honours bachelor degree.
- France or French patterned systems: Maîtrise or title of Ingénieur; four-five year degree.
- Germany: University Diplom, Magister Artium or Staatsexamen. The vordiplom alone is not sufficient.
- Philippines: Bachelor's degree from chartered higher education institutions (state universities and colleges) or CHED approved institutions and degree programs or FAAP certified level II or III accreditation status.

Concurrent Pursuit of Multiple Graduate Programs

Initially a student may be admitted to only one degree program. A student may be admitted, after completing one year, to two degree programs or specializations concurrently. A new application form must be completed for each degree program to which the student desires admission. Each intended program may review the student's existing Graduate Division academic file and require letters of recommendation and a goal statement pertinent to the particular program. When a student already enrolled in the Graduate Division is admitted to an additional graduate degree program, the department(s) to which the student is already admitted will be notified of the new admission. A student admitted to more than one degree program is considered to be pursuing each one independently in the sense that each degree can be awarded as all requirements for it are satisfied.

Concurrent doctoral degrees are not allowed and multiple doctoral degrees are generally not permitted. If approved, each degree must be distinct, representing a unique body of knowledge. Each dissertation must be distinct and not incorporate parts of the previous dissertation.

English Language Institute

International and immigrant students admitted to the University whose native language is not English may be referred to the English Language Institute to determine if they must take the ELI placement examinations. If a student does not fulfill this obligation, ELI will place a hold on the student's registration. Please refer to the "English as a Second Language" section within the Colleges of Arts and Sciences for additional information.

Standardized Examinations

As a service to in-state students and applicants, standardized test application forms are available at the Counseling and Student Development Center, (808) 956-3454. Out-of-state

students and applicants from foreign countries should write to the address designated for each examination (see pertinent section).

Individuals with visual, physical, hearing, or learning disabilities who are required to take either the GRE or GMAT should contact the Educational Testing Service for information regarding special arrangements to take these examinations.

Graduate Record Examination

The GRE and subtests may be required by some fields of study and recommended by others. For the requirements of the individual fields of study, consult the relevant field of study descriptions in this *Catalog* and the instruction sheet of the graduate application form. The GRE General Test (Package 1) is also required by the Graduate Division for students who have completed 25 percent or more of their undergraduate work under a nontraditional grading system. Test information is available through the Counseling and Student Development Center, (808) 956-3454. Applicants may request test registration forms directly from Graduate Record Examinations, Educational Testing Service (ETS), Box 6004, Princeton, NJ 08541-6004. Submit completed registration forms and test fees to ETS at least one month before the examination date.

Graduate Management Admission Test

The GMAT is required by the college or school for admission to the master's program in business administration or accounting. It is also required by the Graduate Division of students who have completed 25 percent or more of their undergraduate work under a nontraditional grading system. Applicants may request test registration forms directly from GMAT, Educational Testing Service, Box 6103, Princeton, NJ 08541-6103. Submit completed forms and test fees to ETS at least five weeks before the examination date.

Since applications are not reviewed unless GMAT scores are received on time, the test must be taken no later than the preceding June for admission in the spring and no later than the preceding January for admission in the fall.

Miller Analogies Test

In addition to the GRE, the MAT is optional for admission to the PhD in Education program. Applicants should contact a college or university in their area or the Psychological Corporation, Controlled Testing Center, 555 Academic Court, San Antonio, TX 78204-9052 for information and specific test dates.

Evidence of English Language Proficiency

Applicants whose native language is not English must submit official Test of English as a Foreign Language (TOEFL) scores or International English Language Testing System (IELTS) Academic Modules test results. The TOEFL score report of IELTS test results must be from a test taken within the last 2 years. A TOEFL score of 500/173 (paper/computer) or IELTS overall band test result of 5.00 is required. The minimum score for teaching assistantship applicants is 600/250 for TOEFL and 7.00 for the IELTS.

Applicants who have completed a bachelor's or advanced degree program within the last five years at a regionally accredited/recognized institution in the United States, Australia, Canada, New Zealand, Singapore or United Kingdom need not submit English language proficiency test scores.

Final admission requires submission of the official TOEFL/IELTS results. Applicants should, therefore, obtain the *TOEFL Bulletin of Information* early to check on the availability of the test and should take the test in time to meet graduate admissions application deadlines. TOEFL scores more than two years old are not acceptable and are not reported by the Educational Testing Service.

The TOEFL is administered at centers throughout the world. Students who wish to take the TOEFL outside the United States should obtain the *TOEFL Bulletin of Information for Candidates, International Edition*. This bulletin is generally available at U.S. embassies and consulates and at binational educational commissions and consulates abroad. Applicants may also order a bulletin directly from the representative who serves the area or country in which they plan to take the test.

International English Language Testing System (IELTS)

Applicants should contact the nearest British Council/Embassy/Consulate or IDP Education Australia Office in their country for the nearest testing center. It is advised that you also check the IELTS webpage for the most up-to-date information for testing centers. Web: www.ielts.org

Additional Requirements and Information

Reapplication

Newly accepted students who do not register in the program during the semester for which they are admitted or who withdraw from all courses within the designated withdrawal period (see the "Calendar" for designated withdrawal dates) are considered no-shows and their admission status is rendered invalid. If reapplying within a two-year period, the student must submit a renewal application plus copies of official transcripts for any additional course work completed since the last application; the deadline for renewal applications is the same as for all other applications. After two years, the student must follow the same procedure as first-time applicants. A new application fee is also required if more than one semester has passed since the last fee was remitted.

Change in Field of Study

Applicants for a change in field are considered in competition with all other applicants to the new field. East-West Center students must consult their program officer before initiating any changes in fields of study. The applicant must submit a Graduate Admissions application along with all documentation required by the new field (letters of recommendation, transcripts, test scores, etc.) to the Graduate Division Admissions Office within the standard admission deadlines for the field of study. [If a change is granted, it becomes effective in the following semester contingent upon receipt of the Statement of Intention to Register (SIR) form.]

Students who are admitted to a new field are considered to be withdrawing from their current field. A student may return to the current field only by petition to, and approval of, the graduate field and the Graduate Division.

Readmission

Classified graduate students who wish to reenroll after a lapse in enrollment of one or more semesters must apply for readmission. Such students must submit the following documents to the Graduate Division Records Office by the established deadlines:

1. Readmission petition;
2. Biographical information form;
3. Residence form;
4. Supplementary information form for non-U.S. citizens (if applicable);
5. Statement of intent to register;
6. Health form;
7. Transcripts reflecting any studies since last admission to the University of Hawai'i Graduate Division; and
8. Any other material requested by the field of study (e.g., current test scores).

Students who are readmitted will be subject to the degree requirements in effect at the time of readmission.

Document Retention

Applications and supporting documents in the following categories are retained by the Graduate Division for limited periods as indicated:

- Incomplete applications—one semester.
- Applications with no action taken by graduate field of study; denials (those denied admission); no-shows (those not enrolled in the semester of admission); transcripts and test scores (TOEFL scores, master file of GRE scores)—two years.
- Academic records of graduated students—five years.
- Academic records of inactive students—seven years.

Classification of Students

Only students who have been admitted to an advanced degree, certificate program, or special non-degree program by the Graduate Division are designated as classified (regular, conditional, or special non-degree) graduate students.

Regular Graduate Student

An applicant will be eligible for admission as a “regular” classified graduate student if he/she has the following:

1. A GPA of 3.0 or better in the last four semesters or approximately 60 semester credits (or the equivalent in quarter credits) of work as an undergraduate;
2. A master's degree with a GPA of 3.0 or better; or
3. A GPA of 3.0 or better in at least 12 credit hours of relevant upper division and/or graduate-level post-baccalaureate work.

Students who meet the minimum GPA requirements in category 1 above but whose GPA for 12 credit hours of upper

division and/or graduate-level post-baccalaureate work is below 3.0 are not generally admissible. International students with a GPA of less than a B average in their undergraduate work and/or less than a B average in 12 credit hours of post-baccalaureate work are generally not admissible.

Conditional Graduate Student

An applicant not meeting the regular graduate student requirements may be eligible for admission as a “conditional” graduate student if he/she has a GPA of 2.7 to 2.9 in the last four semesters or approximately 60 semester credits (or the equivalent in quarter credits) of work as an undergraduate. To change from conditional to regular status, the student must complete 12 credit hours with a B average in courses numbered 300 and above that are relevant to the degree. International students are generally not admitted as conditional graduate students.

Special Non-degree Graduate Students

Special non-degree graduate students are admitted by the Graduate Division as classified graduate students for a specified program of study, research, or training without degree objectives for a limited period of time (usually one year) under the sponsorship of an educational institution or government agency.

Post-Baccalaureate Unclassified Students

Post-baccalaureate unclassified (PBU) students have not been admitted to an advanced degree program and are therefore not part of the Graduate Division. Those who wish to take Mānoa campus courses as PBU students may apply for admission to the Office of Admissions and Records, University of Hawai'i at Mānoa, Queen Lili'uokalani Center for Student Services 001, 2600 Campus Road, Honolulu, HI 96822. An application and official verification of a bachelor's degree or advanced degree earned at an accredited college or university are required. PBU students who plan to apply for classified graduate status in the future should consult with the graduate chair of the field of study in which they are interested. PBU students are subject to graduate tuition rates.

Summer Session

Students are accepted into advanced degree programs by the Graduate Division only in the fall and spring semesters. Students who take course work at the graduate level in a summer session but who have not been admitted to an advanced degree program at the Mānoa campus register as post-baccalaureate unclassified students. However, appropriate credit hours earned from summer session courses while in unclassified status prior to admission to the Graduate Division are countable toward an advanced degree at the recommendation of the fields of study involved. See “Post-Baccalaureate Unclassified Students” above.

Application for admission to a summer session should be made to Outreach College, University of Hawai'i at Mānoa, Krauss 101, 2500 Dole Street, Honolulu, HI 96822. Admission to a summer session does not imply or guarantee eventual admission to the Graduate Division.

Registration

Regular Registration

Registration dates are given in the “Calendar.” The *Schedule of Classes*, which includes registration instructions and time and place of class meetings, is issued by the Office of Admissions and Records a few weeks before registration each semester. The *Schedule of Classes* contains complete information about registration.

Late Registration

Students may register for credit hours through the last day of registration. There is a fee for late registration.

The late registration period is also the final time for classified graduate students to register to audit graduate courses, in accordance with the procedures outlined under “Course Auditing.”

Student Identification Numbers

The University uses social security numbers as student identification numbers. For those without social security numbers the University issues student identification numbers. Students must use the number assigned to them while enrolled at the University. Students who are issued a social security number should report this to the Office of Admissions and Records. Graduate assistants must have a social security number for payroll purposes.

Certification of Degree

Students whose bachelor’s and/or master’s degrees were incomplete at the time they filed applications for admission must submit an official transcript certifying completion of their degree to the Graduate Division Admissions Office. This must be submitted within 60 days after the award of the degree. Registration will be denied for the following semester to those who fail to meet this requirement.

Course Auditing

Classified graduate students may audit courses with the consent of the instructor. An audit approval form, available in the field of study department office, must be completed and presented for registration. Audit courses are entered on student transcripts with a grade of L and are included in the tuition calculation. Audit courses may not be used for purposes of determining full-time or part-time enrollment status or graduate assistantship eligibility.

Course Changes

Refer to *Schedule of Classes* for complete information regarding procedures for course changes.

Withdrawal from Courses

Students wishing to withdraw from a course without penalty and without a designation of the course on their record must do so by the last day of the “drop period.” Students should refer to the deadlines in the *Schedule of Classes*. For any withdrawal after the sixth day of instruction, students must obtain the written approval of the instructor, adviser, and Graduate Division. After the ninth week, withdrawals are

permitted only for extenuating circumstances beyond the student’s control and only with the consent of the instructor, adviser, graduate chair, and Graduate Division. All withdrawals after the drop period will be indicated on the transcript with a W next to the course.

To withdraw from all courses prior to the beginning of classes, students should consult with the department and follow directions in the *Schedule of Classes* regarding use of PA‘E phone registration procedures.

Continuing students who withdraw from all courses after classes begin must obtain a Complete Withdrawal Form from the Graduate Division Records Office, obtain the necessary signatures as indicated on the form, and turn in the completed form to the Mānoa Cashier’s Office, Queen Lili‘uokalani Center for Student Services 105. A semester in which a cancellation or withdrawal is made is considered a semester of nonattendance. Thus, students must petition for readmission or file a renewal application, whichever is appropriate, to return to their studies in the same field. Petitions for readmission and renewal applications are considered along with all new applications for that semester. Students who are readmitted will be subject to the degree requirements in effect at the time of readmission.

Newly admitted students who cancel or withdraw from all courses before the drop period ends (see *Schedule of Classes* for the date) are considered “no shows” and their admission status becomes invalid. To return to the University within the next two years, they must reapply for admission by filing a Renewal Application form. Newly admitted students who withdraw after the drop period (see *Schedule of Classes* for the date) must complete a Petition for Readmission form if they wish to return the following semester. Petitions for readmission are considered along with all new applications for admission for that semester. Students who are readmitted will be subject to the degree requirements in effect at the time of readmission.

If students cease to attend classes without officially withdrawing, they will receive final grades at the instructors’ discretion. If the instructor does not award a grade, an F or NC will be assigned.

Refunds for withdrawals from courses are explained in the “Tuition, Fees, and Financial Aid” section of this *Catalog*. Students seeking tuition refunds for withdrawals from courses should go to the Cashier’s Office immediately after the withdrawal form has been completed and signed.

Denial of Registration

The Graduate Division will deny further registration to any student whose course work is below the required level or who is not making satisfactory academic progress.

Enrollment Requirements

Continuing Enrollment

After admission, students must be enrolled each semester (excluding summer session) for at least 1 credit hour of course work, thesis, dissertation, or research credit. Students who are not enrolled, nor on approved leaves of absence, will be regarded as withdrawn from their degree programs. They will

be required to apply for readmission in accordance with established regulations if they wish to resume their studies.

Leave of Absence

A leave of absence for a period of time no longer than one calendar year may be granted to currently enrolled students in good standing (minimum GPA of 3.0) after (1) completion of at least one semester of course work relevant to the degree as a classified graduate student and (2) upon recommendation of the chair of the graduate field of study and approval by Graduate Division. The date of return from a leave must be set at the time the leave is requested. Forms are available in the self-service rack outside Spalding 352 and on the web.

Students not returning from leave on time will be required to petition for readmission to the University in accordance with the established regulations. Students who are readmitted will be subject to the degree requirements in effect at the time of readmission.

Students on approved leave do not pay tuition or fees. No leave should be requested if the student will be using University facilities or faculty or staff services. Time on approved leave is not counted against the seven-year limit for completion of degree programs.

Students on probation are not granted an approved leave of absence.

Credit Hours

Course Loads

Sixteen credit hours in a semester and 8 credit hours in a six-week summer session are considered maximum course loads and may be exceeded only with the approval of the graduate chair and the Graduate Division. The minimum full-time load for graduate students is 8 credit hours of course work. Courses taken for audit do not count toward determining full- or part-time enrollment status.

Eligible doctoral candidates may be considered as carrying a full academic load (full-time status) when enrolled for 1 credit hour of Dissertation 800.

Eligible master's candidates may be considered as carrying a full academic load (full-time status) when enrolled for 1 credit hour of Thesis 700 after completing all required credits for the graduate degree including the program's minimum requirements for Thesis 700.

For graduate assistants, the full-time load is 6 credit hours of course work relevant to their degree. Audit hours do not count toward the minimum. Because their duties ordinarily require 20 hours per week, they are restricted to 9 credit hours. However, with special permission from the graduate chair and the Graduate Division, graduate assistants may register for 12 credit hours, including audits.

Variable Credit Courses

The number of credit hours obtainable in most courses is stated in this *Catalog* and in the *Schedule of Classes*. Certain courses, designated (V) in *Catalog* course listings, offer variable credit. Students in these courses usually pursue individual work. The number of credit hours a student will earn in such a

course must be approved by the instructor at the time of registration. Students must register for a definite number of credit hours and may earn no more or less than the stated number.

Graduate Credit for Seniors

Seniors at the University of Hawai'i may earn credit toward an advanced degree for some courses completed during their last semester as undergraduates provided (1) the courses taken are in excess of the requirement for the bachelor's degree and (2) such courses fulfill requirements in the prospective graduate field. A form, *Petition for Submission of Credit Toward an Advanced Degree for Courses Taken by an Undergraduate*, is available in the self-service rack outside Spalding 352 and on the web. It must be approved by the academic adviser, the college dean, and the chair of the department in which the course is offered, and it must be filed with the Graduate Division Records Office during the registration period. The granting of such permission does not guarantee that the credit hours taken will be accepted by a graduate field of study as fulfilling degree requirements. Courses taken under this rule are counted in the graduate GPA at the time of graduation. Failure to complete the baccalaureate degree as scheduled nullifies any approval granted by the Graduate Division.

Credit by Examination

Graduate students may obtain credit by examination in courses numbered 300–498 (excluding 399 and 499) with the approval of the chair of the graduate field of study, the instructor concerned, and the Graduate Division, subject to general University regulations and procedures. There is no limit on the number of examinations that a graduate student may take during any one semester. Credit may not be obtained by examination in courses numbered 600 or above.

Extension and Correspondence Course Credits

No graduate credit is allowed for extension and correspondence courses.

Undergraduate Deficiencies

Undergraduate deficiencies are courses required by a graduate program, prerequisites, or other requirements for admission that the student did not complete prior to admission. Courses in directed research/reading are not to be used to make up deficiencies.

Transfer of Credits

Credits from institutions other than University of Hawai'i at Mānoa or taken as a post-baccalaureate unclassified (PBU) at UHM can be considered for transfer upon submission of (1) a memo approved by the chair of the graduate field of study or (2) the *Petition to Transfer/Substitute Credits* form, which is available on the web..

Courses being considered from institutions other than UHM must be accompanied by an official transcript, transcript guide and course syllabus if substituting for a required course.

Doctoral students may not transfer credits.

Policy Governing Transfer of Credits from Other Institutions

1. The request for transfer of credit hours must be made during the *first* semester the student is enrolled in the program.
2. Only credit hours from an accredited university are transferable.
3. Upon recommendation of the graduate field of study and approval by the Graduate Division, no more than one-half of the total course credits less one required in a given field of study may be transferred. However, at least one-half of the required graduate credits (numbered 600 and above) must be completed at the University of Hawai'i while a classified graduate student.
4. With approval from the graduate field of study and the Graduate Division, up to 6 credit hours of work completed at another accredited institution following advancement to candidacy at the University of Hawai'i may be transferred, providing such transfer does not exceed the maximum allowable.
5. Credit hours used to obtain a previous degree will not be transferred.
6. No credit hours may be transferred from another institution unless the grade is B or better. Course grades of S, CR, and P are not transferable.
7. Credit hours to be transferred must have been completed within seven years preceding the date upon which the advanced degree is to be conferred by UH Mānoa.
8. Quarter credit hours are converted to semester hours by using this formula: 2/3 times number of quarter credit hours equals number of semester credit hours (rounding off to the lower whole number). Conversion is done by the Graduate Division and is calculated for the total credit hours requested for transfer rather than for individual course credit hours.
9. Credit hours earned in foreign institutions must be certified by the departments as to the equivalent level of the courses being transferred (i.e., whether 300–398, 400–498, or 600–798 level).
10. The minimum residence requirement of full-time study must be upheld regardless of the number of credit hours transferred to this University.
11. Transfer of courses to meet practicum, seminar, thesis, or dissertation requirements is not permitted.
12. Extension credits are not transferable.
13. Directed reading/directed research credits (x99) are not transferable.
14. Transfer credits are not included in GPA calculations except for the final calculations when the student graduates.

If the petition is approved, the units (or UH equivalent) will be counted as part of the student's degree program.

Double Counting

A student who pursues two distinct master's degrees at the University of Hawai'i at Mānoa, either simultaneously or consecutively, may apply to have up to 9 credit hours of

graduate course work accepted for credit in both degree programs under the following provisions:

1. The courses being double counted are electives in both programs;
2. Written approval of the graduate chairs of both programs (only approval by the second chair is required if the degrees are being pursued sequentially) and the Graduate Division is obtained; and
3. The course work for each degree is completed within the prescribed time limits.

Dual Degree

A student in a University-approved "dual degree" program who fails to meet the academic requirements specified for that program will be dismissed from the dual degree program and the Graduate Division.

Examinations

The schedule of final examinations is published in the *Schedule of Classes*. No examinations (other than laboratory tests and short quizzes) are allowed during the two weeks prior to the final examination period.

Grades

Grades given in all courses are A, B, C, D, F, CR, NC, NG, S, I, and L. A grade of A indicates excellent achievement, B above average, C average, D minimal passing, F failure, CR credit, NC no credit, NG no grade and work in progress, S satisfactory, and I incomplete. L is the designation given to audited courses. Only grades of A, B, and C may be used to fulfill requirements for advanced degrees. NG is given for noncompletion of requirements for 500 (master's Plan B study) and 700/800 (thesis/dissertation). Upon completion of the non-thesis program or acceptance of the thesis/dissertation, a grade of S is given.

The 500 course is offered as a 1-credit course, with credit awarded upon completion of the Plan B requirements. Credit for this course does not count toward meeting degree requirements or toward meeting full-time enrollment status. Students must be registered during the term in which the degree is to be awarded.

An I is given to students who fail to complete a small but important part of a semester's work before the semester grades are determined, if the instructor believes that the failure was caused by conditions beyond the student's control and not by carelessness and procrastination. Students are expected to complete all courses. Therefore, students receiving an I should contact the instructor to determine the steps to be taken to remove the I. The deadline for removing an I received in the fall semester is the following **April 1**; for removing an I received in the spring semester or the summer session, the deadline is the following **November 1**.

Instructors who record a grade of I for undergraduate courses (100–599) must also record the grade that will replace the I if the work is not made up by the deadline; that grade is computed on the basis of what grades or other evidence the instructors have, averaged together with Fs for all incomplete work (including the final examination, if it is not taken). This

alternate grade may be the appropriate letter grade, or if the course was taken under credit/no credit, CR or NC. (The designation W cannot be used as an alternate grade.)

Instructors who record a grade of I for graduate courses (600–798, excluding 700) do not record an alternate grade to replace the I. If the work is not completed by the deadline for the removal of the I, the instructor may (1) allow the incomplete to remain unaltered on the student's record; (2) submit a grade computed on the basis of the work completed by the deadline; or (3) at the request of the student, petition the Graduate Division for an extension from the end of the term in which the I was given. Such an extension may be permitted on a case-by-case basis and for a maximum of two semesters from the end of the term in which the grade was given. No change of grade will be made after this time. However, the student may reregister for that course in a subsequent semester.

If work for a course in which an I has been assigned is completed prior to the deadline, the instructor will report a change of grade, taking the completed work into consideration. A grade of F or NC, as appropriate, will be assigned in those cases where an instructor has not assigned a grade to a student who has never attended or has ceased to attend class without officially withdrawing.

Repeated Courses

In computing the GPA of students who retake a course in which they received a grade of C, D, or F, all grades in that course will be included.

Students switching from either Plan A or Plan B to Plan C must have a minimum GPA of 3.0 in all courses completed (300–398, 400–498, 600–798). Credit hours taken under the credit/no credit option (except 699) while under Plan C will not be counted toward degree requirements for either Plan A or B.

Credit/No Credit Option

The major purpose of the credit/no credit option is to encourage students to broaden their education by venturing into subject areas outside their fields of specialization without hazarding a relatively low grade. Under the option, students receive grades of CR (credit) or NC (no credit). These do not carry grade points and, therefore, are not computed in the student's GPA.

The option must be exercised at the time of registration and only under the following conditions:

1. Except as noted, courses taken under the CR/NC option may not be applied toward the requirements for the master's degree. Only 699 directed reading/research courses may be taken on CR/NC at the option of the graduate field of study and may be granted credit toward a master's degree within the limits already prescribed by the Graduate Division (see master's degree requirements, Plan A and Plan B).
2. A course for which a grade of NC is received may be retaken under the CR/NC option.
3. The CR designation in the non-letter grade system denotes C-caliber work or better.

4. The NC designation and the course in which it is received will appear in official records as part of the student's academic history.
5. The NC designation affects neither the credit hour total nor the grade point total of the student.

Requirements for Continued Registration

Satisfactory Progress

To remain eligible for further graduate work and to be awarded a graduate degree, students must maintain progress toward completion of their programs and must have a B average (3.0 GPA) for all courses completed at the University of Hawai'i toward the degree. Students must also have a B average for all courses taken as a classified graduate student and for all graduate courses numbered 600 and above.

The Graduate Division disregards grades or credit hours for courses numbered 100–198, 200–298, 399 and 499, except those required to fulfill undergraduate deficiencies.

Satisfactory academic progress in a program also involves maintaining the academic and professional standards expected in a particular discipline or program; failure to maintain these standards may result in termination of student's admission to the program.

Fulfillment of Credit Hour Requirements

Credit hour requirements for graduate degrees can only be fulfilled by grades of A, B, and C except for 699 courses taken under the CR/NC option. Grades of A, B, C, and CR can be used to make up undergraduate deficiencies. Grades of CR for 699 directed reading or research courses are counted in credit hour requirements within stated rules but are not computed for GPAs. Grades of NC are neither counted nor computed. Grades of D and F are not counted toward the completion of requirements for advanced degrees but are computed in the GPA, along with grades for all courses taken to satisfy undergraduate deficiencies and courses counted toward advanced degrees.

Probation and Dismissal

A regular student whose cumulative GPA fails to meet the minimum requirements after completing at least 12 credit hours or two semesters of course work will be placed on academic probation for the following semester. The student must be registered in the semester he or she is placed on probation.

A conditional student whose GPA since admission fails to meet the minimum requirements after completing one semester of course work will be placed on academic probation for the following semester. (ESL students are subject to dismissal.)

All grades for courses taken during the probationary semester, as well as the grades for all previously taken classified credits, will be included in calculating the GPA at the end of the probationary semester. No extensions of the probationary semester may be granted due to incompletes (I).

A student on academic probation who fails to attain the minimum standards at the end of the probationary semester will be denied further registration in that program.

For purposes of these rules, a “semester” is the calendar period, regardless of the number of credit hours taken.

Two summer sessions equal one semester, regardless of the number of credit hours taken.

For students pursuing approved concurrent graduate degree programs, the requirements stated above are applicable to both programs but will be applied toward each program independently.

Policy on Reinstatement after Dismissal

To be reinstated to the same program after academic dismissal the student must submit completed readmission forms to the Graduate Records Office and meet the standard admission criteria applicable to the field of study. The field of study must submit a petition to the Graduate Records Office on the student’s behalf, providing **strong** justification for the action. If reinstated, all courses applicable to the degree are subject to the seven year rule (i.e., must be completed within seven years of the date the degree is to be awarded) and the student will be subject to the degree requirements in effect at the time of reinstatement.

To be admitted to a new program after academic dismissal or voluntary withdrawal, the student must submit a new application to the Graduate Admissions Office and meet the standard admission criteria applicable to the field of study. Such students will be treated like new students.

Special Non-degree Students

Special non-degree graduate students are not subject to the B-average rule.

Diplomas

The Graduate Application for Degree form must be filed at the beginning of the semester (see the “Calendar” for dates and deadlines) in which the student expects to complete the degree requirements. Students can also obtain a Hawaiian language version of their degree. Application forms may be obtained at the Graduate Division Records Office, and the fee paid at the Cashier’s Office.

Degree Checks

A degree check will be made for all students who file a degree application form.

The Graduate Division will automatically delete from the graduation list the name of any student whose final grade report contains either a grade of I (incomplete) or a missing grade, or whose records have any other discrepancies.

Conferring of Degrees

Degrees are conferred and diplomas awarded three times annually, in December, May, and August. Students completing their degree requirements may, upon request, receive certification from the Graduate Division that the degree will be conferred at the end of the appropriate semester. Diplomas are issued by the Office of Admissions and Records. Inquiries regarding diplomas should be addressed to Admissions and Records, Queen Lili’uokalani Center for Student Services,

Room 001, 2600 Campus Road, Honolulu, HI 96822 (tel. 808-956-8975), and not to the Graduate Division.

Transcripts

Transcripts may be obtained from the Office of Admissions and Records.

Certificate Programs

The University offers a number of graduate-level programs that culminate in the awarding of a certificate. These programs are available to classified graduate students who are enrolled in one of the master’s or doctoral degree programs described in this *Catalog*. In a few areas, applications may be considered from non-degree-seeking students. Detailed information may be obtained by writing to the appropriate graduate chairs.

Certificate programs are offered in the following fields:

- Advanced library and information science
- Advanced women’s studies
- Chinese studies
- Clinical psychology
- Construction engineering and management
- Gerontology
- Historic preservation
- International cultural studies
- Japanese studies
- Korean studies
- Maritime archaeology and history
- Nursing
- Ocean policy
- Pacific Islands studies
- Philippine studies
- Planning studies
- Population studies
- Public administration
- Public health
- Religion
- Renewable energy engineering
- Resource management
- Second language studies
- South Asian studies
- Southeast Asian studies
- Telecommunication and information resource management
- Urban and regional planning

Master’s Degree Programs

The University of Hawai’i at Mānoa confers the degrees of master of accounting, master of architecture, master of arts, master of business administration, master of education, master of education in teaching, master of fine arts, master of human resource management, master of library and information science, master of music, master of public administration, master of public health, master of science, master of social work, and master of urban and regional planning.

Faculty or staff members at rank 3 and above may not be awarded a master’s degree by the University of Hawai’i in the graduate field of study administered by the department in which they are employed.

The master of accounting degree is offered through the College of Business Administration for students who are contemplating careers in professional accountancy.

The master of arts degree is offered through the Colleges of Arts and Sciences and the School of Hawaiian, Asian, and Pacific Studies for advanced course work including research in the following disciplines[‡]:

- American studies
- Anthropology
- Art
- Asian studies
- Communication
- Dance
- East Asian languages and literatures
- Economics
- English
- English as a second language
- Geography
- History
- Languages and literatures of Europe and the Americas
- Linguistics
- Mathematics
- Music
- Pacific Islands studies
- Philosophy
- Political science
- Psychology
- Religion
- Sociology
- Speech
- Theatre

The master of business administration degree is offered through the College of Business Administration and provides opportunities for the development of administrative skills in business. The master of human resource management also offered through the College of Business Administration provides advanced training for individuals seeking to upgrade their professional skills.

The master of education degree is offered through the College of Education for advanced course work including research in the following disciplines:

- Counseling and guidance
- Educational administration
- Educational foundations
- Educational psychology
- Educational technology
- Elementary education
- Secondary education
- Special education

The master of education in teaching degree is offered through the College of Education.

The master of fine arts degree is offered through the Department of Theatre and Dance and the Department of Art for creative production rather than research in art, dance, or theater.

The master of library and information science degree is offered through the Department of Information and Computer Sciences as preparation for careers in information services in public, college, school, and technical libraries. Graduates are also prepared for careers in other types of information environments.

The master of music degree is offered through the Department of Music for composition and performance in music.

The master of public administration degree is offered through the Public Administration Program.

The master of public health degree is offered through the Public Health program to provide individuals with a broad background for professional practice in the field of public health at local, state, national, and international levels.

The master of science degree is offered through the Public Health program, the Colleges of Arts and Sciences, Education, Engineering, and Tropical Agriculture and Human Resources and the Schools of Ocean and Earth Science and Technology, Medicine, Nursing and Dental Hygiene, and Travel Industry Management for advanced course work including research in the following disciplines:

- Animal sciences
- Astronomy
- Biomedical sciences
- Bioengineering
- Botany
- Chemistry
- Civil engineering
- Electrical engineering
- Entomology
- Food science
- Geology and geophysics
- Information and computer sciences
- Kinesiology and leisure science
- Mechanical engineering
- Meteorology
- Microbiology
- Molecular Biosciences and Bioengineering
- Natural Resources and Environmental Management
- Nursing
- Nutritional sciences
- Ocean and resources engineering
- Oceanography
- Physics
- Plant Pathology
- Public health
- Speech pathology and audiology
- Travel industry management
- Tropical Plant and Soil Sciences
- Zoology

The master of social work degree is offered through the School of Social Work. The program prepares graduates for counseling individuals, families, and groups; for social policy formulation and community organization; and for research and administration in the human services.

[‡] The MA in Hawaiian languages and literature is offered through the University of Hawai'i at Hilo.

The master of urban and regional planning degree is offered through the Department of Urban and Regional Planning.

Requirements and Procedures for Master's Degrees

The rules and requirements listed below are those of the Graduate Division and must be observed by all students pursuing a master's degree. Note that some fields of study have special requirements.

Residence

The minimum residence requirement is two semesters of full-time work or four six-week summer sessions or the equivalent in credit hours applicable to the student's degree program.

Language Requirements

At the option of the graduate field of study, the intended candidate for the master's degree may be required to demonstrate comprehension of one or more foreign languages. For specific language requirements in particular fields of study see the appropriate field of study listed in this *Catalog*. English is not considered a foreign language in this context. These requirements must be passed before they can be advanced to candidacy.

Students should consult the Graduate Division Records Office and their department for test dates and registration deadlines.

Time Allowed

Candidates for the master's degree will be expected to complete all requirements within seven years after admission into the master's program. Candidates who fail to complete all requirements within the specified time are automatically dropped from the program. Reinstatement for a limited period of time is possible only upon submission of a petition by the graduate chair providing a detailed degree plan and new limited time line to completion of all degree requirements.

Student Progress Forms

The Graduate Division utilizes progress forms to track each student's progress toward the degree. These forms are used for master's Plan A and doctoral students only. Progress of master's Plan B and Plan C students may be reported on departmental forms. Progress forms can be obtained from the Internet.

Plan A (Thesis)

Unless otherwise stated, Plan A is available in all fields of study.

Credit Hour Requirements

A minimum of 30 credit hours is required including 18 credit hours of approved course work, excluding 699s and Thesis 700, at least 12 of which must be in courses numbered 600–798; at least one graduate seminar in the major or related field; and at least 6 credit hours of Thesis 700. The thesis research credit requirements are set uniformly for each graduate field of study by the faculty in that field.

Candidates must be registered in the thesis research course (700) each semester during which the thesis is being written.

Candidates who accumulate the maximum number of thesis research credit hours but fail to complete the thesis must register for a minimum of 1 credit hour of thesis research at the beginning of the term in which all requirements for the degree will be completed.

Thesis Requirement

When a thesis proposal has been approved by the student's committee, the chair of the graduate field of study sends to the Graduate Division a Student Progress Form II (approval of thesis topic). The student may then enroll in the thesis research course (700) at the beginning of the next term. Students must register for Thesis 700 during the announced registration period. Failure to make satisfactory progress on a thesis does not entitle a student to a refund of tuition.

Upon request by the thesis committee, relevant work done by the student in directed reading/research (course 699) may be utilized as part of the thesis research. In such instances the total credit hours for such directed reading/research (course 699) and thesis research (700) to be applied toward the minimum requirement for the degree shall not exceed the maximum total credit hours specified for thesis research in the field of study.

The thesis committee is made up of three members of the graduate faculty.

The chair of the thesis committee is primarily responsible for directing and guiding the candidate's research and writing activities. It is the student's responsibility to keep all members of the committee informed of the scope, plan, and progress of both the research and the thesis. Guidelines for thesis preparation are available at the Graduate Division web site.

Copies of the completed thesis must be submitted to committee members at least two weeks prior to the date of the final examination. One unbound clean copy (two if publishing with ProQuest Information and Learning) of the completed thesis signed by all the members of the committee must be deposited with the Graduate Division by the specified deadline (see the "Calendar"). Additional bound copies may be required by individual fields of study.

General Examination

At the option of the faculty of the field of study, a general examination may be required before a student is advanced to candidacy for a master's degree. All students within a particular field of study must take the examination if it is required. The examination is usually given during the first semester of residence. It is designed to reveal the quality of the student's preparation for advanced work in the field and the ability of the student to pursue graduate work at the master's level. The examination also enables the student's committee or adviser to assist in planning a program that will overcome any deficiencies in the student's background.

A student who passes the examination may be recommended for advancement to candidacy for the master's degree. A student who fails the general examination may repeat it once upon approval by the graduate field. However, students failing the general examination a second time are dropped from the program.

In fields of study not requiring a general examination, the student may be advanced to candidacy upon the recommendation of the adviser and/or the graduate faculty of the field of study concerned. It is assumed that in these cases the recommendation for advancement to candidacy will be based on some evaluation of the student's potential performance other than a general examination. Students who are denied advancement to candidacy are dropped from the program and lose their status as classified graduate students.

Final Examination

A final oral examination covering the thesis and related areas may be required by individual graduate fields of study. All students within a particular field of study must take the examination if it is required at all. It should be held prior to the specified deadline before the end of the term during which the degree is conferred. It is conducted by the thesis committee and is open to all graduate faculty members. As an alternative, the committee chair may have the candidate present results of the thesis at a departmental graduate seminar, but all members of the thesis committee must be present.

Students failing the final examination may repeat it only once upon petition approved by the graduate field and the Graduate Division. Students who fail the final examination a second time are dropped from the program and lose their status as classified graduate students. If the field of study does not require a final examination, the chair of the graduate faculty concerned reports the completion of all degree requirements on Student Progress Form III.

Plan B (Non-thesis)

Unless otherwise specified, Plan B is available in all fields of study.

Credit Hour Requirements

A minimum of 30 credit hours is required. A minimum of 18 credit hours must be earned in courses numbered 600–798 (excluding Thesis 700) including at least one graduate seminar in the major field or in a related field. Not more than 9 credit hours in directed reading/research (course 699) may be applied to meet degree requirements.

When the student is advanced to candidacy, the chair of the field of study appoints a program adviser or a program committee made up of three members of the graduate faculty. The program adviser/committee advises the candidate and approves a coherent program of courses for the candidate.

Candidates must be enrolled during the term in which they complete the requirements for the degree; regular course work or the appropriate Master's Plan B Studies 500 may be used to meet this requirement. The 500 course is offered as a 1-credit course with a mandatory grading of S/NG but does not carry credit toward meeting degree requirements.

General Examination

At the option of the faculty of the field of study, a general examination may be required before a student is advanced to candidacy for a master's degree. All students within a particular field of study must take the examination if it is required at all.

The examination is usually given during the first semester of residence. It is designed to reveal the quality of the student's preparation for advanced work in the field and the ability of the student to pursue graduate work at the master's level. The examination also enables the student's committee or adviser to assist in planning a program that will overcome any deficiencies in the student's background.

A student who passes the examination may be recommended for advancement to candidacy for the master's degree. A student who fails the general examination may repeat it once upon approval by the graduate field. However, students failing the general examination a second time are dropped from the program.

In fields of study not requiring a general examination, the student may be advanced to candidacy upon the recommendation of the adviser and/or the graduate faculty of the field of study concerned. It is assumed that in these cases the recommendation for advancement to candidacy will be based on some evaluation of the student's potential performance other than performance in the general examination. Students who are denied advancement to candidacy are dropped from the program and lose their status as classified graduate students.

Final Examination

At the option of the faculty of the field of study, a final examination may be required of Plan B candidates for the master's degree. If required, it is designed to determine the candidate's achievement in the field of study at the master's level. This examination has several possible forms. It may be a seminar appearance, a written comprehensive examination, an oral examination, some equivalent, or a combination of these. If a final examination is required by the field of study, it must be given prior to the established deadline before the end of the term during which the degree is conferred.

Students failing the final examination may be permitted to repeat it only once upon approval by the graduate field and the Graduate Division. Students failing the examination a second time are dropped from the program and lose their status as classified graduate students.

Plan C (Examinations)

Neither a thesis nor a certain number of credit hours is required by this plan. The student must demonstrate competence by examination and must meet the minimum residence requirement of two semesters of full-time study.

A preliminary conference will be held to discuss the student's objectives and how to meet them and to determine the general program the student will follow to prepare for the required examinations. The conference will be conducted by the chair of the graduate field of study or by a designated member of the graduate faculty. The plan of study developed at this conference may include course work and/or independent study and research. Plan C is available in agronomy and soil science, English as a second language, linguistics, mathematics, and physics. Each field of study specifies its own requirements in addition to the following:

Candidates must be enrolled during the term in which they complete the requirements for the degree; regular course work

or the appropriate Master's Plan C Studies 500 may be used to meet this requirement. The 500 course is offered with a mandatory grading of S/NG but does not carry credit toward meeting degree requirements.

General Examination

A general exploratory examination (oral and/or written) will be given to determine if the intended candidate should be admitted to candidacy for the master's degree under Plan C and to ascertain weaknesses in the student's academic preparation. This examination is designed to reveal the quality of the student's preparation for advanced work in the field and the ability of the student to pursue graduate work at the master's level. The examination will be conducted by the student's interim adviser and the graduate faculty of the field of study or a committee thereof consisting of at least three members of the faculty. It is given during the first semester of residence and is from one to two hours in length. A student who fails the general examination may repeat it upon recommendation from the field of study and approval by the dean of the Graduate Division. A student who fails the general examination a second time is dropped from the program and loses classified graduate student status.

Final Examination

A final examination or series of examinations, written and oral, will be given to determine the candidate's comprehension of the field of study at the master's level. Since there are no course requirements for this plan, the final examinations will be designed to give the student opportunity to demonstrate a level of achievement consonant with the level of achievement required by Plans A and B. It is assumed that many students will prepare themselves for the examinations by taking courses recommended by advisers.

Specifications for the number of written examinations required, what they cover, and the amount of time required for each (two or more hours for written examinations and one or more for the oral portion) are set forth in the statement of requirements in each field of study. The written examinations may be given by the candidate's committee or by an examination committee of graduate faculty members constituted for that purpose.

The oral portion of the final examination follows the written portions and must be held prior to the specified deadline before the end of the term during which the degree is conferred. It is conducted by the candidate's committee and is open to all members of the faculty. The examination must be announced in the weekly *Kū Lama*. It may be scheduled on any working day during normal working hours. Arrangements for the final examination must be made at least three weeks prior to the date of examination for fall and spring semesters, and four weeks prior to the date of the examination for the summer.

Candidates failing the final examination may be allowed to repeat it upon approval by the graduate faculty concerned and the Graduate Division. Students failing the final examination a second time are dropped from the program and lose their status as classified graduate students.

Doctoral Degree Programs

The University of Hawai'i at Mānoa confers the degrees of doctor of philosophy.

Faculty or staff members at rank 3 and above may not be awarded a doctoral degree by the University of Hawai'i in the graduate field of study administered by the department in which they are employed.

Doctor of Philosophy

The doctor of philosophy (PhD) degree is awarded only for the most distinguished scholarly achievement. The quality of a candidate's work is judged by a variety of means, culminating in a set of comprehensive and final examinations and a dissertation. The dissertation describes completed research and must be a significant original contribution to knowledge in the candidate's chosen field. The additional, special requirements in any given field of study prepare the candidate for the examinations and successful completion of the dissertation.

Candidates are accepted only in fields of study in which the teaching staff, library, laboratory equipment, and cooperative relationships with other research institutions make it possible to offer training.

The doctor of philosophy is offered in the following areas:

- American studies
- Anthropology
- Astronomy
- Biomedical sciences
- Botany
- Chemistry
- Civil engineering
- Communication and information sciences
- Computer science
- East Asian languages and literatures
- Economics
- Education
- Educational psychology
- Electrical engineering
- English
- Entomology
- Geography
- Geology and geophysics
- History
- Horticulture
- International management
- Linguistics
- Mathematics
- Mechanical engineering
- Meteorology
- Microbiology
- Molecular Biosciences and Bioengineering
- Music
- Natural Resources and Environmental Management
- Nursing
- Ocean and resources engineering
- Oceanography
- Philosophy

(list continued on next page.)

- Physics
- Plant Pathology
- Political science
- Psychology
- Second language acquisition
- Social welfare
- Sociology
- Theatre
- Tropical Plant and Soil Sciences
- Zoology

Requirements and Procedures for Doctoral Degrees

The rules and requirements listed below are those of the Graduate Division and must be observed by all doctoral students. Note that some fields of study have special requirements.

Residence

The minimum residence requirement for the doctoral degree is three semesters of full-time work or the equivalent in credit hours at the University of Hawai'i at Mānoa.

Time Allowed

Candidates for doctoral degrees will be expected to complete all requirements within seven years after admission into the doctoral program. Candidates who fail to complete all requirements in the specified time are automatically dropped from the program. Reinstatement for a limited period of time is possible only upon submission of a petition by the graduate chair providing a detailed degree plan and new limited time line to completion of all degree requirements.

Credit Hour Requirements

There is no minimum number of required course credit hours set for doctoral degrees. Registration in courses by doctoral students is governed by (1) the judgment of advisers or faculty in charge of the relevant program of study as to the importance of particular course work to the training and preparation of the candidate for the writing of examinations and/or the dissertation, (2) residence requirements, and/or (3) provisions of graduate assistantships, fellowships, or scholarships. For information regarding required or recommended courses, see the section appropriate to the field of study.

Language Requirements

At the option of the graduate field of study, intended candidates for the doctoral degree may be required to take a written examination to demonstrate comprehension of one or more foreign languages. To pass the examination they must be able to read research materials in their field of study at a reasonable speed. English is not considered a foreign language in this context.

No limit has been placed on the number of times students may take the examination. However, it must be passed before students can be advanced to candidacy and take the comprehensive examination.

Doctoral Committee

The doctoral committee may be selected at any time after a student becomes an intended candidate. The chair of the graduate faculty of the field of study recommends to the Graduate Division appointment of a doctoral committee consisting of at least five members of the graduate faculty. The committee must include one graduate faculty member from another field of study. This outside faculty member must be a full member of the regular graduate faculty. The majority of the committee and the committee chair must be from the graduate field in which the degree program is offered. This committee, appointed by the Graduate Division, prescribes for the candidate a course of study in preparation for the comprehensive and oral examinations described below. It also approves the dissertation research topic and the dissertation itself.

It is the student's responsibility to select an appropriate dissertation topic coinciding with the expertise and interest of a graduate faculty member who is willing to work with him/her.

Examinations

Doctoral candidates must pass the following examinations:

Qualifying Examination

A qualifying examination may be required by some fields of study. The purpose of this examination is to determine whether to encourage students to proceed in a doctoral program and, if encouraged, to enable advisers to assist students in planning a program that will familiarize them with the requisite knowledge and techniques of their chosen field of study. Fields of study requiring this examination give it early in the intended candidate's program (often coinciding with the master's final examination). It may be oral and/or written and is conducted by a special examination committee appointed by the graduate chair of the field of study or by the student's doctoral committee. A student who fails the qualifying examination may repeat it once at the discretion of the graduate faculty concerned. However, students failing the qualifying examination a second time are dropped from the program and lose their status as classified graduate students.

Comprehensive Examination

The comprehensive examination is an important step in the sequence of study toward the doctoral degree. This examination covers the major field of study and work fundamental thereto and minor fields as may be required by the field of study. Its purpose is to ascertain the student's comprehension of the chosen field(s) of study.

The examination is given only after the student has completed the foreign language requirement, if any, and when, in the judgment of the graduate faculty, the student has had sufficient preparation in the field of study either through course work or other individual study and research. The comprehensive examination may be either oral or oral and written. It is conducted by a committee of the graduate faculty.

A student who fails the comprehensive examination may repeat it once at the discretion of the graduate faculty concerned. A student who fails the examination a second time is dropped from the program and loses classified graduate student status.

The student who passes the examination is eligible, at the option of the various fields of study, to receive a University certificate indicating that all requirements of the doctorate except for the dissertation have been completed.

Final Examination

A final examination in defense of the dissertation may also cover related subjects and is required of all candidates for the doctoral degree. The examination is oral and is conducted by the candidate's doctoral committee. It is never less than one hour in length. Arrangements for the final examination must be made at least one month prior to the date of examination, since an announcement must appear in the *Kū Lama*. The examination must be held while the University is in session and must be open to the public.

A candidate who fails the final examination may be allowed to repeat it upon approval by the graduate faculty concerned and the Graduate Division. A candidate who fails the final oral examination twice is dropped from the program and loses classified graduate student status.

A candidate who passes the examination, and who has met all other requirements, will be awarded the doctoral degree at the end of the appropriate term.

Dissertation

The doctoral dissertation for the PhD is expected to be a scholarly presentation of an original contribution to knowledge resulting from independent research.

An essential aspect of dissertation research is the free and full dissemination of research results. Moreover, all dissertations must be publicly defended in an oral examination. Therefore, proprietary or classified information is not suitable for a dissertation; data which cannot be made public at the time of the final defense should not be incorporated into the student's research.

When the dissertation topic has been approved by the doctoral committee, it will notify the Graduate Division through submission of Student Progress Form II. The candidate may then register for the dissertation research course (800) during the next registration period.

A candidate should look to the chair of his or her doctoral committee for primary direction regarding research methods and the preparation of results. It is the joint responsibility of the chair and the student to see that all members of the committee are kept informed of the scope, plan, and progress of both the research and the dissertation. Guidelines for preparation of the dissertation can be obtained at the Graduate Division Web site.

Copies of the completed dissertation must be submitted to committee members at least four weeks prior to the date of the final oral examination. Two unbound, clean copies must be deposited with the Graduate Division by the deadline specified in the "Calendar." Original signatures are required on the signature page.

A majority of the members of the doctoral committee, including the committee chair, must approve both the dissertation and the oral defense of the dissertation. A minority member has the right of appeal to the Graduate Division for a final decision. The chair must ensure that the final form of the dissertation, including revisions and amendments agreed upon, is acceptable to a majority of the committee. The committee members express their approval on the signature page of the dissertation and on Student Progress Form III.

Candidates must be registered in the appropriate dissertation research course (800) during the term in which the work for the degree is completed. Failure to make satisfactory progress on the dissertation does not entitle a student to a refund of tuition.

The graduate chair of a field of study has the privilege of being an ex officio member of all doctoral committees in the field.

All doctoral students are required to publish their dissertation (in its entirety) with ProQuest Information and Learning or an equivalent publishing firm suggested by the student and approved by the Graduate Division.

Student Life



Services and programs are provided on the campus to help students make the transition to the University, to secure basic financial assistance and housing, to obtain the personal assistance needed to achieve academic goals, and to plan for productive careers.

Co-curricular programs offer students opportunities for leadership development and cultural, social, and recreational experiences. These programs provide excellent opportunities to gain leadership skills, to serve the community, and to obtain insights into community organization and development. Students are urged to participate in campus programs as involvement enhances the learning experience and leads to a more enjoyable and successful student life on campus.

Dean of Student Services

Queen Lili'uokalani Center for Student Services 409
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-3290 (V/T)
Fax: (808) 956-9682

The Office of the Dean of Student Services coordinates educational services and programs within the Office of Student Affairs and acts as a resource on the development of University policies related to student affairs. The Office of the Dean Student Services also advises and assists students regarding discrimination, academic disputes and grievances, conduct code issues, and other related matters.

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Housing

Student Housing Services
Johnson A Basement
2555 Dole Street
Honolulu, HI 96822-2381

On-Campus:

Tel: (808) 956-8177
Fax: (808) 956-5995
E-mail: uhmsh@hawaii.edu
Web: www.housing.hawaii.edu

The University has approximately 3,100 bed spaces available on campus. The facilities range from traditional residence halls (coed, all male, and all female in double room occupancy or suite arrangements) to apartments (one-bedroom and two-bedroom). A limited number of disabled access and single occupancy units are available. Married students and their immediate families are incorporated into the general resident population.

Residential life offers a wide variety of programs to the residents. Groups and individuals are encouraged to participate in organized programs with opportunities for social, emotional, physical, intellectual, spiritual, and occupational involvement. Service learning and community service projects are also offered as part of the residential life program.

Residents living in the traditional residence halls are required to select and purchase a dining plan from the variety of dining plans offered. A dining plan is optional for apartment residents. Residents on dining plans dine at Hale Aloha Cafeteria. Contact Sodexo Services for more detailed dining plan information.

First priority is given to full time traditional freshmen that apply by the deadline. Subsequent priority is given to full time non-freshmen with a home address beyond a reasonable commute distance from campus and who apply by the deadline. All others are then placed on a first-come, first served basis. Acceptance to the University does not automatically include on-campus housing. Students should apply for on-campus housing by filling out a separate housing application. Please contact Student Housing Services for an application and specific application deadlines.

Off-Campus Housing Referral Program:

Phone: (808) 956-7356
Fax: (808) 956-5995
E-mail: och@hawaii.edu
Website: <http://www.housing.hawaii.edu/och>

This program is also maintained by Student Housing Services. The Off-Campus website provides online referrals to off-campus listings for all University students, faculty and staff. An UH ID is needed to enter the online program. You may call the Off-Campus program for a temporary guest account and password.

Parking and Traffic

Parking Operations
1980 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8899
Fax: (808) 956-9811

Parking Operations business hours are Monday through Friday, 8 a.m. to 4 p.m. The office is closed on Saturdays, Sundays, and holidays. Visitors and students may pay a daily fee to park, on a space-available basis, in designated visitor and student parking areas. All other parking areas on campus require a valid permit.

Motorcycles and mopeds must have a paid permit to park in designated parking areas located on the designated peripheral part of campus. Visitors may pay the daily fee to park in designated visitor motorcycle and moped parking areas. Bicycles are allowed to park only at bike racks.

Because the number of student parking permits is limited, students should check in advance with Parking Operations on the procedure for obtaining the permits. Car-pool, day, evening, motorcycle, moped, and medical permits are offered on an availability basis to qualified students and faculty and staff members. Specific documents are required to obtain each type of permit.

Student parking is also available in the Institute for Astronomy parking area (permit parking) and the Center for Hawaiian Studies gravel parking area (\$2 daily parking). A shuttle bus provides service from these parking areas to the main campus.

Because parking on or near campus is limited, students are encouraged to seek alternative means of transportation to campus. The Mānoa campus is also served by the city bus system (local route numbers 4, 6, and 18, plus express routes). For information, call (808) 848-5555. Monthly bus passes are available at the Campus Center Information Desk, Campus Center 212. A free shuttle service is provided as a convenient means of transportation within the campus.

Parking regulations on campus are enforced 24 hours daily throughout the year. Vehicles in violation are subject to citation and/or towing.

Security

Campus Security
1980 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8211
For emergencies: (808) 956-6911 (V/T)
Fax: (808) 956-8495 (V/T)
E-mail: ddawson@hawaii.edu
Web: www.hawaii.edu/security

Campus Security provides protection and security for the campus community and the physical plant at the Mānoa campus 24 hours a day throughout the year.

The Campus Security patrol is responsible for enforcing federal, state, and county laws and University rules and

regulations. Its duties include detecting fires, detaining trespassers, preventing theft and vandalism, and investigating reports of suspicious persons and incidents. Upon a reasonable request officers will provide an escort service from dusk to dawn for students and staff members. Sixty-eight red emergency call boxes, with blue lights for easy nighttime identification, are located throughout the campus to provide instant communication with the Campus Security office.

The University of Hawai'i at Mānoa Campus Security complies with the 1999 Clery Act. For information concerning Campus Security policies and crime statistics please check www2.hawaii.edu/security.

Bookstore

2465 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8252
Fax: (808) 956-4323
Web: www.bookstore.hawaii.edu

The University of Hawai'i Bookstore is an institutionally owned bookstore, offering a wide selection of academic books and general merchandise. Located in the Campus Center building, it is open Monday through Friday, 8:15 a.m. to 4:45 p.m., and Saturday, 8:15 a.m. to 11:45 a.m. Extended hours available the first week of instruction.

The textbook department provides the academic community with books that are requested by the faculty for course instruction. To meet the needs of the student body, the textbook department conducts book buybacks six times a year.

The tradebook department stocks a variety of books and magazines for general reading. Some of the subject categories include books for reference, Asia Pacific region, study aids, computers, and best-sellers. The department will obtain any book currently in print through its special order service. Special promotions and discounts are offered throughout the year.

The computer department carries hardware, peripherals, and a wide selection of software from major vendors for sale to eligible students and faculty and staff members at educational discount pricing. A valid University ID or a current UH registration form must be shown for purchase. The department stocks hardware from Apple, Toshiba, IBM, and Hewlett-Packard as well as from other companies offering educational pricing. The bookstore is an Apple Authorized Service Provider offering a full range of services to the community, including warranty and post-warranty repairs on all Apple products. Bookstore technicians also perform memory upgrades and offer extended warranty contracts.

The general merchandise department sells general school and office supplies, art, gifts, greeting cards, and emblematic clothing. Additional services include catalog mail ordering and film processing.

The Medical Bookstore is located in the Biomedical Science Building. This department provides for the timely purchase of text materials, reference materials, and medical supplies for the unique problem-based learning curriculum of medical school students. Special order service is also available for members of the medical community.

The bookstore's web site contains course materials (including University of Hawai'i at Hilo and the Community Colleges), general merchandise, UH insignia clothing and souvenir items, and Hawaiiana books. Make your online purchases at www.bookstore.hawaii.edu.

Libraries

Hamilton Library

2550 McCarthy Mall
Honolulu, HI 96822
Tel: (808) 956-7203

Sinclair Library

2425 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8308

Wong Audiovisual Center

(located in Sinclair Library)
Tel: (808) 956-8308

Computerized Learning and Information Center

(located in Sinclair Library)
Tel: (808) 956-8702

The University of Hawai'i at Mānoa Library (housed in Hamilton and Sinclair Libraries) provides the largest collection of information and research materials in the state. More than 3 million volumes, including more than 27,000 currently received serial and periodical titles, make this the 64th largest library in the United States. Its online catalog provides access to other local and national indexes, specialized databases, internet resources, and library catalogs throughout the nation.

Hamilton Library contains the main book, periodical, and microform collections. Separate components include Asia Collections; Special Collections (Hawaiian, Pacific, Rare Books, and Charlot Collections); Government Documents, Maps, and Microforms; Central Information Services/Business; Humanities and Social Sciences, and Science and Technology (including medicine). Librarians provide reference services, computerized information retrieval, research-paper consultation, and instruction in library use. The Interlibrary Loan service helps faculty and students obtain research material from off-campus sources. Graduate students may reserve lockers and private study carrels in Hamilton on a space-available basis.

Sinclair Library houses the Reserve Book Room, the Wong Audiovisual Center, the Computerized Learning and Information Center, and the Music Collection. Older bound periodicals are also housed in Sinclair.

The Wong Audiovisual Center in Sinclair Library offers a variety of media, services, and facilities that include a large collection of video and sound recordings, materials that may be purchased or reserved for classroom showings, a viewing room equipped with a large screen and seating for 40, and a reserve system for center and faculty software.

Health Services

University Health Services Mānoa
 1710 East-West Road
 Honolulu, HI 96822
 Tel: (808) 956-8965 Reception Desk
 (808) 956-6221 Specialty Clinics
 (808) 956-3574 Health Resource Center
 (808) 956-3453 Alcohol and Drug Education Program
 (808) 956-8892 Physical Therapy
 Fax: (808) 956-3583
 Web: www.hawaii.edu/shs/

University Health Services Mānoa (UHSM) offers medical services and health education/promotion programs for students, faculty, and staff, Monday through Friday, 8 a.m. to 4:30 p.m. Overnight and weekend services are not provided. For clinic hours, appointments, or information, please call UHSM.

Medical Clearance

Before enrolling at the University all new students must do the following:

1. Complete and return the Confidential Health Form;
2. Provide evidence of a tuberculin skin test and/or chest X-ray performed within one year of University enrollment, indicating the individual is free from active tuberculosis infection, and
3. Provide a completed immunization record, which includes proof of disease history or protection by two immunizations against measles.

Health Insurance

All students are strongly urged to purchase medical insurance. Nonimmigrant international students are required to have insurance coverage. The University sponsors student health insurance plans with enrollment periods at the beginning of each semester. Contact UHSM for information on these plans.

Clinical Services

General Medical Clinic

Physicians and nurses provide primary medical care for illness and injury. Services also include immunizations, travel counseling, allergy shots, and physical examinations. A clinical laboratory provides testing, and the pharmacy stocks prescription and over-the-counter medications. UHSM assists the student in obtaining specialized medical services in the community.

Specialty Clinics

Specialty clinics include sports medicine, orthopedics, dermatology, and psychiatric services.

- Nutritional counseling is provided for medical conditions and weight, sports, and fitness concerns.

- The Physical Therapy Clinic, located next to Duke Kahanamoku Pool, is jointly sponsored by UHSM and the Department of Kinesiology and Leisure Science.
- The Women's Health Clinic offers examinations, pap tests, contraceptives, tests and treatment for sexually transmitted disease, pregnancy tests, and education and counseling.
- Free, anonymous HIV testing is available by appointment.

Fees

Services, supplies, and medications are provided at low cost to clients with and without insurance. UHSM will submit claims for visits and procedures to the endorsed student insurance plans and other non-HMO companies.

Health Education/Promotion

Health Resource Center

The Resource Center provides a wide range of health education materials for personal use and class presentations and papers. Resource center personnel are available to assist students, faculty, and staff.

Peer Education Program

Based at the Health Resource Center, Student Educators Against AIDS (SEAA) is a peer education program through which staff and trained student educators provide presentations for classes and other campus groups. Topics include HIV/STD prevention, sexual decision-making, body image and weight, tobacco education, and wellness.

Alcohol and Drug Education Program (ADEP)

ADEP is located in the Queen Lili'uokalani Center for Student Services Center, Room 313D. This program provides information and preventive education focusing on the use and/or abuse of alcohol and other drugs. Through collaboration with administrators, student service personnel, instructional faculty, student groups and peer educators, and the surrounding community, the program promotes healthy choices and constructive decision-making. ADEP works with Student Housing Service in educating, counseling, sanctioning, and providing rehabilitative support for students who have violated alcohol and/or drug use guidelines in the resident student community.

Student Employment and Training Opportunities

UHSM provides training and experience for students interested in health professions. Paid employment opportunities are listed at the Student Employment and Cooperative Education Office. Volunteers serve in peer education programs and on the Student Health Advisory Council (SHAC). Students also receive training to fulfill academic requirements in medicine, nursing, social work, psychology, and public health. Staff members assist students doing research papers and special health projects.

Food Service

University Dining Services Office
 Campus Center 220A
 2465 Campus Road
 Honolulu, HI 96822
 Tel: (808) 956-3663
 (808) 956-8721
 Fax: (808) 956-9671

Complete food service facilities, including a marketplace, Taco Bell, Pizza Hut, party and banquet facilities, and catering services are available in Campus Center. Paradise Palms Cafe near Hamilton Library serves à la carte breakfasts, lunches, dinners and evening snacks. Mānoa Garden in Hemenway Hall specializes in stir-fry, as well as sandwiches, salads, and other refreshments.

Packaged foods are available 24 hours a day through vending machines and satellite operations, located in the Business Administration Building, Hemenway Hall, Physical Science Building, Saunders Hall, Spalding Hall, Moore Hall, Kuykendall Hall, and the Athletics Complex.

Students living in on-campus residence halls contract for meals from one of the required dining plans. The Hale Aloha resident dining hall provides meals to students on a dining plan. For more information and current charges, call the University Dining Services Office.

Dining Plans

Sodexo offers a variety of dining plans for commuter students, faculty, and staff. Plans include options from 7 to 14 meals per week, which may be used at Hale Aloha dining hall. Block dining plans are available in 90, 120, 150, or 190 meals per semester. Both dining plans include retail points that may be used at other locations.

Additionally, the Flash Cash debit card, a debit meal card, may be purchased by anyone in the University community at the University Dining Services Office. Flash Cash is good at all food service locations (except vending machines) and gives added value through a bonus account of up to 10 percent. Bonus credits are accepted at all Sodexo facilities except Corner Market, Hale Noelani Convenience Store, Taco Bell, and Pizza Hut locations on campus. Flash Cash cannot be used to purchase alcohol and tobacco products.

Employment

Student Employment and Cooperative Education
 Queen Lili'uokalani Center for Student Services 113
 2600 Campus Road
 Honolulu, HI 96822
 Tel: (808) 956-7007
 (808) 956-9318 (V/T)
 Fax: 956-8058
 Web: sece.hawaii.edu/
 E-mail: sece@hawaii.edu

The Student Employment and Cooperative Education office (SECE) embraces the philosophy “LEARN While You Earn” and implements this by doing the following:

1. Fostering personal growth and career exploration in UHM students by integrating practical work experience with academic studies.
2. Contributing to research in student development primarily in the area of employment.
3. Serving the community by preparing students to be adaptable and productive in the work force, as well as responsible citizens in an ever-changing society.
4. Contributing to the internationalization of UHM by developing international work experiences; and
5. Striving for continuous improvement in all its programs and activities.

Additional information, including available positions, is available on the Web site.

University Employment

More than 4,000 students are hired by the University annually in a wide variety of jobs, from basic clerical to advanced research. Many students enjoy the availability, flexibility, and convenience of University employment.

Federal Work Study

The federal government subsidizes wages of students who qualify for Federal Work-Study, a form of assistance awarded to students with financial need. Both career related and community service jobs are available, including tutoring positions in the America Reads and Counts challenge. Awards are made by Financial Aid Services, and placement is administered by the Student Employment and Cooperative Education office.

Non-University Employment

Part-time opportunities, including summer and seasonal employment are available in a wide variety of positions, both on and off-campus.

Cooperative Education Program

The Cooperative Education (Co-op) Program combines classroom instruction with paid, supervised work experience relevant to a student's academic and career goals. Participation in Co-op is open to all Mānoa campus students enrolled at least half-time in a degree-granting program. A minimum cumulative and major GPA of 2.0 and completion of at least 25 undergraduate credits are required.

Internships

These are primarily short-term, paid work experiences. Most are local, but internships on the continental United States may also be available.

Career Services

Queen Lili'uokalani Center for Student Services 212
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8136
Web: www.hawaii.edu/career

Career Services (CS) offers Mānoa students and alumni assistance in exploring and making effective (appropriate) career and educational choices. With this in mind, CS provides a variety of services and programs that are offered year-round. They are:

Career Services Library

Researching an employer's organization is essential in a career search. The CS library provides employer recruiting literature, employer directories, annual reports, and other publications on job market conditions and trends, employer expectations, and salaries. Also available are employment vacancy listings from local, national, and international businesses and organizations. The CS library also includes a computer laboratory where users may work on their resumes and other related documents or connect to the Internet for information on employers and jobs.

Job-Search Skills

Workshops and videotapes introduce students to resume design, letters of application and other correspondence, and interview techniques. Workshop schedules are posted at the CS office, where registrants may register to participate. Students and alumni may submit their resumes for critiques by the CS staff.

Employment Opportunities

Students and alumni may also interview with local, Continental U.S., and overseas employers who visit the campus. Information on employer recruitment activities may be obtained at the CS library or at CS's Web site. Interview schedules are also posted on campus bulletin boards and are published in *Ka Leo O Hawai'i* Web site.

Other Services

Special career programs, including career fairs, panels with employer representatives and outreach presentations to student organizations and classes are available throughout the year.

Personal conferences with a career counselor may be arranged to review goals, plans, qualifications, career alternatives, the job market, employer information, education requirements, and other career concerns.

Credential files (letters of recommendation) may be established to assist in graduate school applications or academic employment. Credentials will be mailed directly to an organization or institution upon request.

Practice interview sessions may be arranged to prepare for an actual interview. Participants may choose to have the interview sessions videotaped. After the session, counselors provide interviewees with feedback on their interview performance.

Child Care

Children's Center Administrative Office
Queen Lili'uokalani Center for Student Services 408
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-7963
(808) 956-9009
Fax: (808) 956-4157
E-mail: uhmcc@hawaii.edu

Child care is available at the Children's Center on the Mānoa campus for two- to five-year-old children of students, faculty, and staff. The facility offers full- and part-week care to approximately 90 children each semester. It is open 48 weeks of the year, from 8 a.m. to 5 p.m.

The developmental approach to early childhood education offers each child individual attention in an atmosphere that is conducive to building a strong self-concept, interactive skills, and an experiential base. Group sizes and adult-child ratios are favorable, and teachers are trained and experienced in early childhood education. The program includes a wide range of opportunities for parental involvement. Applications should be made well in advance of the semester needed.

Counseling Services

Civil Rights Counselor

Queen Lili'uokalani Center for Student Services 210
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-4431
Fax: (808) 956-4541
E-mail: jlh@hawaii.edu

The civil rights counselor advises students and employees on the University's complaint policies and procedures. The civil rights counselor also advises and counsels students and employees on their rights under state and federal nondiscrimination laws.

The civil rights counselor sets up alternative dispute resolutions and assists in solving disputes through informal procedures.

The civil rights counselor conducts training workshops system-wide covering policies, procedures, and laws pertaining to civil rights, affirmative action, and other discrimination issues.

Counseling and Student Development

Counseling and Student Development Center
Queen Lili'uokalani Center for Student Services 312
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-7927
Fax: (808) 956-9682

The challenges of choosing the right career, achieving or maintaining one's independence, relating successfully to others,

and leading a happy and successful life converge during a student's college years. College life adds the concerns of exams, term papers, quizzes, and class reports. Even students who are prepared to do their best in college may experience problems. The Counseling and Student Development Center (CSDC) provides the following services to assist students.

Career Counseling

Students should choose their majors before they progress very far in their academic programs. Most students expect their academic studies to lead to specific careers upon graduation. Career counseling explores strengths and limitations, interests and values, personality and skills, and applies this understanding to developing academic and occupational plans. (See also Career Services.)

Personal Counseling

Some people occasionally, even regularly, feel worried, unhappy, and depressed. Lack of confidence, fear, low self-esteem, inability to get along with others, loneliness, not being able to cope with people and situations, and similar problems can be discussed with one of CSDC's professional counselors. All matters discussed in counseling are confidential and will not affect academic standing.

Psychiatric Consultation

People who find themselves seriously depressed, unable to control their behavior, or doing things they don't understand may want and need psychiatric consultations. A talk with a counselor is recommended to determine whether psychiatric consultation is required.

Educational Counseling

Difficulties in courses and in meeting academic requirements may be alleviated by educational counseling and learning assistance services. The Learning Assistance Center (LAC) offers programs, commercial materials, and diagnostic services to help develop more effective study habits and learning skills. These services are provided on an individual basis through personal program development or on a group basis through workshops. Areas of possible development include time management, listening/note-taking, reading, research paper writing, and general and standardized exam preparation. LAC is in Queen Lili'uokalani Center for Student Services 306.

Testing

Testing is frequently used as part of counseling to help students understand themselves better and plan their careers.

Counselors will discuss which tests to take and interpret them after they are scored. In addition, information is available about admissions and certifications such as the Graduate Record Examination (GRE), Law School Admission Test (LSAT), and Medical College Admission Test (MCAT), as well as exams for a variety of different programs and professions.

Outreach

Workshops and seminars are offered throughout the year. Stress management, assertiveness training, improving self-esteem, career planning, and overcoming loneliness are just a few of the topics covered.

Consultation

CSDC provides consultation services for individual students, faculty, and groups that may need help in solving organizational problems, overcoming interpersonal difficulties, and planning staff development programs.

Gender Equity Counselor

Queen Lili'uokalani Center for Student Services 210
2660 Campus Road
Honolulu, HI 96822
Tel: (808) 956-9977
E-mail: bmccrear@hawaii.edu

The Gender Equity Counselor serves students, faculty, and staff members as a source for information, counseling, and advocacy on matters relating to sexual harassment and discrimination. The Gender Equity Counselor can help clarify issues relating to discrimination, develop long-term coping strategies, file informal complaints and arrange informal resolutions. In addition, the Gender Equity Counselor can assist in filing formal complaints with the Equal Employment Opportunity/Affirmative Action (EEO/AA) Office or the Dean of Students Office and provide additional resources and referrals when they are needed. The Gender Equity Counselor will answer questions, listen to complaints, offer advice on filing procedures, see that appropriate action is taken, and help protect grievants from retaliation.

The Gender Equity Counselor also offers training to the campus population on interpersonal, inter-gender, and cross-cultural communication; student, faculty, and staff rights and responsibilities and other issues relating to sexual harassment in academia; and interpretation of state and federal guidelines and procedures. In addition, the Gender Equity Counselor offers general sexual harassment awareness workshops.

Students and faculty and staff members may contact the Gender Equity Counselor in person, by mail, or through e-mail.

Support Services

College Opportunities Program

Queen Lili'uokalani Center for Student Services 308
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-6186
Fax: (808) 956-6837
E-mail: copuhm@hawaii.edu
Web: www.hawaii.edu/cop

The College Opportunities Program (COP) assists state residents who are able and qualified for college but whose low SAT scores, limited college preparation, and/or economic difficulties might inhibit their attending UH Mānoa. Priority is given to individuals whose ethnic backgrounds are underrepresented on the campus, as well as those who are not accepted for regular admission. Selected students participate in a two-part program. Part I is a summer residential-instructional experience on campus that develops academic and social skills necessary to be successful freshmen and sets a performance standard to gain entry to the Mānoa campus. Part II is entry to the University as full-time freshmen with priority for dormitory space provided to all selected students who have met the summer performance standard. COP provides coordinated student services and supportive activities to all program students during their first two semesters at the University. Applications are available in October with selections made early the following year.

International Student Services

Queen Lili'uokalani Center for Student Services 414
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8613
Fax: (808) 956-5076
E-mail: issmanoa@hawaii.edu
Web: www.hawaii.edu/~issmanoa/

International Student Services (ISS) provides assistance to more than 1,400 international students who come from more than 70 countries to study at the University of Hawai'i at Mānoa. ISS assists individuals with the maintenance of their nonimmigrant visa status and provides guidance and advising to students so they can utilize the educational opportunities at the University and in the community.

KOKUA Program (Disability Access Services)

Queen Lili'uokalani Center for Student Services 013
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-7511 (V/T)
(808) 956-7612 (V/T)
Fax: (808) 956-8093
E-mail: kokua@hawaii.edu

The KOKUA Program provides academic access services to students with documented physical and/or mental disabilities, e.g., health disabilities, hearing impairments, learning disabilities, mobility restrictions, psychological disabilities, visual impairments, etc. Services include academic advising, campus intervention, disability access counseling, early registration, faculty liaison, note-taking, sign language interpreting, technology access, testing accommodations, transcription, etc. Accessible on-campus transportation and tutoring may be available. Students with disabilities who may require such services are strongly encouraged to contact KOKUA as far in advance as possible to ensure better campus access.

New students should contact KOKUA for program orientation at least two months prior to the start of their entering semester. Although KOKUA strives to ensure campus access for students with disabilities, it is necessary to note that significant portions of the 90-year-old campus pose architectural barriers to them. Ongoing efforts are being made to address these architectural concerns.

Creating equal access for students with disabilities is a responsibility shared in partnership by the students, KOKUA, and the rest of the campus community.

Kua'ana Student Services

Queen Lili'uokalani Center for Student Services 207
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-2644

Kua'ana Student Services (KSS) reflects the belief that higher education is a major factor in ensuring a better future for Hawaiians as individuals and as a people. KSS focuses on encouraging and facilitating the entry of Hawaiian students into UH Mānoa and supports them in fulfilling their academic expectations through the development of new programs and the use of existing resources. KSS services include tutorial services for students of Hawaiian language, counseling specific to students of Hawaiian ancestry to assist them in dealing with issues of internalized oppression, financial aid workshops, a mentorship program for new graduate students, and community service activities designed for students to network with each other and to stay informed and/or involved in issues concerning the Hawaiian community.

Lesbian, Gay, Bisexual, Transgender Student Office

Queen Lili'uokalani Center for Student Services 211C
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-9250
Fax: (808) 956-9314
E-mail: LGBTQ@hawaii.edu
Web: www2.hawaii.edu/~lgbtq/

The Lesbian, Gay, Bisexual, Transgender (LGBT) Student Office exists to serve as a campus resource center for students, faculty, and staff that advocate and provide support services

primarily for LGBT students. Our purpose is to help students feel safe and comfortable on the UH campus. We offer several services to that end, including: a resource library of books, magazines, videotapes, and audiotapes which students are welcome to check out; a comfortable area in which to study or hold meetings; contacts and referrals to various community and campus organizations; and special events (such as speakers) related to LGBT issues.

Office of Multicultural Student Services

Queen Lili'uokalani Center for Student Services 309
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-7348
Fax: (808) 956-4622
Web: omss.ssc.hawaii.edu

The Office of Multicultural Student Services seeks to (a) provide employment, training, and educational support to UH Mānoa students who wish to tutor and advise public school students; (b) address the problem of underrepresentation of minorities in higher education by recruiting Filipinos and other ethnic groups to apply for admission to the University; and (c) coordinate special projects for underserved populations and communities.

School and College Services

Queen Lili'uokalani Center for Student Services 214
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-7137
Fax: (808) 956-8095

School and College Services (SCS) works with high schools and community colleges to encourage students to pursue higher education by providing information and services that facilitate their enrollment at the University of Hawai'i at Mānoa. In addition, SCS offers campus visits for prospective students and coordinates the Student Ambassador program.

Individuals and groups wishing to learn more about UH Mānoa programs and resources may contact the SCS office. Neighbor Island and continental U.S. calls are accepted toll free at (877) 447-3233.

Senior Citizen Visitor Program

Queen Lili'uokalani Center for Student Services 413
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-4642
Fax: (808) 956-9240
E-mail: lputnam@hawaii.edu

The Senior Citizen Visitor Program (SCVP), administered by Student Equity, Excellence, and Diversity (SEED), is available to residents of Hawai'i who are age 60 years and older. The program allows senior citizens to participate in UHM classes offered during the fall and spring semesters, provided they have the consent of the instructor. Participation in SCVP

entitles the visitor to use libraries and other University facilities. Visitors are exempt from tuition; course credit is not awarded, and permanent records are not maintained. Senior citizens wishing to receive credit for courses must apply for admission to the University through SEED no later than one month before the term begins and must pay all tuition and fees.

Office of Student Equity, Excellence, and Diversity

Queen Lili'uokalani Center for Student Services 413
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-4642
Fax: (808) 956-9240
Web: www.hawaii.edu/diversity

The Office of Student Equity, Excellence, and Diversity (SEED) coordinates various projects and committees at Mānoa and other campuses to support students with disabilities; Native Hawaiians and ethnic groups underrepresented in higher education; women; lesbian, gay, bisexual, and transgendered students; and academically talented students as well as under-prepared and disadvantaged students. Among the programs administered by SEED are College Opportunities Program, KOKUA Program, Kua'ana Student Services, Office of Multicultural Student Services, Regents and Presidential Scholars Program, Senior Citizen Visitor Program, and Women's Center.

Women's Center

Queen Lili'uokalani Center for Student Services 211
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8059
Fax: (808) 956-9314

The Women's Center is open weekdays and functions as a safe gathering place. It offers study lounges and meeting space, response and referral services, academic and personal development workshops, educational lectures and programs, a reading resource library, University and community network opportunities, and a comprehensive University/community information center.

The programs administered by the Women's Center are: the Bridge to Hope Program; the Lesbian, Gay, Bisexual, and Transgendered Student Services Office; and the Sexual Assault Prevention Team (SAPT) peer education group.

Veterans Affairs

Queen Lili'uokalani Center for Student Services 001
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-4849
Fax: (808) 956-4148

The Veterans Affairs Service (VAS), located in the Admissions and Records Office, assists military veterans and their dependents who are eligible for federal education benefits. It is the responsibility of the University VAS to certify that the

student is enrolled in courses according to an academic plan that results in degree completion. Once certified, the student will receive benefits from the Department of Veterans Affairs. Resident members of the Hawai'i National Guard who are classified undergraduate students may be eligible for partial tuition assistance from the Department of Defense in addition to receiving federal education benefits. This assistance is activated through the Guard unit.

Special Learning Opportunities

National Student Exchange

School and College Services
Queen Lili'uokalani Center for Student Services 214
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-6772
E-mail: sandyd@hawaii.edu

The National Student Exchange provides full-time undergraduates with the opportunity to study for a semester or a year at one of 160 colleges and universities located throughout the Continental United States, Puerto Rico, Guam, and the Virgin Islands. Tuition costs for exchange students are reasonable since participants pay either UH Mānoa tuition or resident tuition at the host school. Room, board, and transportation costs are additional. For those who meet the eligibility requirements (including a minimum cumulative GPA of 2.5), exchange is an excellent way to explore different academic, social, and cultural settings.

Service Learning Program

Queen Lili'uokalani Center for Student Services 209
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-4641
Fax: (808) 956-3394
E-mail: slp@hawaii.edu
Web: www.hawaii.edu/osa/ServiceLearn

The Service Learning Program offers UHM students and community agencies the opportunity to participate in a partnership of volunteer service.

The Service Learning Program functions as a clearinghouse. It links UHM students interested in donating their valuable time and experience with volunteer agencies within the community.

Students receive information on the volunteer experience, and agencies have access to enthusiastic, energetic, and skilled student volunteers.

The Service Learning Program also serves as the headquarters for Hawai'i Campus Compact.

Visual and Performing Arts

Art Gallery

Art Building, first floor
Honolulu, HI 96822
Tel: (808) 956-6888
Fax: (808) 956-9659
E-mail: gallery@hawaii.edu
Web: www.hawaii.edu/artgallery

One of the finest temporary exhibition spaces in the nation, the University of Hawai'i Art Gallery is in the center of the Art Building's bamboo court. Besides student and faculty exhibits, a varied exhibition program plays a significant role in providing information about the visual arts in both a historical and contemporary context. To enhance a specific theme, the installation design is completely changed for each major exhibition. The gallery has received numerous awards for the excellence of its exhibitions and publications.

Gallery hours are Monday through Friday from 10:30 a.m. to 4:00 p.m., and Sunday from noon to 4:00 p.m. Admission is free.

Commons Gallery

Art Building, first floor
Honolulu, HI 96822
Tel: (808) 956-6888
Fax: (808) 956-9659
E-mail: gallery@hawaii.edu
Web: www.hawaii.edu/artgallery

The Commons Gallery serves an important role as a showcase for thesis exhibitions, works by visiting artists, and class work. The exhibits change weekly.

Gallery hours are Monday through Friday from 10:30 a.m. to 4:00 p.m. Admission is free.

John F. Kennedy Theatre

1770 East-West Road
Honolulu, HI 96822
Tel: (808) 956-7655 (box office)
(808) 956-7677

The John F. Kennedy Theatre is home to the classes and productions of the Department of Theatre and Dance and hosts touring productions from around the globe whenever possible. This 600-seat facility is among the best in the world for presentations of Asian and Western theater and dance. The department is internationally known for its English language presentations of kabuki and Beijing opera. Kennedy Theatre serves as a laboratory for student technicians, actors, dancers, designers, musicians, choreographers, and directors.

A typical season at Kennedy Theatre might include the annual Dance Concert, a classic Western play, an Asian theater production, an original play set in Hawai'i, and a contemporary/experimental play. Auditions are open to all UH students interested in learning about performance or production.

The Earle Ernst Lab Theatre, an intimate 100-seat house that serves as an adjunct performing space, features student productions, late-night theater, workshops, and experimental presentations.

UH Mānoa students are entitled to special discount prices on tickets for most productions at Kennedy Theatre through funding from their student activity fees. Students must present a validated UH Mānoa photo ID to obtain the specially priced tickets. Tickets are available at the box office approximately two weeks prior to the opening of each production.

Mae Zenke Orvis Auditorium

2411 Dole Street

Honolulu, HI 96822

Tel: (808) 956-8742 (recorded information)

(808) 956-7756

Fax: (808) 956-9657

E-mail: uhmusic@hawaii.edu

Web: www.hawaii.edu/uhmusic

With the best acoustics of any concert hall its size in the state, the Mae Zenke Orvis Auditorium is the site of numerous recitals and concerts. The auditorium seats 400, providing an intimate yet formal setting for soloists and small ensembles. The auditorium is used throughout the year for performances of both Western and ethnic music by the music department, the Mānoa campus community, and local and international artists.

Tickets for most music department events may be reserved by calling (808) 95-MUSIC (68742) or may be purchased in advance at the UH Campus Center Information Desk. Remaining tickets will be available at the door one hour before each performance. Many events are free.

Call Music at Mānoa Events Information for recorded concert information, or visit the music department's Web site.

Recreation

Leisure Program

Hemenway 101

2445 Campus Road

Honolulu, HI 96822

Tel: (808) 956-6468

Fax: (808) 956-4810

The Leisure Program offers more than 30 noncredit classes and activities in arts and crafts, outdoor recreation, and health and fitness. Some of the choices include ceramics, guitar, hula,

aerobics, sailing, hiking, and windsurfing. The Leisure Program also operates an equipment rental program which provides tents, backpacks, surfboards, masks/snorkels, and more.

Intercollegiate Athletics

Physical Education/Athletics Complex

1337 Lower Campus Road

Honolulu, HI 96822

Tel: (808) 956-6580 (student affairs)

(808) 956-4526 (student academic services for athletics)

(808) 956-7523 (sports information)

(808) 956-7301 (athletics director)

(808) 956-6508 (football)

(808) 956-6247 (baseball)

(808) 956-6501 (men's basketball)

(808) 956-4505 (men's volleyball)

(808) 956-4498 (women's sports and other men's sports)

Fax: (808) 956-4470

Intercollegiate sports at the NCAA Division I level provide the UH Rainbows the opportunity to compete against the nation's finest teams. Men and women compete in the Western Athletic Conference in all sports except men's volleyball and women's water polo, which are in the Mountain Pacific Sports Federation.

Men's sports include baseball, basketball, football, golf, swimming and diving, tennis, and volleyball. Women's sports include basketball, cross-country, golf, soccer, softball, swimming and diving, tennis, track and field, volleyball, and water polo. The sailing team and cheerleading squad are open to both men and women. Intercollegiate athletics operates under a policy of gender equity. See Appendix for details.

Intramural Sports Program

Physical Education/Athletics Complex 200

1337 Lower Campus Road

Honolulu, HI 96822

Tel: (808) 956-7694

Fax: (808) 956-4637

In competitive intramural play, teams and individuals take part in meets, leagues, and tournaments and play by specified schedules in 25 different activities including basketball, tennis, and softball. The competitions use prearranged facilities, equipment, supervision, and officials.

A more informal recreational play part of the program emphasizes self-motivated, impromptu participation. When facilities are available, students may swim, shoot baskets, lift weights, or play tennis, badminton, or volleyball.

The majority of basic equipment is available for check-out. Use of facilities and equipment is free, except for golf.

Campus Center Complex

Campus Center Information Desk
Campus Center 212
2465 Campus Road
Honolulu, HI 96822
Tel: (808) 956-7235
Fax: (808) 956-4810

The Campus Center Complex (CCC) includes Hemenway Hall and the Campus Center Building and serves as the “community center” of the Mānoa campus. It provides facilities for programs, services, and opportunities offered by the Campus Center Board (CCB) and other student organizations, resulting in a comprehensive plan for the community life of the campus.

The complex includes an information desk/ticket window, dining rooms, ID card services, catering services, lounges, game room, banking facilities, barber shop, photocopying service, leisure center, movie theater, graphics facility, and meeting rooms of various sizes, including a ballroom.

Many student organizations are housed in the two buildings, providing opportunities for practical experience in leadership development and social responsibility through student-run programs, activities, and services. In addition to these volunteers, more than 100 part-time student assistants within CCC are employed in diverse and challenging jobs vital to the operation of the complex. These jobs offer valuable work experience to UH Mānoa students in a supportive atmosphere, encouraging and rewarding personal responsibility and growth while supporting the educational and developmental mission of the University of Hawai‘i at Mānoa.

Student Organizations

Co-curricular Activities, Programs, and Services

Campus Center 208
2465 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8178
Fax: (808) 956-4810
Web: www.hawaii.edu/caps/

Learning and development take place in many ways on a college campus. Co-curricular Activities, Programs, and Services (CAPS) offers opportunities to make new friends, try new activities, test new ideas, and acquire new skills. CAPS coordinates a variety of student-administered programs, activities, and services that make out-of-class time a positive educational experience. CAPS also provides leadership training through a variety of credit and noncredit classes.

More than 200 student, faculty, and staff organizations are registered with CAPS. Organizations that register with CAPS have access to campus facilities and other resources. These organizations represent varied interests and activities including academic, professional, political, social, religious, recreational, and service groups. A complete list of organizations and

detailed information on joining a Registered Independent Organization (RIO) is available from CAPS.

CAPS assists the University’s six chartered student organizations in achieving their goals and objectives; provides administrative services for more than 200 RIOs; fosters educational, recreational, cultural, and social programs and activities; provides trained, experienced advisers who teach leadership and organizational skills; and promotes responsible citizenship.

Associated Students of the University of Hawai‘i

Campus Center 211A
2465 Campus Road
Honolulu, HI 96822
Tel: (808) 956-4822
Fax: (808) 956-5360
Web: www.hawaii.edu/asuh/

The Associated Students of the University of Hawai‘i (ASUH) is the chartered student organization whose membership includes all full-time (12 credit hours or more per semester) classified undergraduates. It is governed by the ASUH Senate, elected annually each spring. The senate is made up of four executive officers and 34 senators who represent students in the various academic colleges and students at large. Any ASUH member in good academic standing may seek elective office.

The senate works toward improving the quality of undergraduate student life and represents the needs, interests, and concerns of its constituents through participation in University policy-making and advisory committees, research and lobbying action on campus and community issues, and the sponsorship and funding of a variety of programs and activities.

Board of Publications

Engineering Quad 31-D
1755 Pope Road
Honolulu, HI 96822
Tel: (808) 956-4443 (BOARD Office)
(808) 956-7043 (Ka Leo O Hawai‘i - Editorial & Advertising)
(808) 956-7043 (Beau Press)
Fax: (808) 956-9962
Web: www.hawaii.edu/bop/
www.kaleo.org (Ka Leo O Hawai‘i - Online)

The Board of Publications (BOP) is the publisher for UH Mānoa student publications. This 14-member governing board consists of nine students, three faculty/staff, one alumni and one professional member. BOP publishes the daily campus student newspaper, *Ka Leo O Hawai‘i*; the student literary journal, *Hawai‘i Review*; the *Board of Publications Daily Planner*; and operates Beau Press, an on-campus custom printing service.

Student publications offers student volunteers the opportunity for personal and pre-professional development experience, including personnel and business management, public contact, writing, marketing, and graphic arts.

Broadcast Communication Authority

Hemenway 220B
 2445 Campus Road
 Honolulu, HI 96822
 Tel: (808) 956-4841
 Fax: (808) 956-4810
 E-mail: bca@hawaii.edu
 Web: www.hawaii.edu/bca/

The Broadcast Communication Authority (BCA) consists of 10 voting members, including students and faculty and staff members, and community representatives. The board governs the student-run campus radio station, KTUH-90.3 FM, and the Student Video and Filmmakers' Association. By radio, video, film, and the World Wide Web, the BCA provides a variety of cultural, educational, informational, and musical programs for the University community. Through the operation of the 24-hour radio station and the production of locally televised video programs, BCA offers students opportunities to manage, produce, and engineer radio and video/filmmaking projects.

Campus Center Board

Campus Center 313
 2465 Campus Road
 Honolulu, HI 96822
 Tel: (808) 956-9670
 Fax: (808) 956-4810
 Web: www.hawaii.edu/ccb/

The Campus Center Board (CCB) is the governing, policy-making authority for the programs, services, and facilities of the Campus Center Complex, the college union facility on campus. The 17-member board represents various campus constituencies: students, faculty, staff, and alumni. CCB serves its constituents in two ways: a multifaceted activities program and a comprehensive array of services in Campus Center and Hemenway Hall.

CCB also sponsors programs through its Activities Council committees, which plan recreational activities, educational support programs, dances, personal wellness events, concerts, and cultural programs.

Graduate Student Organization

Hemenway 212
 2445 Campus Road
 Honolulu, HI 96822
 Tel: (808) 956-8776
 Fax: (808) 956-4810
 Web: www.hawaii.edu/gso/

The Graduate Student Organization (GSO) is the chartered student organization whose membership includes all classified graduate students except professional degree candidates from the Schools of Law and Medicine. The GSO Assembly includes student representatives from each graduate field of study.

GSO airs views on policies affecting graduate students, advises the dean of the Graduate Division, recommends graduate student representatives for service on campus-wide committees, administers funds providing travel monies and temporary loans, and initiates and maintains co-curricular programs relevant to graduate students.

Student Activity and Program Fee Board

Hemenway 220C
 2445 Campus Road
 Honolulu, HI 96822
 Tel: (808) 956-4842
 Fax: (808) 956-4810
 Web: www.hawaii.edu/sapfb/

The Student Activity and Program Fee Board (SAPFB) is an eleven-member board, composed of students and faculty and staff members that makes recommendations to the vice president for student affairs regarding the allocation of the student activity and program fee. This fee supports a variety of co-curricular activities, programs, and services. SAPFB solicits and reviews requests for funding from campus organizations, departments, and programs that are not funded by other chartered organizations.

Tuition, Fees, and Financial Aid



Tuition, Fees, and Expenses

Queen Lili'uokalani Center for
Student Services 105
2600 Campus Road
Honolulu, HI 96822
Tel: (808) 956-7554
Fax: (808) 956-2098

Tuition and fees are charged according to the number of credit hours carried by the student. For regular, Outreach College Continuing Education and Summer Session tuition schedules, refer to the following page. Auditors (those enrolled in a course for no credit) must pay the same tuition and fees as students enrolled for credit. For tuition purposes only, a full-time student is any student enrolled for 12 or more credit hours.

The tuition to be charged is determined by the degree status of the student and not by the level of the courses taken. For example, students who have earned a baccalaureate degree

will be charged graduate tuition, except for students admitted for a second baccalaureate degree. Students admitted to the law or medical school will be charged the stated tuition for that school.

Medical, law, graduate nursing, or graduate business students concurrently enrolled in the Graduate Division must pay the stated tuition for the medical school, law school, nursing school, or business college.

All tuition and fee charges at the University of Hawai'i campuses are subject to change in accordance with requirements of state law and/or action by the Board of Regents or the University administration.

Partial Advance Tuition Payment

All new, transfer, and returning classified undergraduate students are required to make a partial advance tuition payment of \$60. All new medical and law students are required to make a partial advance tuition payment of \$250. Scholarship/fellowship recipients are not exempt from this payment, if applicable. This partial advance tuition payment is applied at registration time toward tuition for that semester. The payment is non-refundable and nontransferable if the student does not register (except when the student is denied further registration by the University). Continuing classified students are not required to make the partial advance tuition payment.

Additional Fees and Expenses

Caps and Gowns

Caps, gowns, and master's and doctoral hoods are required for participation in commencement ceremonies. Caps and gowns are available for purchase from the University Bookstore.

Outreach College Fees

Students registered in courses offered by Outreach College pay tuition and fees as indicated in the bulletin of that division. Outreach College tuition is determined by the level of the course. For information, contact Outreach College at (808) 956-8400.

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Regular Tuition Schedule 2002-2003

	Full-Time per semester	Part-Time per credit hour
Undergraduate		
Resident	\$1,608	\$134
Nonresident	\$4,848	\$404
Graduate (including post baccalaureate unclassified students)		
Resident	\$2,160	\$180
Nonresident	\$5,196	\$433
Graduate Business Master's Programs (excluding MAcc)*		
Resident	\$3,000	\$250
Nonresident	\$6,024	\$502
Graduate Nursing		
Resident	\$3,408	\$284
Nonresident	\$6,396	\$533
Law		
Resident	\$5,100	\$425
Nonresident	\$8,736	\$728
Medicine		
Resident	\$7,104	\$592
Nonresident	\$13,956	\$1,163

Outreach College - Continuing Education and Community Service Tuition Schedule

	2002-03	2003-04
Courses numbered 499 and below		
Resident (per credit hour)	\$134	\$138
Nonresident (per credit hour)	\$404	\$408
Courses numbered 500 and above		
Resident (per credit hour)	\$180	\$186
Nonresident (per credit hour)	\$433	\$442
Graduate Business		
Resident	\$250	\$305**
Nonresident	\$502	\$552**
Graduate Nursing		
Resident	\$284	\$295
Nonresident	\$533	\$546

Outreach College - Asynchronous Learning Networks (UH Online Courses) Tuition Schedule**2002-03**

Courses numbered 499 and below	
Resident and Nonresident	\$134 tuition plus \$5 per credit fee
Courses numbered 500 and above	
Resident and Nonresident	\$180 tuition plus \$5 per credit fee

* These rates do not apply to the master of accounting program or to business-related doctoral programs. Please follow the regular graduate tuition schedule for these programs.

Outreach College - Summer Session Tuition Schedule

	2002	2003
Courses numbered 499 and below		
Resident (per credit hour)	\$130	\$134
Nonresident (per credit hour)	\$130	\$134
Courses numbered 500 and above		
Resident (per credit hour)	\$174	\$180
Nonresident (per credit hour)	\$174	\$180
Graduate Business		
Resident	\$205	\$250**
Nonresident	\$456	\$502**
Graduate Nursing		
Resident	\$273	\$284
Nonresident	\$273	\$284
Law		
Resident	\$401	\$425
Nonresident	\$688	\$728

Additional Summer Session fees—such as student activities fee, Campus Center fee, and course fees for applied music, institutes, and other special programs—are outlined in the Outreach College Summer Session catalog.

Additional Student Fees

	Per Semester
■ Board of Publications	
All students	\$13.00
■ Student Health Fee	
All students	\$17.50
■ Campus Center Board	
Students carrying 9 or more credit hours	\$25.00
Students carrying 8 or fewer credit hours	\$20.00
■ Student Activity and Program Fee	
Students carrying 9 or more credit hours	\$2.70
Students carrying 8 or fewer credit hours— 30 cents per credit hour	varies
■ Broadcast Communication Authority	
All students	\$3.00
■ Associated Students of the University of Hawai'i	
Classified undergraduates carrying 12 or more credit hours per semester	\$5.00
■ Graduate Student Organization	
All classified graduate students (does not include medical and law students)	\$5.00
■ Undergraduate Nursing and Dental Hygiene Clinical Fee	
All classified undergraduate nursing and dental hygiene students enrolled in clinical courses	\$500.00
This fee applies for no more than six semesters.	

Important Note:

All tuition and fee charges at University of Hawai'i campuses are subject to change in accordance with requirements of state law and/or by the Board of Regents or the University administration. Please refer to UH Online (ALN) website at www.aln.hawaii.edu for current charges.

** Effective Fall 2003 these rates do apply to students enrolled in the Master of Accounting program

Credit by Examination

A \$15-per-course fee is assessed at the time of application.

Diplomas and Certificates

A charge of \$15, payable at time of application, is assessed for each bachelor's degree, advanced degree, and professional certification.

Late Registration Fee

A \$50 late registration fee is assessed when a student registers during the late registration period. A \$5 late registration fee is assessed for Summer Sessions and Outreach College.

Replacement of Laboratory Equipment

For broken or lost items, the cost of replacement is assessed.

Returned Checks

Any check tendered to the University or any department and returned for any cause is assessed a \$15 charge and applicable interest.

Special Examination

A fee of \$10 is assessed.

Transcripts

Student transcripts cost \$3 per copy.

Payment of Tuition and Fees

All tuition and fees must be paid before registration or change of registration is official. Full payment for tuition and fees must be made by the end of the second week of instruction.

Financial Obligations

Students who have not met their financial obligations (traffic fines, library fines, locker fees, lab breakage charges, transcript fees, loans, rental contracts, etc.) to the satisfaction of the University may be denied a variety of enrollment services including registration, withdrawal, and transcripts. Notation of the financial obligation may appear on transcripts.

Copies of the delinquent financial obligations policy and procedures are available for inspection at the Office of the Dean of Student Services and the Mānoa campus Cashier's Office.

Refunds of Tuition and Fees**Regular Tuition and Fees**

Tuition and special course fees are refunded as indicated below:

1. A 100 percent refund for complete withdrawal only if made within the first two weeks of instruction.

2. An 80 percent refund for a drop in credit hours (change in status or tuition rate) if made within the first two weeks of instruction, unless otherwise stipulated by federal regulations.
3. A 40 percent refund for complete withdrawal or drop in credit hours (change in status or tuition rate) if made within the third and fourth weeks of instruction, unless otherwise stipulated by federal regulations.
4. No refunds are made after the fourth week of instruction, unless otherwise stipulated by federal regulations.

Penalties apply even if payment for tuition and fees has not been made at the time registration status is changed.

Student activity fees are refundable only before the first day of instruction or if a complete withdrawal is made within the first two weeks of instruction.

After students have secured all required approvals, the withdrawal or change in registration must be processed according to instructions in the *Schedule of Classes*. In no case shall a refund be made when a student fails to follow these instructions within two weeks of the date of change in registration (e.g., withdrawal, change in status, or change in tuition rate).

Refunds are made by the University Cashier's Office after the procedures for complete withdrawal from the University have been followed. See the "Undergraduate Education" and "Graduate Education" sections of this Catalog.

Federal regulations mandate a refund policy for all students who are receiving federal financial aid and who process a complete withdrawal before 60% of the semester has elapsed. A detailed refund policy is available in the *Schedule of Classes*.

Summer Sessions Tuition and Fees

See Outreach College Summer Session catalog for Summer Session refunds.

Residency for Tuition Purposes

Students who do not qualify on the first day of instruction as bona fide residents of the state of Hawai'i pay the nonresident tuition. An official determination of residency status is made at the time of application. Applicants may be required to provide documentation to verify residency status. Once classified as a nonresident, students continue to be so classified during their enrollment at the University until they present satisfactory evidence to the residency officer that proves residency. For definition of Hawai'i residency for tuition purposes, statutory exemptions, etc., refer to the "Appendix."

WICHE Programs

Bachman 112
2444 Dole Street
Honolulu, HI 96822
Tel: (808) 956-6625

The University of Hawai'i at Mānoa participates in three exchange programs of the Western Interstate Commission for Higher Education (WICHE).

Through the Western Undergraduate Exchange (WUE) program, students from participating states who are not residents of Hawai'i may enroll at the Mānoa campus in designated programs at a reduced level tuition (plus other fees that are paid by all students). WUE students do not pay the higher charge for nonresident tuition. (Hawai'i residents may enroll under the same terms in designated institutions and programs in other participating states.) Hawai'i residents may obtain information about WUE programs in other states from the WICHE Certifying Officer for Hawai'i (see the location above); from participating institutions; or from the WICHE Student Exchange Program, P.O. Drawer 9752, Boulder, CO 80301-9752; Tel: (303) 541-0214; e-mail: info-sep@wiche.edu.

The School of Architecture, the William S. Richardson School of Law, the Library and Information Science Program (located in the Department of Information and Computer Sciences), the John A. Burns School of Medicine and the School of Nursing and Dental Hygiene participate in the WICHE-administered Professional Student Exchange Program (PSEP). PSEP allows legal residents of the states of Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming (states without a professional school in one or more of the above fields) to enjoy Hawai'i-resident status for admission and tuition purposes at the Mānoa campus. Students who receive certification from their home states receive preferential admission consideration and, if accepted, are charged Hawai'i-resident tuition rates. To be certified for PSEP, students must write to the WICHE certifying officer in their home state for the proper application forms at least one year in advance. State eligibility requirements vary, and the number of students funded by each state depends upon appropriations by the state's legislature. For addresses of state certifying officers contact the Director, Student Exchange Program, Western Interstate Commission for Higher Education, P.O. Drawer 9752, Boulder, CO 80301-9752; tel. (303) 541-0214; e-mail: info-sep@wiche.edu.

The University also participates in the WICHE Regional Graduate Programs agreement. Under this arrangement, legal residents of the 13 western states listed above will be charged resident tuition if they meet requirements for admission in specific graduate programs. Approved fields are East Asian languages and literatures (MA and PhD), natural resources and environmental management (MS and PhD), tropical medicine in the biomedical sciences (MS and PhD), Asian theater and dance (MA, MFA, and PhD), tropical entomology (MS and PhD), tropical plant and soil sciences (MS and PhD), oceanography (MS and PhD), second language acquisition (PhD), and Asian and comparative philosophy (MA and PhD). For detailed information, contact the appropriate graduate chair or see the respective field of study listings at the Graduate Division office.

Financial Aid

Financial Aid Services

Queen Lili'uokalani Center for Student Services 112

2600 Campus Road

Honolulu, HI 96822

Tel: (808) 956-7251

Fax: (808) 956-3985

E-mail: finaid@hawaii.edu

Web: www.hawaii.edu/fas

Scholarships, grants, loans, and work-study programs are provided to eligible students by the federal and state governments and private donors. Some programs are based on merit or academic records, and others on demonstrated financial need.

The University encourages students who believe they may not be able to enroll or continue their education because they lack financial resources to apply for financial aid through the Financial Aid Services office.

The federal government is a major source of grants, loans, and work-study funds to undergraduate and graduate students. With the enactment of the Higher Education Amendment of 1992, applicants are *required* to submit the Free Application for Federal Student Assistance (FAFSA) form to the federal processor for the determination of eligibility for federal, state, and institutional program funds.

In addition to the FAFSA, the University requires an institutional supplemental form. If you have been selected for verification, you must submit federal tax forms, a verification worksheet, and other forms as required by Financial Aid Services. Students interested in applying for financial aid may visit our website (www.hawaii.edu/fas) for financial aid information and forms.

The offer of aid may include funds from public and private sources, depending on the applicant's residency, degree of need, date of file completion, major, class level, and availability of funds. Recipients will be sent a copy of their rights and responsibilities, including the description of the type of funds awarded and disbursement procedures.

Deadlines

The priority date is March 15; however, applications will be accepted after that date with awards offered contingent on available funds.

Types of Financial Aid

Scholarships

Scholarships are awarded to exceptional UH Mānoa students on the basis of academic excellence and exceptional promise; students in specific majors, colleges, or schools; Hawai'i residents; students of a particular class standing; or students with demonstrated financial need. Noteworthy scholarships include the following among others:

Regents Scholarship for Academic Excellence

Twenty scholarships of \$4,000 per year plus full tuition are awarded to entering first-year students who are residents of Hawai'i and have a combined SAT score of at least 1300 and a high school GPA of 3.5 or better. This scholarship is renewable for four years upon maintenance of eligibility and includes an additional one-time \$2,000 grant in the junior year for an approved travel abroad or exchange program. For more information refer to the following web site: www.hawaii.edu/diversity.

Presidential Scholarship

Ten scholarships of \$4,000 per year plus full tuition are awarded to juniors who have a minimum cumulative GPA of 3.7, have demonstrated sustained progress in academic courses, show superior academic achievement or creative endeavor, and are residents of Hawai'i. This scholarship is renewable for one year upon maintenance of eligibility and includes a \$2,000 one-time grant for academic travel during the summer of the junior year. For more information refer to the following web site: www.hawaii.edu/diversity.

Nonresident Tuition Differential Waivers

UH Mānoa offers students from certain Asian and Pacific jurisdictions waivers allowing them to pay resident tuition. The program encourages deserving individuals from Asian and Pacific areas to pursue advanced study in Hawai'i. Undergraduate students may apply to the International Student Services office. Graduate students should write to the Graduate Division for more information.

Pacific Asian Scholarship

The Pacific Asian Scholarship Program annually awards tuition waivers to students demonstrating superior academic performance (3.5 or better cumulative GPA) and pursuing a course of study important to the Pacific and Asian region. For more information, undergraduates should contact the Academic Services Office of the School of Hawaiian, Asian, and Pacific Studies. Graduate students should contact the Graduate Division for information.

Scholarship to Disadvantaged Students

This federal program is available to assist medical students with zero to minimal financial resources. FAFSA required. Contact the Financial Aid Services office for details.

ROTC Scholarships

Scholarships are awarded for up to four years to qualified applicants by the UH Mānoa Army ROTC and Air Force ROTC programs. Scholarships cover tuition, books, laboratory fees, and a \$100 tax-free monthly allowance during the school year. Contact respective campus ROTC programs (see "ROTC Programs").

Computer-Assisted Scholarship Help

The newest and most comprehensive source of scholarship information for prospective and continuing UH students is CA\$H or Computer-Assisted Scholarship Help. CA\$H contains information on more than a thousand scholarships

and is accessible on the Web at dbserver.its.hawaii.edu/cash/. Students may also contact a reference librarian at the nearest college for other publications listing scholarships and fellowships or check with the Financial Aid Services office and individual colleges or departments.

Grants

A grant is a type of federal or state financial aid that does not have to be repaid. Usually, these awards are based on financial need.

Tuition Waivers

Tuition waivers are awarded annually to qualified undergraduate and graduate students who are bona fide residents of Hawai'i and who qualify on the basis of financial need as determined by the FAFSA available at the Financial Aid Services office. Tuition waivers cover only tuition. Any remaining balances, including fees, must be paid by the appropriate tuition payment deadline. Tuition waivers cannot be used for Outreach College, Summer Session, night school, etc.

Other tuition waivers for residents and nonresidents are awarded to classified students who participate in special programs and/or meet criteria set by colleges/schools. Contact the specific department for details.

The tuition waiver program is subject to change by the Board of Regents.

Federal Pell Grant

This award to undergraduate students is based solely on financial need as determined by congressional methodology. The amount received depends on the degree of need and schedule of awards as determined by the federal government. FAFSA required. Contact the Financial Aid Services office for details.

Federal Supplemental Educational Opportunity Grant

This award is provided to undergraduate students with exceptional financial need who are also eligible for the Federal Pell Grant. FAFSA required. Contact the Financial Aid Services office for details.

Hawai'i Student Incentive Grant (currently known as the Leveraging Educational Assistance Partnership [LEAP] Program)

This grant in the amount of tuition is awarded annually to qualified and needy resident full-time undergraduate students who have also been deemed eligible as Federal Pell Grant recipients.

Other Grants

Students are encouraged to contact a reference librarian at the nearest college for other publications listing grants for students. For additional information on these and other grants, check with the Financial Aid Services office or specific departments.

Loans

A financial aid package based on demonstrated financial need may include a long-term, low-interest federal, state, or institutional loan. Repayment of these loans begins after a student graduates, withdraws from school, or drops to less than half-time.

Federal Perkins Loan. Formerly called National Direct Student Loan, this loan is available to students with financial need. FAFSA required. Contact the Financial Aid Services office for details.

Primary Care Loan. This federal loan is awarded to students in the School of Medicine who demonstrate exceptional financial need and commit to serve in a health profession. Parental income information and FAFSA are required. Contact the Financial Aid Services office for details.

Nursing Student Loan. This federal loan is awarded only to students in the School of Nursing and Dental Hygiene who demonstrate financial need. FAFSA required.

Federal Family Educational Loans. These loans, formerly referred to as Guaranteed Student Loans, include the Federal Stafford Loan (subsidized and unsubsidized) and the Federal Parents Loan for Undergraduate Students and are available through banks and other lending institutions. Interest accrued may be subsidized by the federal government, depending on the degree of financial need. FAFSA required. Contact the Financial Aid Services office for details.

State Higher Education Loan. This loan is available to bona fide residents of the state of Hawai'i who demonstrate financial need. FAFSA required.

Short-Term, Emergency Loans. These institutional loans are designed to meet temporary or emergency financial needs of registered students. Contact the Financial Aid Services office, the Graduate Student Organization, or specific departments.

Other Loans. Students are encouraged to contact the reference librarian at the nearest library for other publications listing private loans for students. For additional information on these and other loan programs, check with the Financial Aid Services office, UH Foundation, or specific departments.

Work-Study

The Federal Work-Study Program enables students to meet part of their financial need through part-time employment. The program is funded by the federal government with matching funds from the University. Employment may be on or off campus with nonprofit organizations. FWS earnings are not calculated as income when applying for financial aid.

Generally, students are provided the work-study program as a part of their financial aid package. The Student Employment and Cooperative Education Office coordinates the work-study program. Job opportunities are available in many fields and require skills ranging from entry-level to highly technical. Community service jobs are also available, including tutoring positions in the America Reads and Counts Challenge. For further information, see the "Student Life" section of this Catalog.

Graduate Assistantships

The University offers assistantships to graduates of accredited institutions of higher learning who have satisfactory scholastic records, an adequate undergraduate background in the major field, and evidence of a high level of English proficiency.

Graduate assistants, chosen on a competitive basis, serve as part-time teaching or research assistants. All graduate assistants must be registered for and must complete at least 6 credit hours of degree-related course work each semester while holding the assistantship. Moreover, they must maintain at least a 3.0 GPA to continue in the position. The maximum course load typically is 9 credit hours. The period of service for each year for teaching assistants is typically from two weeks prior to the beginning of instruction through spring commencement; research assistants normally serve for 11 months. Graduate assistants are awarded tuition waivers, but they are not exempt from the general fees, special course fees listed in the *Catalog*, and the Graduate Student Organization fee. Applications should be sent to the chair of the appropriate department before February 1. Each application must be accompanied by three letters of recommendation from former professors or employers.

All applicants for graduate assistantships must be admitted as degree candidates to qualify for appointments. Applicants for assistantships are therefore advised to apply for admission to the Graduate Division prior to the time consideration for the assistantship is requested.

Information on assistantships and application forms may be requested from the chair of the appropriate graduate field of study.

Applicants are advised that the University has joined the Council of Graduate Schools in approving the following resolution:

Acceptance of an offer of financial aid (such as a graduate scholarship, fellowship, traineeship, or assistantship) for the next academic year by an actual or prospective graduate student completes an agreement that both student and graduate school expect to honor. In those instances in which the student accepts the offer before April 15 and subsequently desires to withdraw, the student may submit in writing a resignation of the appointment at any time through April 15. However, an acceptance given or left in force after April 15 commits the student not to accept another offer without first obtaining a written release from the institution to which a commitment has been made. Similarly, an offer by an institution after April 15 is conditional on presentation by the student of the written release from any previously accepted offer.

Graduate Fellowships

The Graduate Division has available general information on fellowship competitions open to American graduate students and administered by outside foundations or agencies. For application purposes, it is important to distinguish between (1) those awards made directly by the sponsoring agency to individual students and administered by an institution and (2) those awards made by the sponsoring agency to an institution to be awarded, in turn, to students for study at the specific institution.

Awards in the first category are generally made by national organizations and allow students to choose their institution of affiliation. Applications are submitted by students to the sponsor, usually in early fall preceding the year graduate study is to begin. The National Science Foundation Graduate Fellowships program is an example.

Awards in the second category, which vary in source from federal to local, include a large number of programs. At the University of Hawai‘i, nominations for these awards are generally made by the fields of study that are eligible. In some cases (e.g., Fulbright awards), the student may apply through the Graduate Division. Students are urged to exercise their initiative to explore the various possibilities. Initial inquiries should be directed to the chair of the field of study.

Information on fellowships is available at Spalding 354D.

UHM Scholarships

The scholarships listed below are only a selection of the more than one thousand scholarships, fellowships, and other awards available to UH students. More information is available from academic advisers, the UHM Library, Financial Aid Services, or the chairs of departments.

Scholarships administered by the UH Mānoa Financial Aid Services office:

Benjamin Alexander Scholarship
 Ruth E. Black Scholarship
 Harry H. Collins Memorial Scholarship
 Leora Parmelee Dean Scholarship
 Fushiminomiya Memorial Scholarship
 Francisco D. Gueco Scholarship
 Herbert and Doris Keppeler Scholarship
 Samuel W. King Memorial Scholarship
 Kotaro Kodama Scholarship
 Herbert H. Lee Scholarship
 Robinson A. McWayne Scholarship
 Hisaji Onoye Scholarship
 Pālolo Lions Club Scholarship
 Irving Singer Memorial Scholarship
 Stephen Spaulding Scholarship
 Susannah and Fortunato Teho Scholarship
 Inn and Mew Kung Choy Wong Scholarship
 William Kwai Fong Yap Scholarship

For more information regarding the above UH Mānoa Financial Aid Services-administered scholarships and awards, contact the Financial Aid Services office, Queen Lili‘uokalani Center for Student Services 112, (808) 956-7251 or visit their website at www.hawaii.edu/fas.

School of Architecture

Building Industry Association of Hawai‘i Architectural Travel Scholarship
 Building Industry Association of Hawai‘i Women’s Council Travel Scholarship
 Construction Specifications Institute Architectural Travel Scholarship
 Leo Daly Scholarship

HonBlue Architectural Research Travel Scholarship
 Allen R. Johnson/Roy C. Kelley Architectural Research Travel Scholarship
 School of Architecture Architectural Research/Travel Scholarships
 School of Architecture Intern/Travel Scholarship
 School of Architecture Student Exchange and Travel Scholarship
 School of Architecture Travel Scholarship(s)
 David Stringer Fellowship
 American Institute of Architects Honolulu Chapter/School of Architecture Alumni Association Design Awards for Outstanding Achievement in 100, 200, 300, and 400 level design studios
 School of Architecture Alumni Association Scholarship
 Armstrong Builders Scholarship

Colleges of Arts and Sciences

Arts and Sciences Advisory Council Awards
 Aspect Technology Fund Grants (open to all UHM students, administered by Arts and Sciences)
 K. S. Cheng Memorial Scholarship Fund
 Colleges of Arts and Sciences Alumni Association Scholarship
 Colleges of Arts and Sciences Alumni Association Study Abroad
 Richard and Mildred Kosaki Awards
 Rodney P. Santos Scholarship
 The John Young Scholarship in the Arts

Department of American Studies

Brown-Denney Award

Department of Anthropology

Jocelyn Armstrong Merit Award in Anthropology

Department of Art (for current majors only)

Ceramic Scholarship
 Jean Charlot Foundation Scholarship
 Chinese Bicentennial Art Award
 Geraldine P. Clark Memorial Fellowship
 David H. and Doris C. Crowell Award
 H. John Heide Fellowship in Art (graduate)
 Sibyl Heide Glass Grant Fund Award
 Kenneth Hewett Jr. Memorial Scholarship
 Honolulu Printmakers Scholarship
 Keichi Kimura Scholarship
 Craig Kojima Scholarship in Photography/Photojournalism
 Shore Hodge Lipsher Memorial Scholarship (undergraduate and graduate)
 McVay Scholarships (graduate)
 Student Opportunity Fund
 Diane Sullivan Memorial Scholarship
 Elsa Takasue Memorial Scholarship

College of Arts and Humanities

Diamond Head Theatre’s Burnett/Selleck Scholarship
 Danny Kaleikini/Kāhala Hilton Scholarship

Department of Botany

Isabella Aiona Abbott Undergraduate Botany Fund for Excellence
Beatrice Krauss Fellowship in Botany
Resource Management Training Fund

Department of Chemistry

Giichi Fujimoto Scholarship
Paul J. Scheuer and Shigeo and Hatsu Iwamoto Scholarship
William W. Y. Young Fellowship in Chemistry

Department of East Asian Languages and Literatures

East Asian Languages and Literature Student Prize
Pacific Asian Tuition Scholarship (graduate)
Red Mandarin and Lady Yi-suen Shen Tuition Scholarship in Chinese Language

Department of Economics

Burnham O. Campbell Dissertation Award in Economics
The Hung Family Fellowship (graduate)

Department of English

Abernethy Scholarship in Creative Writing (graduate)
The Academy of American Poets Prize
James W. and Eleanor B. Frierson Endowed Scholarship
The Harriet Goldsberry Memorial Award
Ernest Hemingway Awards for Undergraduate Poetry and Fiction
Red Mandarin and Lady Yi-suen Shen Tuition Scholarship (graduate)
Patsy Sumie Saiki Award (short story)
Stephen C. Stryker and William H. Stryker Prize For Creative Writing

Department of Geography

Neal M. Bowers Memorial Award
Abraham Pi'ianai'a Graduate Scholarship
H.J. Wiens Memorial Award (graduate)

Department of Hawaiian and Indo-Pacific Languages and Literatures

Dorothy M. Kahananui Scholarship
Red Mandarin and Lady Yi-suen Shen Tuition Scholarship
Lokomaika'iokalani Snakenberg Graduate Scholarship in Hawaiian Language

Department of History

Hung Family Endowed Fellowship (graduate)
John F. Kennedy Memorial Fellowship (doctorate)
Daniel W. Y. Kwok Award (graduate)
Idus Newby Award (graduate students/junior faculty)
Robert K. Sakai Award (graduate)
Ishi Sakurai Scholarships (undergraduate)

Journalism Program

Grace K. J. Abernethy Memorial Scholarship
Pierre L. Bowman Memorial Scholarship
Carol Burnett Fund for Responsible Journalism

James H. Couey Jr. Memorial Scholarship
Journalism Alumni Association Prizes
Dr. F. R. Moulton Memorial Scholarship
Pat Pitzer Memorial Scholarship
Robert L. Scott Memorial Award
Scripps League Newspapers Education Fund Scholarships
Eugene Tao Scholarship

Department of Languages and Literatures of Europe and the Americas

(French)
Mira Baciu-Simian Memorial Fellowship
Anita Hecht Scholarship
Betsy Tan Scholarship

Library and Information Science Program

Margaret W. Ayrault Scholarship
Mary Edward Professional Award
Friends of the Library (Hawai'i) Scholarships
Hawai'i Association of School Librarians Scholarship
LIS Student Award
Ralph R. Shaw Memorial Award

Department of Mathematics

Kern-Clark Memorial Award Fund
Dorothy Koehler Reed Scholarship

Department of Music

Louella Shipwright Buchenau Applied Music Scholarship (piano)
Ernest Chang Piano Student Scholarship (piano)
Chinese Music Scholarship
Beau Gard Dixon Memorial Scholarship (ethnomusicology)
Friends of Music at Mānoa Scholarship
Reiko Fujimoto Scholarship (voice, piano)
Goetz Music Scholarship (education)
Greg Hagiwara Scholarship (percussion or composition)
Fritz Hart Foundation Scholarship (performance or composition)
The Heide Student Assistance Fund
Honolulu Chinatown Lions Club Piano Scholarship (piano)
Honolulu Piano Teacher's Association Scholarship (piano)
Phyllis Jardine Memorial Scholarship (keyboard)
Danny Kaleikini/Kahala Hilton Hotel Scholarship
Geoffrey Lloyd Memorial Scholarship (voice or musicology)
Ellen Masaki Piano Studio Scholarship (piano)
Donald Matsumori Music Award (research)
Mary Jane Montano Memorial Award (Hawaiian music)
MTNA Membership Awards (music education)
Music Department Scholarships
Musical Moments with June Chun (piano)
Aya Noda Piano Scholarship (piano)
The Andrew Nyborg Fellowship in Music (graduate)
Nesta Obermer Chamber Music Scholarship (string instruments)
Orvis Endowed Scholarship
Mae Zenke Orvis Vocal Awards (voice)
Pedrini Scholarship

William Pfeiffer Memorial Scholarship (voice or ethnomusicology)
 Presser Foundation Scholarship
 Ho‘oulu Richards Scholarship (hula and Hawaiian chant)
 Ruth Small Memorial Scholarship (performance)
 Student Opportunity Fund
 UH Band Tuition Waiver Scholarships
 Richard Vine Scholarship (voice)

Department of Physics and Astronomy

Helen Jones Farrar ARCS Foundation Scholarship

Department of Political Science

Harry Friedman Memorial Award
 Thomas Hale Hamilton Memorial Award
 Philip E. Jacob Award
 Carl Knobloch Award
 Richard Kosaki Award
 Werner Levi Award
 Norman Meller Award

Public Administration Program

Herman S. Doi Fellowship
 Pacific Island Health Administration Scholarship

Department of Religion

Buddhist Studies Scholarship Fund
 Henry Gengo and Riu Wakai Memorial Scholarship
 Kuan Yin Temple Buddhist Studies Scholarship

Department of Second Language Studies

Ruth Crymes Scholarship
 Holmes Scholarship Endowment
 Charlene Sato Memorial Fund

Department of Speech

Lucille and Bren Breneman Scholarships
 Oscar H. and Rosetta Ramsey Fish Scholarship
 Joseph F. Smith Memorial Award

Department of Theatre and Dance

Department of Theatre and Dance Tuition Scholarships in Theatre

Department of Urban and Regional Planning

Planning Program for Korean Planners

Department of Zoology

Edmondson Fellowships and Research Grants
 E. Alison Kay Scholarships
 Sidney Townsley Scholarship

College of Business Administration

Boeing Company Scholarship
 Cartier Fellowship
 Chevron Scholarship in Marketing
 Dennis Ching Memorial Scholarship
 N. H. Paul Chung Scholarship-PAMI International Summer Program

Deloitte and Touche LLP Scholarship
 Hoefler Foundation Scholarship
 Florence Hutson Driskel Scholarship
 Edmund W. J. Faison Memorial Scholarship
 Vance Fawcett Scholarship
 Financial Executives Institute Scholarship
 Fish Scholarship for Excellence
 Dick Gourley Scholarship
 Hands of Hope Foundation Scholarship
 Hawai‘i Accounting Education Foundation Scholarship
 Howard K. Hiroki Scholarship
 Ralph C. Hook Scholarship
 Carol Johnson Memorial Fund Scholarship for Mid-Career Women
 Kauffman Entrepreneurial Internship Grant
 J. M. Long Foundation Scholarship
 Theodore Lopez Memorial Scholarship
 Marian Miccio Memorial Scholarship
 Hideo Noguchi International Scholarship at the Center for Global Investment and Finance
 Pacific Basin Finance Journal Scholarship
 Elias T. Ramos Memorial Scholarship
 Society of CBA Alumni and Friends Scholarship
 Society of Human Resource Management Scholarship
 Manuel Sylvester Scholarship
 Marge Sylvester Scholarship
 Kazuo and Akiyo Totoki Memorial Scholarship
 J. Watumull Merit Scholarship
 J. Edwin Whitlow Endowment

College of Education

Mitsuo Adachi Scholarship
 Toshiko and Shiro Amioka Scholarship
 Bank of Hawai‘i Scholarship in Teacher Education
 Joseph and Sumie Kaneshiro Bishop Scholarship
 Frank B. Brown Scholarship
 James and Abigail Campbell Foundation Scholarship
 The Coca-Cola Foundation Scholarship
 College of Education Alumni Scholarship
 College of Education Endowment Scholarship
 Alice, Sumy, and Carl Daeufer Family Scholarship
 Peter and Patricia A. Dunn-Rankin Scholarship
 Evelyn Siu Foo Scholarship in Education
 Royal T. and Aurora A. Fruehling Scholarship for Graduate Study in Education
 Verizon Mathematics and Science Teacher Scholarship
 William Randolph Hearst Foundation Scholarship
 Sibyl Nyborg Heide Scholarship
 Teruo Ihara Scholarship
 Andrew W. S. and Jennie L. In Scholarship for Graduate Studies
 Stella Lau In Memorial Scholarship
 Dorothy M. Kahananui Scholarship in Music Education
 Alexander Poki Kali Memorial Scholarship
 Colonel Willys E. Lord, DVM and Sandina L. Lord Endowed Scholarship Fund for the College of Education
 McInerny Foundation Scholarships in Teacher Education

Yoshiaki and Asako Furuya Nakamoto Scholarship for Undergraduate Study
 Takasuke and Tome Nomura Family Scholarship
 Dr. Margaret Y. Oda Scholarship
 Frances M. J. and Alexander L. Pickens Scholarship
 Hazel Van Allen Scholarship
 Pearl N. and Paul T. Yamashita Scholarship in Special Education
 The Autistic Center of Hawaii Scholarship in Special Education
 The Edith Ling Louis & James Lun Louis Endowed Scholarship

College of Engineering

The AES Kalaeloa Venture, LLC Scholarship
 Everett E. Black Scholarship
 Boeing Company Scholarship
 Fred and Annie Chan Scholarship
 Chevron Scholarship
 Chi Epsilon Alumni Association Scholarship
 Engineering Alumni Association Scholarship
 The John S. Farmer (CCPI) Scholarship
 George W. T. Loo Scholarship
 Hands of Hope Foundation Scholarship
 Hawaiian Cement Intern Scholarship
 Hawaiian Dredging Construction Company Scholarship
 Harold J. Heide Scholarship in Mechanical Engineering
 Sam and Yukino Hirota Scholarship
 Wilfred J. Holmes Memorial Scholarship
 Ralph B. Hubbard, Jr., Scholarship
 Eric N. Jacobsen Memorial Scholarship
 Kiewit Pacific Company Scholarship
 Regent Donald Chang Won Kim Scholarship
 Patrick L. MacDonald Memorial Scholarship
 Larry K. Matsuo Scholarship
 Nagamine Okawa Engineers Scholarship
 Oceanic Cable Endowed Scholarship
 SSFM International, Inc. Scholarship
 St. George Fund Scholarship
 Richard M. Towill Scholarship
 Roswell M. and Jeanie Towill Civil Engineering Scholarship
 J. Watumull Merit Scholarship

School of Hawaiian, Asian, and Pacific Studies

Air Micronesia Pilots Scholarship
 Center for Hawaiian Studies Scholarship
 Harry Chow and Nee-Chang C. Wong Scholarship
 The Japan Travel Bureau International Hawai'i Scholarship
 William P. Lebra Memorial Scholarship
 Mary Kawena Pukui Scholarship
 James Shigeta Scholarship in Asian Studies

School of Law

Spirit of Alison K. Adams Award
 Cades Schutte Fleming and Wright Scholarship
 Wallace S. Fujiyama Memorial Scholarship

Hyman M. and Betty D. Greenstein Memorial Fellowship
 Hilo High School Alumni Scholarship Endowment Fund
 George M. and Evelyn W. Johnson Scholarship
 Hiroaki, Elaine and Lawrence H. Kono Foundation Scholarship
 James Koshiba Law Review Scholarship
 James E. T. Koshiba Public Service Scholarship
 Law Alumni/Friends Golf Tournament Scholarship Awards
 Francell Marbeth Mokihana Marquardt Scholarship for Pacific Island Students
 Carl K. Mirikitani, Jr. Scholarships
 Richard S. and Percy K. Mirikitani Memorial Scholarship
 Edward H. Nakamura Memorial Scholarship
 Pacific/Asian Law Student Fund
 Michael P. Porter Dean's Scholastic Awards
 Sogi Foundation Summer Internship Scholarship Fund
 J. M. Weightman Memorial Scholarship

School of Medicine

ARCS Foundation Scholarship
 E. E. Black Scholarship
 Rosalind S. Chun Memorial Scholarship
 Ralph and Jane Hale Scholarship
 Hawai'i Medical Alliance Association Community Service Award
 Dr. Shigeru Richard and Mrs. May Horio Memorial Scholarship
 Samuro and Florence Ichinose Scholarship
 Stella Lau In Memorial Scholarship
 Nadine Alexander Kahanamoku Scholarship Program
 J. M. Long Foundation Scholarship
 Medical School General Scholarship
 Medical School Travel Scholarship
 Wanda Jane Pavela Scholarship
 Yazawa Family Endowed Award

School of Social Work

Betty Lyle Anderson Scholarship
 Sentaro and Laurel Tomiko Takasaki Kaneda Endowed Scholarship
 Gaile M. Kurren Scholarship
 George K. Okazaki Memorial Scholarship and Grant Fund
 Daniel S. Sanders Doctoral Award
 Richard S. and T. Rose Takasaki Endowed Scholarship

School of Nursing and Dental Hygiene

Bickerton Scholarship in Dental Hygiene
 Rosie Chang, PhD Scholarship in Nursing
 Graceann Ehlke Memorial Scholarship
 Hawai'i Family Dental Centers Scholarship for Dental Hygiene
 Kuakini Foundation Nursing Scholarship
 Milton Lau Memorial Scholarship
 Frances Matsuda Fellowship in Nursing
 Signe Widen Nyborg Scholarship in Nursing
 Sigma Theta Tau Scholarship
 Duane D. Walker Scholarship in Nursing

School of Ocean and Earth Science and Technology

Agatin Abbott Award
 ARCS Foundation Scholarship (graduate)
 William T. Coulbourn Fellowship in Marine Geology
 Geology and Geophysics Undergraduate Research Awards
 Bernice C. Loui Scholarships and Fellowships
 NOAA-Sea Grant Scholarships
 Senior Thesis Research Award
 Chevron Scholarship
 Noel and Diane Henderson Scholarships in Science and Engineering
 Fernando Gabriel Leonida Memorial Scholarship
 Harold T. Stearns Fellowship
 J. Watumull Merit Scholarship (graduate)

Marine Option Program

Anna Toy Ng Memorial Scholarship

School of Travel Industry Management

Edward and Orpah Barnet
 Robert H. Burns
 CSX Lines
 Educational Opportunity Fund
 John Stewart Foote
 General Scholarship
 Conrad N. Hilton Scholarship (American Hotel Foundation)
 Hichiro and Lily Kobayashi
 Jeffery Kalima Loo/Maui Marriott
 William J. Mullahey/Pacific Asia Travel Association
 Pacifico Creative Service
 Pan Am Employee Organization
 Annette Parker
 Martin Pray IHRG
 SKAL Club
 SMG/Hawai'i Convention Center
 TIM International – Hong Kong
 TIM International Inc. – Hawai'i – Alumni
 TIM Student Education Opportunity Fund
 Travel and Leisure Magazine
 Antone and Edene Vidinha Charitable Trust Scholarship

College of Tropical Agriculture and Human**Resources**

Agricultural and Resource Economics-PRC Fund
 ARCS Foundation Scholarships
 Harold and Eleanor Matsumoto Au Scholarship Program
 Miles E. Carey Memorial Scholarship
 CTAHR Alumni Association Award
 CTAHR New Student Scholarship
 Edward M. Ehrhorn Entomology Scholarship
 Katherine Gruelle Scholarship
 Hawai'i Association of Family and Consumer Sciences Scholarships
 Hawai'i Association of Nurserymen Scholarship
 Charles Hing Scholarships
 Ralph Iwamoto Scholarship
 Hiroki Kaku Memorial Scholarship

Haruyuki Kamemoto Scholarship
 Kaua'i County Farm Bureau Scholarships
 Noel P. Kefford Scholarship
 Carey D. Miller Scholarship
 Wallace C. Mitchell Endowed Scholarship
 Multicultural Scholars Program Scholarship
 National Federation of Garden Clubs Scholarship
 Patricia Sachi Ogawa Scholarship
 Pacific Egg and Poultry Association Scholarship
 Charles H. Reid, DVM Memorial Scholarship
 H. Dale Sato Urban Garden Center Scholarship
 Richard Shimabukuro Memorial Scholarship
 Minoru Tamashiro Endowed Scholarship
 Dennis Y. and Brenda R. Teranishi Scholarship
 Carolyn and Goro Uehara Scholarship for Women in Agriculture
 J. Watumull Merit Scholarship
 George M. Yamane Scholarship

Intercollegiate Athletics

'Ahahui Koa Ānuenue Scholarship
 Athletic General Scholarships
 Stan Sheriff Scholarship Fund
 Charles Ushijima Alumni Baseball Scholarship
 Verizon Athletic Scholarships

International Student Services

Asian Pacific Tuition Differential Exemption
 Mildred Towle Scholarship

KOKUA Program

Walter Serikawa Scholarship

National Student Exchange

Edwin T. and Leilani Kam Scholarship

Operation Kua'ana

Operation Kua'ana Scholarship

Office of Multicultural Student Services

Office of Multicultural Student Services Scholarship

ROTC Programs**Aerospace Studies**

Armed Forces Communication and Electronics Association
 ROTC Scholarship Award
 Wah Kau Kong Memorial Award Scholarship

Military Science

Armed Forces Communications and Electronics ROTC Scholarships
 Bartow Memorial Endowment (Army ROTC)
 Basic Camp Two Year Scholarship Fund
 Four, Three, and Two Year General Army Scholarships
 Green to Gold Two Year Scholarship Fund

Taiwani Award Scholarship Fund
Three and Two Year Army Nursing Scholarships
Reserve Forces Duty Scholarship Fund

Office of Student Equity, Excellence, and Diversity

Web: www.hawaii.edu/diversity
Horatio Alger National Scholars
John F. and Lani Bucca Memorial Scholarship
W. Chang Scholarship
Walter A. and Diane N. Dods Endowed Scholarships
Dai Ho Chun Scholarship for Students in the College of Education
Dai Ho Chun Scholarship for International Students
Hoaliku L. Drake Scholarship
Wallace S. Fujiyama Memorial Scholarship
Fun Factory Scholarships
Mr. and Mrs. Abraham M. S. Goo Endowment for the Sciences
John Vernon Harry and Shizuko Nakagawa Harry Endowed Scholarships
Hawai'i Educational Foundation Scholarships
Hawai'i Florists and Shippers Association
Noel and Diane Henderson Scholarships in Science and Engineering
Chun Ku and Soo Yong Huang Graduate Scholarship
Chun Ku and Soo Yong Huang Grants
Colonel Harold E. Jensen and Mrs. Lill Jensen Scholarship Endowment
Kaiser Permanente Scholarship for Students in Health Care
Sukeichi and Hideko Koide Family Endowed Scholarships
L and L Drive Inn Scholarships
L and L Drive Inn—Chinese Chamber of Commerce Scholarship
L and L Drive Inn—O'ahu Filipino Community Council Scholarships

L and L Drive Inn—United Filipino Council of Hawai'i Scholarships
L and L Drive Inn—Waipahu High School Scholarship
Justice Thurgood Marshall Scholarship
Ann Koga Mortimer Memorial Scholarship
National Science Foundation Scholarships for Computer Science, Engineering and Mathematics
Laura A. Parsons Scholarship
Linda E. Putnam Memorial Scholarship
Regents and Presidential Scholars
Leon J. Rhodes Scholarship
Senior Citizen Visitor Program Scholarship
Albert J. Simone Scholarship Endowment
Colonel Geraldine Y. K. Tom Scholarship
Mildred Towle Scholarships for International Students
Morris K. Udall Scholarships
University of Hawai'i Alumni Association/Las Vegas South Nevada Chapter Scholarship
University of Hawai'i Scholarships
Watumull Scholarships

Study Abroad Center

Anita Hecht Scholarship (French only)
Association of International Education—Japan
Betsy Tan Scholarship (French only)
College of Arts & Sciences Alumni Association Study Abroad Grant
Denmark's International Scholarship
Hawai'i Community Foundation Mildred Towle Scholarship for Study Abroad
Institute of International Studies - Seville Scholarship
Thames Valley University Scholarship
Margaret Todd Scholarship
Mildred Towle Scholarship for International Study
Mira Baciu-Simian Scholarship (French Only)

Degrees, Minors and Certificates

The University of Hawai'i at Mānoa offers undergraduate and graduate degrees, minors, and certificate programs in the following areas. Changes in programs and degrees approved after October 2001 may not be reflected in this listing.

Field	Degree or Certificate	Field	Degree or Certificate
Accounting (p. 190)	BBA, MAcc	Finance (p. 191)	BBA
Aging (p. 234)	U Cert, BA ⁹	Food Science (p. 314)	MS
American Studies (p. 91)	Min, BA, MA, PhD	Food Science and Human Nutrition (p. 314)	BS
Animal Sciences (p. 314)	BS, MS	French (p. 130)	U Cert, BA, MA ⁸
Anthropology (p. 93)	BA, MA, PhD	General Business (p. 182)	BBA
Apparel Product Design and Merchandising (p. 313)	BS	Geography (p. 119)	Min, BA, MA, PhD
Architecture (p. 75)	BArch ¹ , MArch ¹ , ArchD	Geology (p. 278)	BA
Art (p. 96)	Min, BA, BFA, MA, MFA	Geology and Geophysics (p. 278)	Min, BS, MS, PhD
Asian Studies (p. 227)	Min, BA, G Cert, MA	Gerontology (p. 234)	U Cert, G Cert ⁵
Astronomy (p. 98)	MS, PhD	German (p. 130)	U Cert, BA, MA ⁸
Athletic Training (p. 208)	BS ⁴ , MS ⁴	Global Environmental Science (p. 284)	BS
Biology (p. 99)	Min, BA, BS	Hawaiian (p. 121)	U Cert ⁶ , BA
Biomedical Sciences (pp. 234, 258, 262)	MS ² , PhD ³	Hawaiian Studies (p. 230)	BA
Biostatistics and Epidemiology (p. 258)	PhD ³	Health/Exercise Science (p. 208)	BS ⁴ , MS ⁴
Bioengineering (p. 318)	BS, MS	Hindi (p. 121)	U Cert ⁶ , BA ¹¹
Botany (p. 100)	Min, BA, BS, MS, PhD	Historic Preservation (p. 91)	G Cert
Burmese (p. 121)	U Cert ⁶	History (p. 123)	Min, BA, MA, PhD
Business Administration (p. 182)	Min, MBA	Human Resource Management (p. 192)	BBA, MHRM
Business, General (p. 182)	BBA	Ilokano (p. 121)	U Cert ⁶ , BA ¹¹
Cell and Molecular Biology (p. 234)	MS ² , PhD ³	Indonesian (p. 121)	U Cert ⁶ , BA ¹¹
Chemistry (p. 104)	Min, BA, BS, MS, PhD	Indo-Pacific Languages (p. 121)	U Cert ⁶ , Min, BA ¹¹
Chinese (p. 109)	U Cert, BA, MA ⁷ , PhD ⁷	Information and Computer Sciences (p. 124)	BA, MS
Chinese Studies (p. 227)	G Cert	International Business (p. 192)	BBA
Civil and Environmental Engineering (p. 218)	BS, MS, PhD	International Management (p. 192)	PhD
Classics (p. 129)	U Cert, BA, MA ⁸	International Cultural Studies (p. 126)	G Cert
Communication (p. 105)	BA, MA	Interpretation and Translation (p. 127)	U Cert
Communication and Information Sciences (p. 107)	PhD	Japanese (p. 109)	U Cert, Min, BA, MA ⁷ , PhD ⁷
Computer Science (p. 124)	Min, BS, PhD	Japanese Studies (p. 227)	G Cert
Construction Engineering and Management (p. 216)	G Cert	Journalism (p. 128)	BA
Counseling and Guidance (p. 201)	MEd	Kinesiology and Leisure Science (p. 208)	BS ⁴ , MS ⁴
Dance (p. 169)	Min, BA, MA, MFA	Korean (p. 109)	U Cert, Min, BA, MA ⁷ , PhD ⁷
Dance Theatre (p. 169)	BFA	Korean Studies (p. 227)	G Cert
Dental Hygiene (p. 265)	BS	Languages and Literatures of Europe and the Americas (p. 129)	MA ⁸
East Asian Languages and Literatures (p. 109)	MA ⁷ , PhD ⁷	Law (p. 242)	JD
Economics (p. 111)	Min, BA, MA, PhD	Liberal Studies (p. 132)	BA ⁹
Education (p. 194)	PDE, PhD	Library and Information Science (p. 132)	G Cert, MLISc
Educational Administration (p. 202)	MEd	Linguistics (p. 134)	BA ⁹ , MA, PhD
Educational Foundations (p. 203)	MEd	Management (p. 192)	BBA
Educational Psychology (p. 205)	MEd, PhD	Management Information Systems (p. 192)	BBA
Educational Technology (p. 207)	MEd	Marine Option (p. 275)	U Cert
Electrical Engineering (p. 220)	BS, MS, PhD	Maritime Archaeology and History (p. 275)	G Cert
Elementary Education (p. 212)	BEd, MEd	Marketing (p. 193)	BBA
English (p. 114)	Min, BA, MA, PhD	Mathematics (p. 138)	Min, BA, BS, MA, PhD
English as a Second Language (p. 161)	BA ⁹ , MA ¹⁰ , PhD ¹⁰	Mechanical Engineering (p. 222)	BS, MS, PhD
Entomology (p. 328)	MS, PhD	Medical Technology (p. 252)	BS, PB Cert ¹²
Environmental Studies (p. 117)	U Cert, BA ⁹	Medicine (p. 254)	MD
Ethnic Studies (p. 118)	U Cert, BA	Meteorology (p. 287)	BS, MS, PhD
European Cultural Studies (p. 129)	BA ⁹	Microbiology (p. 139)	Min, BA, BS, MS, PhD
Family Resources (p. 312)	BS	Molecular Biosciences and Bioengineering (p. 318)	MS, PhD
Filipino (p. 121)	U Cert ⁶ , BA ¹¹		

Music (p. 141) U Cert, Min, BA, BEd¹⁴, BMus, MA, MMus, PhD
 Natural Resources and Environmental Management (p.321) BS, MS, PhD
 Nursing (p. 267) BS, G Cert, MS, PhD
 Nutritional Sciences (p. 314) MS
 Ocean and Resources Engineering (p. 289) MS, PhD
 Ocean Policy (p. 275) G Cert
 Oceanography (p. 291) MS, PhD
 Pacific Islands Studies (p. 231) G Cert, MA
 Peace Studies (p. 144) U Cert, BA⁹
 Philippine Studies (p. 227) G Cert
 Philosophy (p. 146) Min, BA, MA, PhD
 Physical Education (p. 208) BS⁴, MS⁴
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 Plant and Environmental Biotechnology (p. 326) BS
 Plant and Environmental Protection Sciences (p.328) BS, MS, PhD
 Plant Pathology (p. 328) MS, PhD
 Political Science (p. 150) Min, BA, MA, PhD
 Population Studies (p. 151) G Cert
 Psychology (p. 153) BA, MA, PhD
 Psychology, Clinical (p. 153) G Cert
 Public Administration (p. 155) G Cert, MPA
 Public Health Sciences and Epidemiology (p. 258) .. MPH, MS, DrPH, PhD³
 Real Estate (p. 182) BBA
 Recreation and Leisure Science (p. 208) BS⁴, MS⁴
 Religion (p. 156) Min, BA, G Cert, MA
 Renewable Energy Engineering (p. 240) G Cert

Resource Management (p.241) G Cert
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 Social Welfare (p. 300) PhD¹³
 Social Work (p. 300) BSW, MSW, PhD¹³
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 Sophomore Honors (p.21) U Cert
 South Asian Studies (p. 227) G Cert
 Southeast Asian Studies (p. 227) G Cert
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 Special Education (p. 210) PBCSPED, MEd
 Speech (p. 167) Min, BA, MA
 Speech Pathology and Audiology (p. 260) BS, MS
 Tahitian (p. 121) U Cert⁶
 Teaching (p. 212) MEdT
 Telecommunication and Information Resource Management (p. 107) G Cert
 Thai (p. 121) U Cert⁶, BA¹¹
 Theatre (p. 169) Min, BA, MA, MFA, PhD
 Travel Industry Management (p. 303) BS, MS
 Tropical Plant and Soil Sciences (p. 332) BS, MS, PhD
 Tropical Medicine (p. 262) MS², PhD³
 Urban and Regional Planning (p. 173) G Cert, MURP, PhD
 Vietnamese (p. 121) U Cert⁶, BA¹¹
 Women's Studies (p. 176) U Cert, BA⁹, G Cert
 Zoology (p. 178) Min, BA, BS, MS, PhD

¹ The bachelor's program and the master's program in architecture have been replaced with a professional architecture doctorate program (ArchD).

² The MS in biomedical sciences is offered in cell and molecular biology, genetics, physiology, and tropical medicine.

³ The PhD in biomedical sciences is offered in biostatistics-epidemiology, cell and molecular biology, physiology, and tropical medicine.

⁴ The BS and MS in kinesiology and leisure science are offered in athletic training, health/exercise science, physical education, and recreation and leisure science.

⁵ The Center on Aging offers the Undergraduate Certificate in Aging and the Advanced Certificate in Gerontology.

⁶ The Certificate in Indo-Pacific Languages is offered in Burmese, Filipino, Hawaiian, Hindi, Ilokano, Indonesian, Samoan, Sanskrit, Tahitian, Thai, and Vietnamese.

⁷ The MA and PhD in East Asian languages and literatures are offered in Chinese, Japanese, and Korean.

⁸ The MA in languages and literatures of Europe and the Americas is offered in Classics, French, German, Russian, and Spanish.

⁹ Students can receive a BA in liberal studies in aging, English as a second language, environmental studies, European cultural studies, Indo-Pacific languages, linguistics, peace studies, and women's studies. In addition, students can design their own majors utilizing this program.

¹⁰ The Department of Second Language Studies offers the MA in English as a second language, the Advanced Graduate Certificate in Second Language Studies, and the PhD in second language acquisition.

¹¹ The BA in liberal studies for Indo-Pacific languages has several concentrations: Filipino, Hindi, Ilokano, Indonesian, Samoan, Sanskrit, Thai, and Vietnamese.

¹² The School of Medicine offers a Post-baccalaureate Certificate for Medical Technology Clinical Training.

¹³ The School of Social Work offers the PhD in social welfare.

¹⁴ In conjunction with the Department of Music, the College of Education offers a BEd in elementary or secondary education with a specialization in music.

ArchD—doctorate of architecture	management
BA—bachelor of arts	MLISc—master of library and information science
BArch—bachelor of architecture	MMus—master of music
BBA—bachelor of business administration	MPA—master of public administration
BEd—bachelor of education	MPH—master of public health
BFA—bachelor of fine arts	MS—master of science
BMus—bachelor of music	MSW—master of social work
BS—bachelor of science	MURP—master of urban and regional planning
BSW—bachelor of social work	PDE—professional diploma in education
DrPh—doctorate of public health	PhD—doctor of philosophy
G Cert—graduate certificate	PB Cert—post-baccalaureate certificate
JD—juris doctor	PBCSE—Post-baccalaureate Certificate in Secondary Education
MA—master of arts	PBCSPED—Post-baccalaureate Certificate in Special Education
MAcc—master of accounting	U Cert—undergraduate certificate
MArch—master of architecture	
MBA—master of business administration	
MD—doctor of medicine	
MED—master of education	
MEdT—master of education in teaching	
MFA—master of fine arts	
Min—minor	
MHRM—master of human resource	

School of Architecture



Administration

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Dean: W. H. Raymond Yeh
Associate Dean: Joyce M. Noe

Faculty

- *W. H. R. Yeh, MArch (Dean)—architectural and urban design
- *J. M. Noe, MDesD (Associate Dean, Practice Program Director)—design, history of architecture, professional practice
- *A. Anderson, MArch—design, history/theory, urban studies
- K. Ashraf, SMarchS—history and theory
- *B. J. Baker, DipArch—design, construction management
- *E. E. Botsai, ArchD—design, building pathology, construction materials and technology, architectural seismicity
- *F. L. Creager, BS—design, construction materials and technology
- *A. B. Etherington, PhD—housing and community development in developing countries
- *S. A. Leineweber, BArch, MA—design, history of architecture, historic preservation
- *L. K. F. Liu, MFA—design, graphics, vernacular architecture

- S. Meder, ArchD—design, research, environmental systems
- *P. Miao, PhD—architectural/urban design, theory, Chinese architecture
- *J. M. Noe, MdesD—design, history of architecture, professional practice
- *V. W. Olgyay, MArch—design, acoustics, environmental systems
- J. H. Park, PhD—design, computers
- *S. Rab, PhD—history and theory
- *G. D. C. Tyau, MSArch (Graduate Chair)—design, structural technology, professional practice

Affiliate Faculty

- J. A. Dator, PhD—political science
- K. E. Kim, PhD—planning
- R. Y. Kwok, PhD—planning
- D. McClain, PhD—international business
- L. Minerbi, MCD—planning
- J.P. Suyderhoud, PhD—business
- J.R. Wills, PhD—business

Adjunct Faculty

- K. F. Brown, BA—professional practice
- W. W. E. Chong, BArch—professional practice
- D. Chun, MArch—professional practice
- G. Clement, MArch—professional practice
- J. P. Cramer, BS—professional practice
- F. Crowell, MArch—professional practice
- W. Deguchi, BArch—professional practice
- J. G. Farrell, BArch—professional practice
- T. Garduque, MArch—professional practice
- D. Goo, BArch—professional practice
- R. Green, BArch—professional practice
- F. S. Haines, MArch—professional practice
- N. R. Hale, BArch—professional practice
- S. S. Huh, MArch—professional practice
- D.M. Irie, BArch—professional practice
- J. Jonassen, MArch—professional practice
- D. Kauahikaua, MArch—professional practice
- R. Knowles, MArch—architecture research
- K. Kurokawa, PhD—professional practice

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* Graduate Faculty

L.T. May, BLA—professional practice
 K. Mitchell, BArch—professional practice
 F. S. Oda, ArchD—professional practice
 M. T. Okada, BArch—professional practice
 T. Okamoto, MArch—professional practice
 J. M. Okita, MArch—professional practice
 P. Onishi, BArch—professional practice
 K. S. Park, MArch—professional practice
 D. Parker, DipArch—professional practice
 T. Payette, MArch—professional practice
 C. S. Sakata, ArchD—professional practice
 K. Sanders, BArch—professional practice
 J. Sheehy, MArch—professional practice
 H. T. Shen, BS—professional practice
 J. T. Sidener, PhD—professional practice
 W. C. Steward, MS—professional practice
 B.T. Takahashi, MArch—professional practice
 B. E. Uyehara, MArch—professional practice
 E. Watanabe, BArch—professional practice
 J. R. White, MArch—professional practice
 D. W. Winey, BArch—professional practice
 K. K. M. Yeang, PhD—professional practice

General Information

Introduction

The study of architecture develops intellectual, professional and creative skills, and knowledge in the design of form and space together with the integration of construction technology. Architectural studies offer students the opportunity to generate physical solutions to difficult and complex problems, often with competing economic, social, and political, as well as physical, parameters. The profession of architecture attracts those who have a wide range of interests and skills and wish to make a unique contribution to society.

To accommodate a broad range of student backgrounds, the school offers an Architecture Doctorate (ArchD) as a professional degree. This program fulfills the academic requirements for licensure in the profession of architecture and is the only such degree program in the state of Hawai'i.

Mission and Goals

The primary mission of the School of Architecture at the University of Hawai'i at Mānoa, is to offer the highest quality architectural education to prepare students to be ethical and humane professionals, with a desire for life-long learning, a commitment to excellence, and the aspiration to be contributing members of society.

The academic program of the School of Architecture offers opportunities to focus on meeting the special needs of Hawai'i, Asia and the Pacific Region. The school strives to be the center for the study of Asia-Pacific architecture, committed to the aggressive pursuit and establishment of the knowledge base for this regional architecture, and to effectively disseminate the accumulated knowledge to the students, the professional community, and the public at large. The school has the

distinction of producing graduates who are competent practitioners, especially equipped to meet the architectural challenges of Hawai'i, Asia and the Pacific region.

Existing Programs

The School of Architecture offers a professional Architecture Doctorate (ArchD) degree program to new students in addition to maintaining the existing Bachelor of Architecture (BArch) and Master of Architecture (MArch) degree programs for only students currently enrolled.

The five-year Bachelor of Architecture program, the variable length Master of Architecture program, and the new seven-year program, which currently awards an accredited BArch degree as well as an ArchD degree meet all the national accreditation standards of the National Architectural Accrediting Board (NAAB) and are accredited by NAAB for the maximum six-year term.

The professional ArchD program is the first of its type in the nation and graduates of this program are granted a BArch degree as well as the ArchD degree, required until NAAB recognizes the latter along with BArch and MArch degrees. The 1998 NAAB Conditions and Procedures that are currently under revision state:

“In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit US professional degree programs in architecture, recognizes two types of degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a five-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards. Master degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.”

Description

The Architecture Doctorate (ArchD) is a 212-credit program which can be completed in six to seven years. The curriculum carefully integrates off-campus professional practice training and overseas cross-cultural experience within the comprehensive academic program.

The ArchD program consists of three segments. The first three-year segment is Pre-Professional Studies, the second segment is a Transition year, and the third three-year segment is Professional Studies. The Pre-Professional segment addresses the University liberal arts core requirements along with the study of architectural design principles and applications. The Transition year connects the Pre-Professional and the Professional Studies. The Professional segment continues the study of architectural design principles and applications including a number of elective courses. It provides the students opportuni-

ties for overseas studies and involves them in the professional practice of architecture which incorporates real-time experience in architectural firms. Culmination of the individual student's experience will be in the form of a doctoral project in the final year of the program. With careful planning and full utilization of the summers and/or prior university education, the seven-year program may be completed in less time.

Curriculum Uniqueness

This curriculum is unique in the following ways:

Practice Integration

The practice of architecture is a programmatic requirement in this integrated curriculum. Every student will have one to two years of architecture office experience which may be applied toward the training requirements necessary for the licensure in the United States. The practicum curriculum incorporates substantial professional practice elements with the required courses and experience in professional firms. Students are placed in architectural firms in Honolulu and abroad who have Asia Pacific experience. Principals serve as adjunct professors who are responsible for student's learning and training which is non-compensated and based in part on current guidelines or core competencies for licensure developed by the National Council of Architecture Registration Boards (NCARB) for Intern Development Program (IDP).

International Practice Opportunities

The program offers opportunities for international studies and practice through exchange programs and professional experience where students can study and/or practice abroad as part of the program. Through the School's overseas studies program and exchange agreements with a number of leading international architectural firms and universities in the Asia/Pacific region, all the students are expected to participate in an international study program prior to graduation.

Design Studios

ArchD graduates will have fourteen (14) Architecture studios (including a comprehensive design project, a practicum and an ArchD project). A student can select from a number of advanced design studios that deal with the critical current issues of our civilization with the Asia Pacific Region. This provides students opportunities and time to develop and synthesize a broad range of professional knowledge to apply to their future architectural practice.

Elective Courses

Students have the opportunity to take a number of elective courses or professionally related topics from business, planning, computers, design technology, Asia/Pacific studies, and other relevant contemporary issues. These courses are taught by the diverse faculty of the school, which include adjunct and affiliate faculty members from other areas of the University who make a special effort to address the needs of

our students. These provide a broad knowledge base for the students as they address the future challenges of the profession.

Pre-Professional Double Major

The program provides opportunity for students to have a double major. At the end of the fourth year, a student is eligible to graduate with a Bachelor of Arts degree in Liberal Studies from the Colleges of Arts and Sciences. Those who continue and successfully complete the 212-credit program are awarded the Architecture Doctorate (ArchD) as the first professional degree.

Faculty Resources

The school has a diverse and outstanding faculty with substantial professional practice experience. This faculty is supplemented by adjunct and affiliate faculty who are distinguished faculty members in related disciplines at the University and internationally known professionals and specialists around the world. The off-campus faculty are linked to the school through electronic communication technologies.

Program Admission Options

The ArchD program offers interested students and professional practitioners a range of entrance opportunities. Students with or without an architectural background, including those with prior degrees, may enter into the program at a level appropriate to their backgrounds. Licensed architects may also enter at an advanced level consistent with their backgrounds to earn this new degree. All candidates for the ArchD degree must spend a minimum of one year in the program, which includes the completion of an ArchD Project.

Admission Requirements

The school accepts students as transfers from other divisions of the University or other colleges, including those who have a previous degree in another discipline, and licensed professionals. However, because there are far more applicants than can be accommodated, admission requirements and screening procedures are more restrictive than those for other divisions at the University of Hawai'i at Mānoa.

High school students planning architecture as a career are advised to take four years of English and mathematics (including algebra, geometry, analytical geometry, and trigonometry); plus art, chemistry, physics, freehand and mechanical drawing, public speaking, information and computer science, history, geography, and at least two years of a foreign language.

Acceptance to the school is based on various criteria, including previous academic performance, grade point average, types of courses previously taken, and related professional experience of the students.

Application Procedures

New students, transfers from UH community colleges and other universities, other degree holders and licensed architects, must submit a completed UH School of Architecture/System application with all required enclosures no later than the published deadlines.

Write, phone, or e-mail the School for the admission application form or for further information.

Application Deadlines

Completed applications will be evaluated as early as February for the Fall semester and beginning September for the Spring semester. Applications should be sent in early for the best advantage. Most decisions are made by mid-April for the Fall semester. After the deadlines, applications will be considered on a space-available basis.

Advising

Academic advising may be arranged for prospective students by contacting the school office.

New Students

Students who have been accepted into the School of Architecture must meet with the Associate Dean prior to registration. New students are expected to attend the school orientation usually scheduled in early August.

Continuing Students

All architecture majors who have yet to complete Arch 102 must meet with a faculty adviser each semester prior to registering for classes for the following semester.

Graduating Students

Graduating students are required to apply for graduation. Forms are available from the school office.

Program Requirements**General Education Core Requirements**

The School of Architecture requires certain core courses as part of the degree requirements for the ArchD. These core requirements have been incorporated into the published degree requirements.

Students who transfer into the architecture program may be required to take additional core courses in order to satisfy the architecture program's major requirements.

School Requirements

- 212 credit hours of course work
- University of Hawai'i at Mānoa General Education Core
- Architecture major requirements noted below
- Cumulative GPA of 2.5 in architecture course work

Major Requirements**General Education Core courses:**

- ENG 100
- MATH 140
- HIST 151 and 152
- ARCH 100, 235, 235L, 271 and 272
- ART 1XX/2XX
- One oral communication course
- PHYS 151, CHEM 151
- One approved biological science course, one science lab
- Two approved social science courses
- Second level study of foreign language or Hawaiian language
- BUS 313
- ENG 200, 209, or 225
- Five writing-intensive courses
- ASAN 312 or approved Social Science course

Architecture major courses:

- ARCH 101, 102
- ARCH 200, 201, 202, 218
- ARCH 301, 302, 315, 316, 317, 318
- ARCH 400, 401, 414, 417, 418, 431, 431L
- ARCH 502, 503, 504, 505, 506, 507, 508, 533, 534, 535, 573

Electives:

21 credit hours of approved electives offered and/or approved by the School of Architecture.

Special Requirements

All students are expected to have their own personal computer for studio and class work.

Comprehensive Portfolio Review Requirements

Each student must submit a Comprehensive Portfolio to the faculty for evaluation and approval before continuing to the Professional Architecture segment. Eligibility requirements for the Comprehensive Portfolio submittal include good academic standing and successful completion of the Pre-Professional Architecture program.

The student may advance once the portfolio has been approved. If the portfolio is determined to be marginal, the faculty will require additional coursework.

Other Requirements

Waiver or substitution of any required course must be approved by the Dean or Associate Dean. English as a Second Language (ESL) course work does not satisfy or substitute for the English requirements previously noted.

The School has adopted academic standards that are more restrictive than the general University standards. Architecture students with a cumulative grade point average (GPA) of less than 2.50 in architecture courses will be placed on probation.

If the architecture GPA is not raised to 2.50 upon completion of the probationary semester, or if special conditions that may have been established by the Dean or Associate Dean at the start of that semester are not met, students may be suspended or dismissed from the architecture program. Students who fail to achieve a minimum acceptable grade after repeating any required course can be dismissed from the architecture program. The School of Architecture strictly enforces the UH Manoa's withdrawal deadline.

Transfer Credits

The academic records of successful applicants to the School of Architecture will be reviewed and transfer credits granted as appropriate. Architecture course requirements will be waived only for transfer credits that are deemed equivalent to courses offered by the University. Students may, on occasion, be granted exemption from taking certain Mānoa campus courses based upon previous experiences or studies, but this exemption may not always result in the granting of transfer credits.

Prior to acceptance into the school, the School of Architecture does not formally review in detail applicant's academic record, with regard to granting exemptions or transfer credits.

Additional Information

Specific questions about the Architecture Doctorate Degree program may be directed to the Associate Dean of the School of Architecture.

For information on student loans and scholarships, contact the University of Hawai'i at Mānoa Financial Aid Services Office.

Student Organizations

Students are encouraged to participate in the University of Hawai'i Chapter of the American Institute of Architecture Students (AIAS). The organization serves as the school's student government and engages in a number of worthwhile

activities. At the national level, the AIAS is one of five organizations participating in the accreditation of architectural programs.

The Gamma Mu Chapter of the Tau Sigma Delta Honor Society includes students who maintain a 3.0 GPA and are at the top twenty percent of their class.

Honors and Awards

Alpha Rho Chi Medal, National Professional Architectural Fraternity Award
 Henry Adams Medal, American Institute of Architects Award
 Henry Adams Certificate, American Institute of Architects Award
 Allen R. Johnson-Roy C. Kelley Architectural Research Travel Scholarship
 David Stringer Fellowship
 School of Architecture Architectural Research Travel Scholarship
 School of Architecture Intern/Travel Scholarship (multiple)
 School of Architecture Architectural Travel Scholarships (multiple)
 School of Architecture International Student Exchange Program (multiple)
 Building Industry Association of Hawai'i Architectural Travel Scholarship
 Building Industry Association of Hawai'i Women's Council Travel Scholarship
 Construction Specifications Institute Architectural Travel Scholarship
 HonBlue Architectural Research Travel Scholarship
 American Institute of Architects Honolulu Chapter/School of Architecture Alumni Association Design Awards for Outstanding Achievement in 100, 200, 300, and 400 level design studios
 School of Architecture Alumni Association Scholarship
 Armstrong Builders Scholarship

Colleges of Arts & Sciences



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Degrees, Minors and Certificates

The Colleges of Arts and Sciences offer undergraduate and graduate degrees, minors, and certificate programs in the following areas. Changes in programs and degrees approved after October 2001 may not be reflected in this listing.

Field	Degree or Certificate	Field	Degree or Certificate
American Studies (p. 91)	Min, BA, MA, PhD	Journalism (p. 128)	BA
Anthropology (p. 93)	BA, MA, PhD	Korean (p. 109)	U Cert, Min, BA, MA ² , PhD ²
Art (p. 96)	Min, BA, BFA, MA, MFA	Languages and Literatures of Europe and the Americas (p. 129)	MA ³
Astronomy (p. 98)	MS, PhD	Liberal Studies (p. 132)	BA ⁴
Biology (p. 99)	BA, BS	Library and Information Science (p. 132)	G Cert, MLISc
Botanical Sciences (p.100,103)	MS ¹ , PhD ¹	Linguistics (p. 134)	BA ⁴ , MA, PhD
Botany (p. 100)	Min, BA, BS, MS ¹ , PhD ¹	Mathematics (p. 138)	Min, BA, BS, MA, PhD
Burmese (p. 121)	U Cert ⁷	Microbiology (p. 139)	Min, BA, BS, MS, PhD
Chemistry (p. 104)	Min, BA, BS, MS, PhD	Music (p. 141)	U Cert, Min, BA, BEd, BMus, MA, MMus, PhD
Chinese (p. 109)	U Cert, Min, BA, MA ² , PhD ²	Peace Studies (p. 144)	U Cert, BA ⁴
Classics (p. 129)	U Cert, BA, MA ³	Philosophy (p. 146)	Min, BA, MA, PhD
Communication (p. 105)	BA, MA	Physics (p. 148)	Min, BA, BS, MS, PhD
Communication and Information Sciences (p. 107)	PhD	Planning Studies (p. 173)	G Cert
Computer Science (p. 124)	Min, BS, PhD	Political Science (p. 150)	Min, BA, MA, PhD
Dance (p. 168)	Min, BA, MA, MFA	Population Studies (p. 151)	G Cert
Dance Theatre (p. 168)	BFA	Psychology (p. 153)	BA, MA, PhD
East Asian Languages and Literatures (p. 109)	MA ² , PhD ²	Psychology, Clinical (p. 153)	G Cert
Economics (p. 111)	Min, BA, MA, PhD	Public Administration (p. 155)	G Cert, MPA
English (p. 114)	Min, BA, MA, PhD	Religion (p. 156)	Min, BA, G Cert, MA
English as a Second Language (p. 161)	BA ⁴ , MA ⁵ , PhD ⁵	Russian (p. 129)	U Cert, BA, MA ³
Environmental Studies (p. 117)	U Cert, BA ⁴	Russian Area Studies (p. 158)	U Cert
Ethnic Studies (p. 118)	U Cert, BA	Samoan (p. 121)	U Cert ⁷ , BA ⁶
European Cultural Studies (p. 129)	BA ⁴	Sanskrit (p. 121)	U Cert ⁷ , BA ⁶
Filipino (p. 121)	U Cert ⁷ , BA ⁶	Second Language Acquisition (p. 158)	PhD ⁵
French (p. 130)	U Cert, BA, MA ³	Second Language Studies (p. 161)	G Cert
Geography (p. 119)	Min, BA, MA, PhD	Sociology (p. 164)	BA, MA, PhD
German (p. 130)	U Cert, BA, MA ³	Spanish (p. 129)	U Cert, BA, MA ³
Hawaiian (p. 121)	U Cert ⁷ , BA	Speech (p. 167)	Min, BA, MA
Hawaiian Language Immersion Education (p. 122)	Min	Tahitian (p. 121)	U Cert ⁷
Hindi (p. 121)	U Cert ⁷ , BA ⁶	Telecommunication and Information Resource Management (p. 107)	G Cert
Historic Preservation (p. 91)	G Cert	Thai (p. 121)	U Cert ⁷ , BA ⁶
History (p. 122)	Min, BA, MA, PhD	Theatre (p. 169)	Min, BA, MA, MFA, PhD
Ilokano (p. 121)	U Cert ⁷ , BA ⁶	Urban and Regional Planning (p. 173)	G Cert, MURP
Indonesian (p. 121)	U Cert ⁷ , BA ⁶	Vietnamese (p. 121)	U Cert ⁷ , BA ⁶
Indo-Pacific Languages (p. 121)	U Cert ⁷ , BA ⁶	Women's Studies (p. 175)	U Cert, BA ⁴ , G Cert
Information and Computer Sciences (p. 124)	BA, MS	Zoology (p. 178)	Min, BA, BS, MS, PhD
International Cultural Studies (p. 126)	G Cert		
Interpretation and Translation (p. 127)	U Cert		
Japanese (p. 109)	U Cert, Min, BA, MA ² , PhD ²		

1 The MS and PhD in botanical sciences are offered in botany.

2 The MA and PhD in East Asian languages and literatures are offered in Chinese, Japanese, and Korean.

3 The MA in languages and literatures of Europe and the Americas is offered in Classics, French, German, Russian, and Spanish.

4 Students can receive a BA in liberal studies in English as a second language, environmental studies, European cultural studies, Indo-Pacific languages, linguistics, peace studies, and women's studies. In addition, students can design their own majors utilizing this program.

5 The Department of Second Language Studies offers the MA in English as a second language and the PhD in second language acquisition.

6 The BA in liberal studies for Indo-Pacific languages has several concentrations: Filipino, Hindi, Ilokano, Indonesian, Samoan, Sanskrit, Thai, and Vietnamese.

7 The Certificate in Indo-Pacific Languages is offered in Burmese, Filipino, Hawaiian, Hindi, Ilokano, Indonesian, Samoan, Sanskrit, Tahitian, Thai, and Vietnamese.

BA—bachelor of arts

BFA—bachelor of fine arts

BMus—bachelor of music

BS—bachelor of science

G Cert—graduate certificate

MA—master of arts

MFA—master of fine arts

Min—minor

MLISc—master of library and information science

MMus—master of music

MPA—master of public administration

MS—master of science

MURP—master of urban and regional planning

PhD—doctor of philosophy

U Cert—undergraduate certificate

Administration

College of Arts and Humanities

Burns 4031
1601 East West Rd
Honolulu, HI 96848-1601
Tel: (808) 956-6460
Fax: (808) 956-9085

Dean: Judith R. Hughes
Associate Dean: Roger A. Long

Departments: American Studies, Art, History, Music, Philosophy, Religion, Speech, and Theatre and Dance.

College of Languages, Linguistics and Literature

Bilger 101
2545 McCarthy Mall
Honolulu, HI 96822
Tel: (808) 956-8516
(808) 956-8671
Fax: (808) 956-9879

Interim Dean: Joseph H. O'Mealy
Acting Associate Dean: Jean Yamasaki Toyama

Departments and programs: East Asian Languages and Literatures, English, Hawaiian and Indo-Pacific Languages and Literatures, Interpretation and Translation Studies, Languages and Literatures of Europe and the Americas, Linguistics, Russian Studies, Second Language Acquisition, and Second Language Studies.

College of Natural Sciences

Bilger 102
2545 McCarthy Mall
Honolulu, HI 96822
Tel: (808) 956-6451
Fax: (808) 956-9111

Interim Dean: Charles F. Hayes

Departments and programs: Biology, Botany, Chemistry, Information and Computer Sciences, Library and Information Science, Mathematics, Microbiology, Physics and Astronomy, and Zoology.

College of Social Sciences

Burns 4006
1601 East West Rd
Honolulu, HI 96848-1601
Tel: (808) 956-6570
Fax: (808) 956-2340

Dean: Richard Dubanoski
Acting Associate Dean: P. Bion Griffin

Departments and programs: Anthropology, Communication, Economics, Ethnic Studies, Geography, Journalism, Peace Studies, Political Science, Population Studies, Psychology, Public Administration, Social Science Research Institute, Sociology, Urban and Regional Planning, and Women's Studies.

Academic Affairs and Student Academic Services

Krauss 22
2500 Dole St.
Honolulu, HI 96822
2500 Campus Road
Tel: (808) 956-8844
Fax: (808) 956-2191

Associate Dean: Ronald E. Cambra

Academic advising for all arts and sciences students and all matters relating to the granting of baccalaureate degrees in arts and sciences; curricular affairs; administration of Freshman Seminar, Honors and Selected Studies, Liberal Studies, and Rainbow Advantage Program; and registration ombudsman.

General Information

The Colleges of Arts and Sciences are comprised of four colleges that offer an integrated curriculum leading to baccalaureate and graduate degrees, certificates, and minors in their respective colleges. Each college includes an administrative unit and a number of academic departments and programs.

The four colleges are served by one administrative unit, the Academic Affairs and Student Academic Services office, which is a part of the Colleges of Arts and Sciences.

An excellent education is the primary mission of the University of Hawai'i at Mānoa, and the Colleges of Arts and Sciences is at the heart of this mission, providing students with a comprehensive learning experience in a vibrant academic climate.

UH Mānoa undergraduates take their first University courses in the Colleges of Arts and Sciences as they undertake the General Education Core curriculum that is part of all the bachelor degrees offered on the campus. This liberal arts curriculum stresses the integration of knowledge to enhance

students' understanding of life, the human condition, and the world in which we live. The core curriculum also entails critical thinking, which enables students to evaluate arguments, ideas, and theories and to develop creative and meaningful applications of what they learn. The core gives students the tools of inquiry, enabling them first to identify important questions and then to seek, analyze, and interpret possible answers to issues of their lives, world, and universe. The curriculum also provides opportunities to develop students' artistic and creative imaginations and their oral and written communication skills so that they can effectively present their ideas, thoughts, and feelings. Since values guide human actions, the core curriculum allows students to examine their own values and learn about those of others in order to help the students understand themselves and others around the world.

Students who earn their degrees in one of the Colleges of Arts and Sciences will find that the programs of the colleges are designed with the conviction that, beyond the core curriculum, liberally educated persons should have an intensive knowledge of at least one field of the arts, the humanities, the languages, the natural sciences, or the social sciences. An ideal education, based in the liberal arts, prepares students for productive lives and careers, enlightened citizenship, and lifelong learning. The colleges strive to enhance excellent learning opportunities by promoting active student participation.

Accreditations and Affiliations

All academic programs are reviewed and evaluated regularly by campus and external faculty committees. Some academic programs, because of the nature of the discipline, are accredited or certified also by national organizations. Check with individual academic departments and programs for their accreditation status or affiliation with national or international organizations.

Degrees, Minors and Certificates

For a listing of the degrees, minors, and certificates offered by the Colleges of Arts and Sciences, see table on p. 81.

Bachelor's Degrees: Bachelor of Arts (BA), Bachelor of Fine Arts (BFA), Bachelor of Music (BMus), Bachelor of Science (BS)

Master's Degrees: Master of Arts (MA), Master of Fine Arts (MFA), Master of Library and Information Science (MLISc), Master of Music (MMus), Master of Public Administration (MPA), Master of Science (MS), Master of Urban and Regional Planning (MURP)

Doctoral Degrees: Doctor of Philosophy (PhD) degrees in various disciplines

Certificate Programs

In addition to the major concentrations that are part of every bachelor's degree, students may choose to pursue a certificate in an area of personal interest. Certificates signify that a student has completed a defined body of work in a particular department or program. Certificates can be conferred as soon as the student completes the program's requirements. The right to confer certificates has been granted to certain programs and departments by the Board of Regents; some certificates are only for graduate students. Most certificates entail a minimum of 15 credit hours of non-introductory course work (including all upper division courses and those on the 200 level that have college-level course prerequisites), completed with a grade of C or better. Information on specific certificates can be obtained from the appropriate department or program office. See page 81 for a complete listing of certificate programs offered by the Colleges of Arts and Sciences.

Advising

Student Academic Services Office
Keller 305
Honolulu, HI 96822
Tel: (808) 956-8755
Fax: (808) 956-9796

Academic advisers at the colleges' Student Academic Services Office assist students with clarifying academic and career goals, learning about educational options and campus resources, planning a program of study, understanding academic policies and procedures and degree requirements, and assessing their academic progress toward their degrees. Students who are interested in a particular major or who have already declared a major also should meet with an adviser in the appropriate academic department.

From matriculation to graduation, students can take advantage of a range of advising services offered by the Arts and Sciences Student Academic Services Office.

Freshmen

See First Year Center under First Year at Mānoa in the "Undergraduate Education" section of this *Catalog*.

Sophomores

Sophomores who need assistance choosing a major should see an academic adviser or attend a special session designed to help students sort through their options. If they are interested in transferring to another program, they should see an adviser in that office.

Juniors

Juniors can attend a Junior Matriculation Planning (JUMP) session to assess their academic progress, project a graduation date, and plan their remaining semesters at UH Mānoa.

Seniors

Seniors must attend a Graduation Audit (GRAD) session to review their record, plan their remaining semester(s), and do the necessary paperwork for graduation.

Students also can meet individually with advisers for clarification of requirements and for resolution of complex academic issues and individual concerns.

Undergraduate Programs

The Colleges of Arts and Sciences offer the bachelor of arts (BA), the bachelor of fine arts (BFA), the bachelor of music (BMus), and the bachelor of science (BS) degrees in more than 40 different majors. In addition, the Colleges offer over 20 minors. Each degree includes General Education Core courses, a specific field of concentration (the major), and courses in subjects that contribute to that major or are of special interest to the student (electives or minor).

Although the University's General Education requirements must be completed by all candidates for baccalaureate degrees, each arts and sciences degree program requires candidates to satisfy a unique combination of core courses and prerequisites. A list of program requirements for each of the arts and sciences bachelor's degrees is available at the Colleges of Arts and Sciences Student Academic Services Office, Keller 305.

The field of concentration or major should be declared by the end of the sophomore year by submitting a completed College and Major Transfer Request form to the Student Academic Services Office. Music and dance majors and majors offered under the bachelor of science should be declared within the first year of enrollment.

Information on specific majors and minors is available at the respective academic departments.

Colleges of Arts and Sciences Program Requirements

Admission requirements for the Colleges of Arts and Sciences candidates who have no previous college-level work are the same as those for the University.

To earn any bachelor's degree offered by the colleges, students must do the following:

1. Complete basic subjects specified by their degree programs;
2. Fulfill the requirements of a major field of concentration and present to the Student Academic Services Office the goldenrod form attesting to completion of the major and signed by the major adviser;

3. Earn at least 60 hours of credit in non-introductory courses. These may be upper division courses (courses numbered 300 or above) or 200-level courses that have an explicit college-level course prerequisite;
4. Acquire a minimum total of 124 hours of credit, of which no more than 20 credit hours may be in subjects not offered within the Colleges of Arts and Sciences; no more than 12 may be in practicum courses; no more than 9 may be in directed reading and research (-99) courses; and no more than 8 in KLS activity courses;
5. Earn at least a 2.0 GPA (C average) for all UH Mānoa registered credits;
6. Register for all required courses (core, major, and minor, if applicable, courses) for a letter grade;
7. Earn a grade of C or better in each course applied to the major and/or minor requirements (some majors require higher grades);
8. Arrange for a degree audit at a "GRAD session" at the Student Academic Services Office during the semester preceding the award of the degree;
9. Submit, during the semester preceding the award of the degree, an application for graduation available at Student Academic Services Office;
10. Pay a graduation fee of \$15 to the Cashier's Office.

Students may apply to the appropriate language departments for exemption by examination in Hawaiian or Second Languages. They may also apply for credit by examination in any course offered by the colleges and required in a particular curriculum and for which a written examination is appropriate and feasible. Such credit carries a corresponding reduction in the 124 credit hours required for graduation. Note the deadlines in the "Calendar."

The associate dean of the Colleges of Arts and Sciences Academic Affairs and Student Academic Services may exercise discretion in modifying some of these requirements in exceptional cases after consultation with the graduation committee.

The section below describes the specific program requirements for students earning a Bachelor of Arts degree (BA), Bachelor of Fine Arts degree (BFA), Bachelor of Music degree (BMus), or a Bachelor of Science degree (BS). The Colleges of Arts and Sciences requirements for these degrees vary; refer to the appropriate section on the next page.

Arts and Sciences Program Requirements for Students Who Entered UHM Fall 2002

BA Degree

Students must complete the UH Mānoa General Education requirements (see the “Mānoa General Education Core and Graduation Requirements” section of this *Catalog* for information, p. 23).

All BA degree candidates are required to complete one of the following two options: (1) Breadth or (2) Depth.

Option 1: Breadth

In addition to the credits completed to satisfy the General Education Foundations, Diversification, and Hawaiian/Second Language requirements, students must complete 12 additional

credits, 3 credits from each of the following Colleges: (1) Arts and Humanities (AH); (2) Languages, Linguistics, and Literature (LLL); (3) Natural Sciences (NS); (4) Social Sciences (SS) (see table below). Any course at any level for which the student has prerequisites or permission can be used to fulfill the BA program requirements in the Breadth Option.

You may not use any of the 12 credits to fulfill your General Education Foundations, Diversification, or Hawaiian/Second Language requirements. However, you may use any of the 12 credits to fulfill Focus requirements. You may count up to 3 of the 12 credits toward your major requirements.

Option 1: Breadth			
College of Arts & Humanities (AH)	College of Languages, Linguistics, and Literature (LLL)	College of Natural Sciences (NS)	College of Social Sciences (SS)
3 credits, taken from any of the areas listed below	3 credits, taken from any of the areas listed below	3 credits, taken from any of the areas listed below	3 credits, taken from any of the areas listed below
American Studies (AMST) Art (ART) Dance (DNCE) History (HIST) Music (MUS) Philosophy (PHIL) Religion (REL) Speech (SP) Theater (THEA)	<i>East Asian Languages & Literatures</i> Chinese (CHN)* <i>East Asian Languages & Literatures (EALL)**</i> Japanese (JPN)* Korean (KOR)* English (ENG) <i>Hawaiian & Indo-Pacific Languages & Literatures</i> Cambodian (CAM)* Filipino (FIL)* Hawaiian (HAW)* <i>Hawaiian & Indo-Pacific Languages & Literatures (IP)**</i> Hindi (HNDI)* Ilokano (ILO)* Indonesian (IND)* Samoan (SAM)* Sanskrit (SNSK)* Tahitian (TAHT)* Thai (THAI)* Tibetan (TIB)* Vietnamese (VIET)* Interpretation & Translation Studies (ITS) <i>Languages & Literatures of Europe and the Americas</i> French (FR)* German (GER)* Greek (GRK)* Italian (ITAL)* <i>Languages & Literatures of Europe and the Americas (LLEA)**</i> Latin (LATN)* Portuguese (PORT)* Russian (RUS)* Spanish (SPAN)* Linguistics (LING) Second Language Studies (SLS)	Astronomy (ASTR) Biology (BIOL) Botany (BOT) Chemistry (CHEM) Information & Computer Sciences (ICS) Library & Information Science (LIS) Mathematics (MATH) Microbiology (MICR) Physics (PHYS) Zoology (ZOOL)	Anthropology (ANTH) Communication (COM) Economics (ECON) Ethnic Studies (ES) Geography (GEOG) Journalism (JOUR) Peace Studies (PACE) Political Science (POLS) Population Studies (PPST) Psychology (PSY) Public Administration (PUBA) Sociology (SOC) Urban & Regional Planning (PLAN) Women’s Studies (WS)

* Language courses taken to fulfill the Hawaiian/second language requirement may not be used to satisfy Option 1 requirement of 12 credits, 3 credits from each Arts & Sciences College.

** Courses offered in English

Option 2: Depth

In addition to the credits completed to satisfy the General Education Foundations, Diversification, and Hawaiian/Second Language requirements, students must complete a Minor or a Certificate within the Colleges of Arts and Sciences in a subject other than their major.

You may not count any of the Minor/Certificate credits towards your General Education Foundations, Diversification, Hawaiian/Second Language, or major requirements. However, the Minor/Certificate credits may be counted toward your General Education Focus requirements.

Minors

- | | |
|-------------------------------|---------------------|
| ■ American Studies | ■ Japanese |
| ■ Art | ■ Korean |
| ■ Biology | ■ Mathematics |
| ■ Botany | ■ Microbiology |
| ■ Chemistry | ■ Music |
| ■ Chinese | ■ Philosophy |
| ■ Computer Sciences | ■ Physics |
| ■ Dance | ■ Political Science |
| ■ Economics | ■ Religion |
| ■ English | ■ Speech |
| ■ Geography | ■ Theatre |
| ■ Hawaiian Language Immersion | ■ Zoology |
| ■ History | |

Undergraduate CertificatesEast Asian Languages

- Chinese Language
- Japanese Language
- Korean Language
- Environmental Studies
- Ethnic Studies

Languages and Literatures of Europe and the Americas

- | | |
|------------|-----------|
| ■ Classics | ■ Russian |
| ■ French | ■ Spanish |
| ■ German | |

Indo-Pacific Languages

- | | |
|--------------|--------------|
| ■ Burmese | ■ Samoan |
| ■ Filipino | ■ Sanskrit |
| ■ Hawaiian | ■ Tahitian |
| ■ Hindi | ■ Thai |
| ■ Ilokano | ■ Vietnamese |
| ■ Indonesian | |
- Interpretation and Translation
 - Music
 - Peace Studies
 - Russian Area Studies
 - Women's Studies

BA Major requirements

All BA degree candidates should consult the appropriate departmental adviser for a list of major requirements.

BFA Degree

Students must complete the UH Mānoa General Education requirements (see the “Mānoa General Education Core and Graduation Requirements” section of this *Catalog* for information, p. 23).

All BFA degree candidates should consult the appropriate departmental adviser before registering.

BMus Degree

Students must complete the UH Mānoa General Education requirements (see the “Mānoa General Education Core and Graduation Requirements” section of this *Catalog* for information, p. 23).

For students concentrating in voice, completion of first-level study of two languages may be substituted for completion of second-level study of a single language with prior approval of the department chair.

All BMus degree candidates should consult the appropriate departmental adviser before registering.

BS Degree

Students must complete the UH Mānoa General Education Core (see the “Mānoa General Education Core and Graduation Requirements” section of this *Catalog* for information, p. 23).

All BS candidates are required to complete the following science courses—either as part of the program or major requirements: CHEM 161/161L and 162/162L or 171/171L or 181A/181L; any Math department Calculus I and II courses; and PHYS 170/170L and 272/272L, or PHYS 151/151L and 152/152L. Introductory mathematics courses and CHEM 161 have assessment tests. Dates and times of assessment tests appear in each semester *Schedule of Classes*.

It is recommended that all entering students who have had high school courses in mathematics through pre-calculus take the following courses during their freshman year: CHEM 161/161L or CHEM 171/171L, any Math department Calculus I and II courses, and perhaps PHYS 151/151L or PHYS 170/170L. It also is recommended that students who do not have a high school course equivalent to pre-calculus should take MATH 140 at the University during the summer session prior to their first semester.

All BS degree candidates should consult the appropriate departmental adviser before registering.

Second or Multiple Majors and Minors

Arts and Sciences students are encouraged to consider applying for a second major or a minor or a combination of both. Pursuing additional academic fields of study in the form of a second major, or with the addition of a minor, can benefit students in several ways, including the opportunity to discover relationships across disciplines, develop diverse perspectives, strengthen one's appreciation for the acquisition of knowledge in more than one academic field and enhance one's ability to problem-solve and communicate in a variety of settings.

Applicants for multiple majors/minors need to:

- be enrolled as classified arts and sciences students,
- be in good academic standing,
- be seeking majors under one degree program (i.e., BA/psychology and speech, or BS/physics and mathematics),
- be able to complete degree requirements within the maximum total credits as specified by the University's excess credit policy (see "Undergraduate Education"),
- submit a statement with the application that describes the reason for adding the second major and the educational benefits expected from the addition,
- submit an academic plan that identifies the sequence of courses needed for graduation,
- keep in mind that no Diversification course may be used to satisfy more than one requirement (General Education Core, college, major and minor requirements).

The Colleges offer minors in over 20 disciplines (see page 86 for a complete list). Most minors require a minimum of 15 credits of non-introductory and upper division level course work, completed with a grade of C or better.

Academic advisers are available to discuss with students the way that a second major or minor can complement the first major and to help students formulate an academic plan so that adding a second major or a minor does not delay graduation unnecessarily.

Post-baccalaureate candidates who wish to pursue a second major rather than a complete second baccalaureate degree should pursue their academic major as an unclassified post-baccalaureate candidate. Upon completion of the second major, the candidate may apply at the major department for a second major certificate.

Second Baccalaureate Degree

Priority for admission into any arts and sciences baccalaureate program is given to students seeking their first undergraduate degree. The due date for second undergraduate degree applications is approximately six weeks **before** the Admissions and Records deadline. Fall applications must be received by Admissions and Records no later than April 15th, and Spring applications must be received no later than September 15th. Incomplete or late applications will not be considered.

Complete applications contain all the materials required by Admissions and Records in addition to the following:

- 1) A **typewritten or computer printed, signed statement** explaining how the second degree will help the applicant attain their personal, academic and professional goals.
- 2) Following review by Arts and Sciences, applicants will be informed of their remaining general education requirements and referred to the major departments in order to complete an **academic plan** demonstrating concrete knowledge of the second degree program for which they are applying. Applicants will be given a deadline to submit the academic plan in order to continue the admissions process.

Applications for a second baccalaureate degree will be considered only if there is a demonstrable difference in curricula and objectives between the two degrees and majors and if the applicant has a superior grade point average and shows strong promise of success in the proposed second degree. Second degree students must earn a minimum of 30 credits in arts and sciences subjects at UH Mānoa while continuously enrolled in the colleges, and satisfy all degree requirements current at the time of official admission into the program.

The colleges may approve concurrent multiple baccalaureate degrees for exceptional students. Students should speak with an adviser in the Arts and Sciences Student Academic Services Office for information.

Arts and Sciences Program Requirements for Students Who Entered UHM Fall 2000/Spring 2001

BA Degree

Basic Requirements

BA candidates are required to complete the University of Hawai‘i at Mānoa General Education Core requirements in basic skills and understanding (see “Mānoa General Education Core and Graduation Requirements”): (a) written communication—introductory-level and writing-intensive; (b) mathematical or logical thinking; (c) world civilizations; and (d) Hawaiian or foreign language.

BA candidates who entered the University of Hawai‘i system before fall 1989 and who have maintained continuous registration may meet the language requirement by completing one of these options:

1. Second-level study of an approved language (i.e., through 202 or equivalent);
2. Three semesters of an approved language (201 or equivalent) and one approved course in the related culture; or
3. First-level study of an approved language (i.e., 102 or equivalent), plus two semester courses in the related culture. All undergraduate students who entered the UH system in fall 1989 or later must complete option 1 (second-level study of an approved language).

Area Requirements

These requirements embody virtually the entire rationale for a general education in a university. They develop in students a clear understanding of the inherited values, ideas, and philosophies of cultures as expressed in works of literature, history, philosophy, religion, art, and music and an understanding in the basic fields of both the natural and social sciences.

A. Arts and Humanities

Requirement: Three semester courses, one selected from each of the following three groups:

Group 1: The Arts

Mainly Theory

Arts and Humanities 100
Art 101, 171, 172, 180
Dance 150, 255
European Languages 237
Music 106, 107, 108, 253, 265, 266
Music 370
Theater 101, 201, 318

Mainly Practice

Art 103, 104, 105, 107, 113, 115, 116, 123, 130
Dance 121, 122, 131, 132, 301†, 302†, 303†, 304†, 305†,

306†, 307†, 311†, 401†, 402†, 403†, 404†, 405†, 406†, 407†, 411†

English 313

Music 114†, 121, 122†, 127, 128†, 410B†, 410C†, 416B†, 416C†, 418†, 419†

Speech 151, 231, 251

Theater 221, 222, 240

Group 2: History and Culture

American Studies 201, 202

Architecture 271, 272

Asian Studies 241 or History 241

Asian Studies 242 or History 242

Hawaiian Studies 107

History 231, 232, 281, 282, 288

Religion 210

Group 3: Values and Meaning

Philosophy 100, 101, 102, 103, 211, 212, 213

Religion 150, 151, 200, 201, 202, 203, 204, 205, 207

B. Languages, Linguistics, and Literature

Requirement: Three semester courses, two selected from Group 1 and one selected from Group 2.

Group 1: Literature

English 250, 251, 252, 253, 254, 255, 256, 257

Group 2: Language, Culture, and Linguistics

East Asian Languages and Literature 271, 272, 281, 282, 361, 362, 363B, 363C

East Asian Languages and Literature 364 or Women’s Studies 346

English 302 (320*), 321 (335*), 361 (331*)

English as a Second Language 430

European Languages 122, 227, 228, 335, 336, 339, 340, 342, 343, 351, 352, 360, 362, 363, 371

Hawaiian 261

Indo-Pacific Languages 273D, 273E, 396

Linguistics 102

C. Natural Sciences

Requirement: Three semester courses including at least one in the biological sciences and one in the physical sciences. One of the three courses must include a laboratory.

Group 1: Biological Sciences

Biology 101/101L or 123/123L

Biology 102/102L or Botany 101/101L

Biology 103/103L or Zoology 101/101L

Biology 171/171L

Biology 350 or Women’s Studies 350

† Any combination of these courses that totals 3-credit hours will be considered the equivalent of a one-semester course.

* Former course number - changed as of Fall 2000

Botany 130/130L, 201/201L
Botany 450 or Zoology 450
Food Science and Human Nutrition 185
Genetics 351
Microbiology 130, 140, 351
Physiology 103/103L, 141/141L, 142/142L
Zoology 200/200L

Group 2: Physical Sciences

Astronomy 110 or 140
Biochemistry 241
Chemistry 151/151L, 161/161L, 162/162L, 171/171L,
181/181L
Environmental Biochemistry 152 or Chemistry 152, and
Chemistry 152L
Geology and Geophysics 101/101L, 103, 108, 166
Meteorology 101/101L
Oceanography 201
Physics 100/100L, 151/151L, 152/152L, 170/170L, 272/
272L

Group 3: Other Sciences

Geography 101/101L
Information and Computer Sciences 111 (Note: 111L may
not be used to fulfill the science lab requirement.)

D. Social Sciences

Requirement: Three semester courses, each from a different
department.

Agricultural and Resource Economics 220
American Studies 211, 212
Anthropology 150, 200
Asian Studies 312
Botany 105
Economics 120, 130, 131, 310, 360
Ethnic Studies 101
Family Resources 230
Geography 102, 151, 336
Journalism 150
Political Science 110, 120, 130, 171, 190, 201 (221+), 271
(272+)
Psychology 100, 170
Psychology 202 or Women's Studies 202
Sociology 100, 214, 218, 231, 251
Sociology 362 or Women's Studies 362
Speech 364
Women's Studies 151
Women's Studies 360 or Ethnic Studies 365

BFA Degree

Basic and Area Requirements

Students must complete the UH Mānoa General Education
Core (see "Mānoa General Education Core and Graduation
Requirements").

BMus Degree

Basic and Area Requirements

Students must complete the UH Mānoa General Education
Core (see "Mānoa General Education Core and Graduation
Requirements"). For students concentrating in voice, comple-
tion of first-level study of two languages may be substituted for
completion of second-level study of a single language with
prior approval of the department chair.

BS Degree

Basic and Area Requirements

Students must complete the UH Mānoa General Education
Core (see "Mānoa General Education Core and Graduation
Requirements"). All BS candidates are required to complete the
following science courses—either as part of the program or
major requirements or as electives: CHEM 161/161L and
162/162L or 171/171L or 181A/181L; any Math depart-
ment Calculus I and II courses; and PHYS 170/170L and
272/272L, or PHYS 151/151L and 152/152L. Introductory
mathematics courses and CHEM 161 have assessment tests.
Dates and times of assessment tests appear in each semester
Schedule of Classes.

It is recommended that all entering students who have had
high school courses in mathematics through pre-calculus take
the following courses during their freshman year: CHEM 161/
161L or CHEM 171/171L, any Math department Calculus I
and II courses, and perhaps PHYS 151/151L or PHYS 170/
170L. It also is recommended that students who do not have a
high school course equivalent to pre-calculus should take
MATH 140 at the University during the summer session prior
to their first semester.

All BS degree candidates should consult the appropriate
departmental adviser before registering.

Professional Programs

Students who wish to prepare themselves for admission to professional schools should follow the recommendations of the appropriate national professional organization. In addition, they should elect courses fulfilling specific requirements of the schools they hope to enter.

The Professions Advising Center (PAC) in the Arts and Sciences Student Academic Services Office can give specific aid to students preparing for admission to schools of dentistry, law, medicine, optometry, pharmacy, and allied health fields. Information on scholastic requirements of other professions is also available from the following resources:

- *Medical School Admission Requirements, United States and Canada*
- *Pre-law Handbook*
- *Admission Requirements of U.S. and Canadian Dental Schools*
- *Pharmacy School Admission Requirements*

Catalogs of individual schools with more specific admission requirements may be found in the Professions Advising Center in Keller 303A, or at Hamilton Library, or on the World Wide Web.

Graduate Programs

Information regarding graduate programs and admission is in another section of the *Catalog*. Each department also includes in its description information about its specific program(s). Check specific departments for program requirements.

Student Organizations

Societies and clubs associated with many departments within the Colleges of Arts and Sciences give students opportunities to explore a field from an informal perspective, get acquainted with other students with similar interests, and learn of the options available upon graduation. The Colleges of Arts and Sciences highly recommend active student involvement in these associations for the academic and professional enhancements they provide. Check with your departmental adviser for information.

Honors and Awards

Scholarships and Awards

The Colleges of Arts and Sciences and their departments provide scholarships and awards to exceptional students. For a selective list of scholarships, see "Tuition, Fees, and Financial Aid." If you wish specific information on prizes or scholarships offered through the Colleges of Arts and Sciences, contact the appropriate department or check CA\$H (Computer-Assisted Scholarship Help), a source of more than a thousand scholarships, accessible on the Web at dbserver.its.hawaii.edu/cash/.

Honor Societies

Honor societies at UHM in the Colleges of Arts and Sciences include Alpha Kappa Delta (sociology), Beta Phi Mu (library science), Delta Phi Alpha (German), Golden Key National Honor Society (undergraduate), Kappa Tau Alpha (journalism), Lambda Delta (freshmen), Mortar Board (seniors), Omicron Delta Epsilon (economics), Phi Alpha Theta (history), Phi Beta Kappa (liberal arts and sciences), Phi Eta Sigma (freshmen), Phi Kappa Phi (general scholarship), Pi Delta Phi (French), Pi Kappa Lambda (music), Pi Sigma Alpha (political science), Psi Chi (psychology), Sigma Delta Pi (Spanish), Sigma Pi Sigma (physics), and Sigma Xi The Scientific Research Society (sciences).

Instructional and Research Facilities

Center for Biographical Research

The Center for Biographical Research (CBR) is dedicated to the interdisciplinary and multicultural study of lifewriting. CBR programs include teaching, publication, and outreach activities.

In conjunction with the Department of English, CBR offers thesis advising for PhD and MA projects. The Department of English also offers a number of graduate and undergraduate courses in lifewriting. A BA program in biography is offered through the Liberal Studies Program, and the Biography Prize is offered annually for the best work on any aspect of lifewriting by a PhD candidate at the University of Hawai'i.

CBR publishes *Biography: An Interdisciplinary Quarterly*, the premier scholarly journal in the field. Appearing continuously since 1978, *Biography* explores the theoretical, historical, generic, and cultural dimensions of lifewriting. CBR also sponsors the Biography Monograph series, designed to further the study and practice of lifewriting in all its forms.

CBR maintains a library and resource collection and has hosted, since 1988, the public lecture series Brown Bag Biography, part of the center's commitment to supporting and publicizing contributions to lifewriting. With Hawai'i Public Television, the center has embarked on *Biography Hawai'i*, a television documentary series that focuses on residents whose lives have had a lasting impact on these islands. The center also hosts iaba-l@hawaii.edu, the listserv and discussion forum for the International Auto/Biography Association.

Language Telecommunications, Resource, and Learning Center

The Language Telecommunications, Resource, and Learning Center—located on the first and second floors of Moore Hall—features a 42 station language laboratory, two class labs with capabilities for showing slides and video including PAL and SECAM, and three language media classrooms with direct Ethernet connections to the Internet. The center has an

extensive tape collection with entries in more than 40 languages. The facilities include a professional recording studio complex, a broadcast-standard video studio, and a satellite station consisting of a C and Ku-band tracking dish and a Ku-band broadcast facility. Via satellite the center receives daily programming in some 28 languages on the International Channel. Programming is available to students, faculty, and staff members in a designated viewing room. The center's Multimedia Computer Labs include a Macintosh lab with networked Power Macs and a PC lab with networked Windows 95 Pentium computers. Both labs are equipped with a printer, scanner, and LCD projection system. The computers feature a direct Ethernet connection to the Internet and a host of software for multimedia language use and learning in a wide variety of languages including Chinese, Japanese, Korean, and other non-Roman script languages. The computer labs are available for drop-in use by students, for class sessions and for training workshops for faculty and staff. A separate Faculty Development Lab is available for faculty and staff for materials development and software design. In addition, the center provides a variety of audiovisual equipment and resources for the classroom. The service scope of the center extends beyond the University to include the state, the continental United States, and the international community.

Mānoa Writing Program

The Mānoa Writing Program was created by the UH Board of Regents in 1987 to administer General Education writing requirements. Its efforts are guided by a board of nine professors, each from a different department. The faculty board reviews requests to designate classes as "writing-intensive," offers faculty workshops on teaching with writing, and surveys students in writing-intensive classes. The program publishes material on teaching with writing. It also administers the Mānoa Writing Placement Examination, a full-day placement test given to all incoming students who have not met the University's entry-level writing course requirement. The program's ultimate goal is to help ensure that all Mānoa graduates are ready to meet the different writing tasks that society and their professions will present to them.

Second Language Teaching and Curriculum Center

The Second Language Teaching and Curriculum Center was established in 1988 with the broad mission of improving language instruction in the College of Languages, Linguistics and Literature and facilitating cooperative efforts among departments. The center coordinates professional development programs; provides curriculum and materials development services to departments; supports faculty research and development projects, especially in obtaining grants and contracts; and conducts outreach activities to support Hawai'i's language-teaching community.

National Foreign Language Resource Center

Under the Language Resource Centers program, the U.S. Department of Education awards grants to a small number of institutions of higher education for the purpose of establishing, strengthening, and operating centers that serve as resources to improve the nation's capacity to teach and learn foreign languages effectively. In 1989, the University of Hawai'i was first granted funds to develop a National Foreign Language Resource Center (NFLRC), one of three such centers at the time—the number since has grown to nine.

NFLRC engages in research and materials development projects, conducts summer institutes for language professionals, and makes available a wide variety of publications on center projects and programs. Drawing on the abundance of Asian and Pacific resources afforded by its locale, NFLRC focuses its efforts on the less commonly taught languages, particularly those of Asia and the Pacific, recognizing that competence in these languages is increasingly vital to the nation's future. The projects and educational programs that the center undertakes have broader implications for the teaching of all languages.

American Studies

College of Arts and Humanities

Moore 324

1890 East-West Road

Honolulu, HI 96822

Tel: (808) 956-8570

Fax: (808) 956-4733

E-mail: amstuh@hawaii.edu

Web: www.hawaii.edu/amst/

Faculty

*P. Hooper, PhD (Chair)—regional and international studies

*W. Chapman, PhD—historic preservation

*M. Helbling, PhD—literature, ethnicity, and cultural theory

*J. Hughes, PhD—politics and women's studies

*F. Matson, PhD—politics and social science

*D. Ogawa, PhD—Asian American and communication studies

R. Perkinson, PhD—southern and western history, race and gender, crime and punishment

*D. Stannard, PhD—social problems

*K. Tehranian, PhD—culture, arts, environment, and society

*M. Yoshihara, PhD—cultural history, race and gender, United States-Asian relations

Cooperating Graduate Faculty

J. Stanton, PhD—culture and arts

Affiliate Graduate Faculty

D. Bertelson, PhD—literature and social thought

J. McCutcheon, PhD—social, cultural, and urban history

W. Murtagh, PhD—historic preservation

P. Spickard, PhD—multicultural studies

F. Tang, MA—Asian American relations

Degrees and Certificates Offered: BA (including minor) in American studies, MA in American studies (including dual AMST/MLISc MA), PhD in American studies, graduate Certificate in Historic Preservation

The Academic Program

Since its inception in the 1930s, American studies (AMST) has offered an integrated multidisciplinary exploration of the historical and contemporary American experience. This involves the study of American popular and high culture; environmental issues; institutional structures, including political and economic institutions; systems of thought and belief; and gender, ethnic, racial, and cross-cultural relationships. A combination of historical, literary, social-scientific, and other methodological approaches is used. In addition to such traditional aims, American studies at the University of Hawai‘i at Mānoa also explores the role of Hawai‘i, the Pacific, Asia, and, to a lesser extent, other parts of the world within the American experience, an objective that imparts a cross-cultural dimension to its program and differentiates it significantly from most other programs in the field.

At the undergraduate level, American studies offers a balanced general education experience, as well as excellent preparation for both advanced study in the field and professional studies ranging from law to travel industry management. Advanced degrees are intended primarily as preparation for college and university-level teaching, but recipients are also engaged in such activities as journalism, library management, business administration, and government service. A dual MA can be taken in cooperation with the Library and Information Science Program. In addition to regular degrees, the graduate Certificate in Historic Preservation is offered as preparation for professional employment in the preservation field.

Affiliations

The department is affiliated with the American Studies Association, National Council of Preservation Education, and National Trust for Historic Preservation.

Advising

The undergraduate adviser advises all undergraduate majors, and the graduate chair advises all graduate students.

Undergraduate Study

Bachelor’s Degree

Requirements

- Students must complete 30 credit hours, including:
- 6 credit hours from AMST 201, 202, 211, or 212
 - 24 credit hours of upper division courses:
 - AMST 381 and 382
 - 6 credit hours of 400-level American studies courses
 - 12 remaining credit hours may include allied humanities and social sciences courses. Selection must form an

orderly pattern around an appropriate theme, and approval of the departmental undergraduate adviser is required.

Minor Requirements

- Students must complete 15 credit hours, including:
- AMST 381 and 382
 - 9 credit hours of 300- or 400-level American studies electives

Graduate Study

Application Requirements

Applicants for graduate programs should present an academic record indicating a broad range of study in the humanities and the social sciences with an emphasis on American culture. Specific requirements for all graduate degrees and certificate programs are detailed in brochures available from the department upon request. Write to Graduate Chair, Department of American Studies, Moore 324, 1890 East-West Road, Honolulu, HI 96822.

Proficiency in a foreign language is not required unless it is necessary for dissertation research. Students having a special career interest in Asia may select courses offered in the Asian studies program to satisfy some degree requirements in American studies.

Courses for the graduate program are to be selected from among the courses listed in the back of the *Catalog*, from appropriate American studies graduate courses and upper division and graduate courses in related fields. Consent of the departmental graduate chair is required for enrollment in all undergraduate courses and all graduate courses in other fields. The courses listed in the back of the *Catalog* are numbered and grouped as follows: 500, Master’s Plan B/C Studies; 600–609, introductory courses; 610–689, fields of study courses; 690–699, special topics courses; and 700–800, thesis and dissertation research. AMST 500V, 699V, 700V, and 800V are offered each semester; AMST 600, 601, 602, and 603 are offered annually, and most other 600-level courses are offered once every three years.

Master’s Degree

MA candidates are expected to possess the BA degree and have a background knowledge of American culture.

Requirements

MA students may select either the Plan A or Plan B program. Students must complete 33 credit hours as follows:

Plan A (Thesis)

- 6 credit hours of AMST 700
- 18 credit hours in courses numbered 600 and above, including AMST 600, 601, 602, 603 and a graduate seminar course
- 9 credit hours in a chosen field of specialization
- oral examination

Plan B (Non-thesis)

- 18 credit hours in courses numbered 600 and above, including AMST 600, 601, 602, 603 and a graduate seminar course
- 15 credit hours in a chosen field of specialization
- written and oral examinations

More specific requirements are detailed in materials available upon request from the department.

Doctoral Degree

PhD candidates are expected to possess the MA degree in American Studies or its equivalent and should have a scholarly attainment of a high order and widespread intellectual interests.

Requirements

Students must complete 48 credit hours including:

- 18 credit hours in courses numbered 600 and above, including AMST 600, 601, 602, 603 and a graduate seminar course
- 30 credit hours in a chosen fields of specialization

Students must also complete:

- A qualifying examination consisting of two written parts covering the two areas of specialized fields of student's choice and an advanced graduate syllabus followed by an oral examination dealing with all three areas
- An oral comprehensive examination administered by the dissertation committee
- A dissertation of high quality and its successful oral defense

More specific requirements are detailed in materials available upon request from the department.

Certificate**Graduate Certificate in Historic Preservation**

Candidates for the Certificate in Historic Preservation must possess the BA degree. The Certificate in Historic Preservation combines course work and applied experience.

Requirements

Students must complete 15 credit hours of graduate course work:

- 3 credit hours of AMST 675, Preservation: Theory and Practice
- 3 credit hours of AMST 695, Historic Preservation Practicum
- 3 credit hours of ANTH 645, Historic Preservation
- 6 credit hours in field of specialization

A maximum of 6 credit hours may be applied simultaneously to the historic preservation certificate and to another degree. Internships are usually undertaken with local firms and organizations that have a preservation interest or with individu-

als who are qualified to direct independent work in preservation. The program concludes with a formal colloquium presentation.

Additional information and application forms are available upon request from the Historic Preservation Certificate Program.

Anthropology

College of Social Sciences
Saunders Hall 346
2424 Maile Way
Honolulu, HI 96822
Tel: (808) 956-8415
Fax: (808) 956-4893
E-mail: anthprog@hawaii.edu
Web: www2.soc.hawaii.edu/css/anth/

Faculty

- *M. W. Graves, PhD (Chair)—archaeology, ethnoarchaeology, evolution of social complexity, quantitative analysis; U.S. Southwest, Oceania
- *A. R. Arno, PhD—legal anthropology, ethnography of communication, kinship and social organization; Pacific
- *J. M. Bayman, PhD—archaeology, craft production, political economy; North America, U.S. Southwest
- *J. M. Bilmes, PhD—linguistic anthropology, social interaction, discourse; Thailand
- *C. F. Blake, PhD—critical theory, folk and popular culture, ideology, social movements in the modern world; China
- *D. Brown, PhD—physical anthropology, medical anthropology; Polynesia
- *A. G. Dewey, PhD—economics, kinship, Javanese conceptual frameworks; Southeast Asia, Pacific
- *N. L. Etkin, PhD—medical and biological anthropology, ethnobotany, diet, ethnopharmacology, human variability, infectious disease; West Africa, Pacific, Indonesia
- *P. B. Griffin, PhD—archaeology and ethnology of hunter-gatherers, technology; Southeast Asia
- *T. Hunt, PhD—archaeology, paleoenvironmental reconstruction, evolutionary theory, archaeometry, ceramics; Oceania
- *M. Pietrusewsky, PhD—physical and forensic anthropology, human evolution, skeletal biology, bioarchaeology, craniology, distance studies; Pacific and Asia
- *B. V. Rolett, PhD—archaeology, archaeozoology, island colonization; Oceania-Polynesia
- *L. E. Sponsel, PhD—biological and cultural anthropology, human ecology, foragers, tropical forests, Buddhist ecology, peace studies, human rights and advocacy; Southeast Asia (Thailand), Amazon (Venezuela)
- *M. Stark, PhD—archaeology ecology, early village economics, ceramics, ethnoarchaeology; Southeast Asia, U. S. Southwest
- *G. M. White, PhD—psychological anthropology, cognition and language, mental health; Melanesia
- *C. Yano, PhD—cultural anthropology, popular culture, ethnomusicology, cultural nationalism, emotions; Japan, Japanese Americans

*H. Young Leslie, PhD—medical and feminist anthropology, culture and health, medicine and modernity, health professionals; Tonga, Oceania

Cooperating Graduate Faculty

- R. Cann, PhD—physical anthropology, anthropological genetics, human populations
 E. Drechsel, PhD—historical sociolinguistics, ethnohistory, North American Indians; North America
 S. Falgout, PhD—social and historical anthropology; Micronesia, Hawai'i
 D. Gladney, PhD—ethnicity, nationalism, public culture, religious ideology; China, Central Asia, Turkey
 M. Kelly, MA—cultural anthropology, history of land use; Hawai'i
 J. Y. Okamura, PhD—ethnicity and ethnic relations, minority higher education; Philippines, Hawai'i

Affiliate Graduate Faculty

- N. Barker, PhD—cultural anthropology, religious self-mortification, culture concept, theory of ritual, self-sacrifice and the body; Philippines, Asia
 R. Borofsky, PhD—anthropology of knowledge, symbolic analysis, medical anthropology; Polynesia
 J. Fox, PhD—land use, forest resources and management, geographical information systems, and spatial information technology; South and Southeast Asia
 T. D. Holland, PhD—physical and forensic anthropology, skeletal biology; U.S. Midwest, Southeast Asia
 S. A. Lebo, PhD—historical anthropology, 19th century Euro-American and Asian ceramic analysis; Hawai'i, continental U.S.
 G. G. Maskarinec, PhD—linguistic anthropology; Himalayas and South Asia
 D. I. Olszewski, PhD—archaeology, lithics, hunter-gatherer adaptations, Hawai'i, U.S. Southeast, Middle East

Degrees Offered: BA in anthropology, MA in anthropology, PhD in anthropology

The Academic Program

Anthropology (ANTH) is the study of humankind, of the origin and evolution of our species, and of the ways of life of ancient and modern people. It is divided into four main subdisciplines: physical anthropology, archaeology, anthropological linguistics, and cultural anthropology. While physical anthropologists focus upon our biological nature, cultural anthropologists deal with the ways of life of past and present ages. Anthropological linguists look at language as a part of human behavior, while archaeologists study the remains of past cultures to reconstruct former lifestyles.

Students of anthropology gain a basic understanding of the origin and development of humanity useful both for understanding the human condition and as a preparation for work in many fields, not just in anthropology. For example, the department offers a uniquely broad range of courses on the cultures of Asia and the Pacific, as well as on aspects of American society, that provide students with a fund of cultural knowledge and insights upon which to build a career in law, medicine, public health, teaching, business, and other profes-

sions. While some BA graduates in anthropology do find employment in anthropology, normally an MA or PhD is required to work as an anthropologist in a university, museum, or other institution. The department has a long-standing graduate program, which trains students in all aspects of anthropology, focusing especially on Asia and the Pacific region. The training emphasizes field research; in any one year students are engaged in such projects as excavating an ancient religious temple on Tahiti, recording ritual life in rural Java, or analyzing the social system of a Japanese factory.

Undergraduate Study

Bachelor's Degree

Requirements

Students must complete 31 credit hours, including these required courses:

- ANTH 200, 210, 215, 215L and 305
- Six 300- and 400-level courses

Three of the 300- and 400-level courses may be from related disciplines with prior approval of the student's adviser.

Graduate Study

Intended candidates for the MA or PhD need not have an undergraduate background in anthropology. All applicants must submit to the department GRE General Test scores and three letters of recommendation at the time of application. Lack of previous training in anthropology may result, however, in study to fill gaps in knowledge. Before being considered for an advanced degree, a student must present evidence of having passed with a B or better at least one undergraduate course in archaeology, physical anthropology, social or cultural anthropology, and linguistics. Applications for admission will be considered for the fall semester only. The deadline for submission of applications is February 1. The deadline for international students is January 15.

The MA program ensures that graduates grasp fundamentals in their elected subfields, while the PhD program provides an opportunity for further specialization.

Master's Degree

Admission to MA candidacy is based upon a candidacy conference with the student and his or her three-person committee held sometime prior to the end of the student's second semester in residence. At that time the student submits, in writing, a proposed program of study that the committee must accept before the student is admitted to candidacy.

Requirements

A candidate for the MA must take two out of four core courses (archaeology, linguistic anthropology, physical anthropology, and cultural anthropology). A core course may be repeated once. A student may take additional core courses to fulfill other course requirements.

An MA candidate must also pass two courses in each of the following categories: method or technique, theory or topic, and culture area. If a candidate needs a course from one of the three categories in his or her program of study and that course is not offered by the department on a timely basis, he or she may petition the graduate chair to substitute a course from outside the department, provided petition is made prior to registration for the course in question. A candidate is required to earn 30 credit hours. Normally, at least 18 credit hours must be taken in the department. In special cases, a candidate may petition the graduate chair to waive this latter requirement. Of the required course work, both plans require at least 18 credit hours in courses numbered 600 or above and approved by the candidate's committee.

Plan A

- 24 credit hours of course work
- Thesis (6 credit hours)

Plan B

- 30 credit hours
- Three papers on anthropological topics, one of which shall be a research proposal to the committee as evidence of scholarly ability

Doctoral Degree

A student completing the requirements for an MA may request admission to the PhD program. In such a case, the committee will evaluate the MA thesis or three papers and will review the quality of previous graduate work. This evaluation will be made at a meeting of the student's committee, which may make a recommendation to the graduate chair concerning admission. In addition to the recommendation of each of the committee members, the graduate chair will require written assessments of the student's course work from each regular faculty member in whose course the student has been enrolled (including 699). The assessment shall include a specific recommendation (or abstention from recommending) to admit or deny admission to the PhD program. Admission to the PhD program requires a two-thirds majority of favorable versus unfavorable recommendations. This final evaluation and decision are made after the meeting to evaluate the MA work. The student receives written notification from the Graduate Dean.

Requirements

PhD candidates must fulfill the requirements for an MA degree in anthropology as a prerequisite. Requirements for obtaining a PhD include submitting an acceptable program plan at a candidacy conference, passing a comprehensive examination, formulating an acceptable dissertation proposal, writing an acceptable dissertation, and successfully defending this dissertation.

A student entering the PhD program with an MA degree from another department of anthropology must pass the core course in his or her area of specialization with a grade of B (GPA of 3.0) or better. This course may be challenged by examination in lieu of taking it for credit. All students are

required to take graduate courses (other than reading courses) from at least four different members of the anthropology department.

After admission to the PhD program, the student's MA committee will be dissolved and the student will form a five-member PhD committee. More members may be added if deemed desirable and consistent with a candidate's interest. At least one person must be a graduate faculty member of another department, but the majority of members must be from the Department of Anthropology. Substitutions may be made at any time if a member of the committee is unavailable.

All students entering the PhD program, including those obtaining an MA from the department, are strongly advised to hold a candidacy conference and gain written approval of their five-member committee for the projected program of study by the second semester.

Approximately one semester prior to the comprehensive examination, the student shall submit a detailed description of the areas to be covered, complete with bibliography. The candidate is expected to have read the items contained in the bibliography and be prepared to discuss them in some depth. It is the responsibility of each committee member to suggest additional readings for the bibliography and to suggest any other changes in the proposed agreement. After all committee members have been duly consulted, the student will prepare a final description to be signed by all concerned, including the student, and to be filed with the graduate chair.

The comprehensive examination shall be administered in two parts: (a) a written examination and (b) an oral exam, at which the student will be given the opportunity to clarify and amplify answers to the written component. The written exam will consist of one essay question submitted by each member of the student's committee. It will be closed-book; students will not be permitted to use notes or other aids. An allotment of three hours per question will be given. Scheduling will be flexible, but the total exam must be taken within a two week period.

The oral examination is expected to be scheduled not less than one week and no more than two weeks after the written examination. All members of the committee must be present at the examination. At the oral exam the student will be asked to explain and/or defend answers to the written component. Two hours are to be allotted for this exercise.

If a student fails the comprehensive examination, he or she may be allowed to repeat it. If this examination is failed a second time, the student will be dropped from the graduate program. The committee will provide each student with a written statement detailing the reasons for a negative decision.

After successfully completing the comprehensive examination, the student is required to submit a research proposal for review by the degree committee. A meeting of the committee will be scheduled within two weeks of submission of a final draft of the proposal; the committee will determine whether or not the student is adequately prepared for the fieldwork proposed. A candidate whose field research proposal is approved and who has completed all other requirements is eligible to receive a University ABD certificate.

A student conducting dissertation research among people who do not speak the student's native language will be required, before leaving for the field, to show evidence of oral competence in the most useful field language or of training in linguistic field techniques.

Following the student's submission of a final draft of the dissertation, an oral defense will be scheduled. It is the student's responsibility to see that each member of the committee has a copy of the complete final draft of the dissertation at least four weeks before the scheduled date of the oral defense. The dissertation must be read by no less than three members of the committee, and all members must be present at the oral defense. Procedures for determining final acceptance of the dissertation and awarding the PhD degree are set forth by the Graduate Division. A candidate must complete all the requirements within seven years after admission to the doctoral program. A student unable to meet this deadline may request an extension by written petition to the Graduate Chair describing reasons for the delay. If approved, the request will be sent to the Graduate Dean for a final decision.

Art

College of Arts and Humanities
Art 142
2535 McCarthy Mall
Honolulu, HI 96822
Tel: (808) 956-8251
Fax: (808) 956-9043
E-mail: uhart@hawaii.edu
Web: www2.hawaii.edu/art/

Faculty

*J. Wisnosky, MFA (Chair)—painting
*F. Beaver, MA (Associate Chair)—ceramics
*L. Andrews, PhD—Western art history
*R. Bigus, MFA—design
*A. Bush, MFA—design
*P. Chamberlain, MFA—sculpture, multimedia
*G. Chan, MFA—photography
*C. Cohan, MFA—printmaking
*N. Dowling, PhD—Southeast Asian art history
*D. Drexler, MFA—painting
*A. Feeser, PhD—Western art history
S. J. Henley, MFA—graphic design
*P. Hickman, MA—fiber
M. Inoue, PhD—Japanese art history
*R. Jay, PhD—Western art history
*T. Klobe, MFA—design
*R. Kowalke, MFA—painting
*R. Mills, MFA—glass, sculpture
*R. Rodeck, MFA—photography
*F. Roster, MFA—sculpture
*M. Sato, MFA—sculpture
*W. Tanabe, PhD—Japanese art history
H. Tsao, PhD—Chinese art history
*D. Waite, PhD—Pacific art history
*S. Wolfe, MFA—ceramics

* Graduate Faculty

Affiliate Graduate Faculty

J. Feldman, PhD—Pacific art history

Degrees Offered: BA in art, BFA in art, MA in art history, MFA in art

The Academic Program

The Department of Art (ART) offers two separate but interrelated programs. Art history, leading to the BA, affords the opportunity to study the arts of Asia, Pacific, and the West in a historical and cultural context. The art studio programs provide students either with a broad-based, liberal arts approach via the BA or with a more focused studio specialization leading to the BFA. The latter is considered more appropriate for students intending to pursue the MFA at the graduate level.

The department is housed in an excellent three-story facility with painting studios, photography and computer labs, and fully equipped printmaking, sculpture, ceramics, fiber, and glass facilities. The University of Hawai'i Art Gallery is a prominent feature of the department's programs. Six or seven major exhibitions are presented each year, many of which have received national recognition.

Advising

Advising is mandatory for all art majors. For advising see the associate chair in Art 142A, e-mail: frank@hawaii.edu

Undergraduate Study

BA Degree

This broad-based art degree provides students with a choice of a studio focus, where a wide range of visual arts media can be explored, or an art history focus, where the visual arts are studied in a historical context.

Requirements

Studio Focus

Students must complete 48 credit hours, including:

- 9 credits of art core: ART 201 and 6 credits of 113, 115, 116
- 27 credits of art studio: 18 credits must be upper division
- 12 credits of art history: 6 credits at the upper division level

Students interested in pursuing a teaching career in elementary and secondary art education should seek advisement from the College of Education.

Art History Focus

Students must complete 42 credit hours, including:

- 11 art history courses (33 credit hours), including ART 171, 172, 180, and 290
- Three studio classes (9 credit hours), selected in consultation with adviser

BFA Degree

The BFA degree in art is designed for those students who desire a focused preparation in the visual arts or who intend to

pursue an advanced degree or career in art. Areas of specialization include ceramics, fiber, glass, graphic design, photography, painting, printmaking, and sculpture. Students are encouraged to cross media boundaries, and qualified students may opt to construct an individualized plan of study with faculty guidance and approval.

Students seeking admission to candidacy for the BFA must be a BA Art major and pass a portfolio review, which can take place only after the following requirements have been met.

1. Completion of art core through 201.
2. Completion of art history requirements: ART 171, 172, 180, and 290 (or equivalent).
3. Completion of one 200-level studio elective not in student's chosen area.
4. Completion of 9 credit hours in chosen area with an average of B or better.
5. Completion of 18 credits in University core requirements exclusive of art department courses.

Applications for review are due on September 1 for the spring and January 20 for the fall.

Requirements

Students must complete 75 credit hours, including:

- Eight media concentration courses (24 credit hours), as indicated by the program area at the time of declaration (last 9 credit hours must be completed at Mānoa)
- Five art core courses (15 credit hours): 113, 115, 116, 201, 302
- Six art history courses (18 credit hours): ART 171, 172, 180, 290, and two electives
- Six elective studios (21 credit hours)

Minor

Requirements

- 21 credit hours, 15 of which must be from non-introductory courses

Introductory courses used to meet General Education Core requirements cannot be credited toward the minor.

Graduate Study

The Department of Art offers two master's degrees, the MA in art history—Plan A (thesis) or Plan B (non-thesis)—and the MFA in studio—Plan A only.

MA in Art History

The MA in art history emphasizes the arts of Asia and the Pacific. Applicants for the degree must hold a bachelor's degree from an accredited U.S. college or university or its equivalent from a recognized foreign institution. An undergraduate major in art history is desirable, but not necessary. In support of the application for admission, all applicants are required to send directly to the art department prior to the application deadline:

three original letters of recommendation, a sample of written work, preferably an art history seminar or term paper, and General Test scores from the GRE.

Plan A Requirements:

Students must complete 36 credit hours, including:

- ART 670 Art Historical Methodology
- 9 credit hours of seminars in Asian and Pacific art history
- 6 credit hours of ART 700 or thesis

Students intending to engage in studies leading to the PhD are strongly encouraged to complete course work beyond the minimum MA Plan A requirements.

Plan B Requirements:

The non-thesis program is for students wishing to teach in community colleges or at the high school level. Required are 30 credit hours of which 18 must be taken in courses numbered above 600 including:

- ART 670 Art Historical Methodology
- 9 credit hours of seminars in Asian and Pacific art history

Students opting for Plan B must take a minimum of 18 credits in courses numbered above 600 (including ART 670).

In either plan up to 9 credits, with adviser's approval, may be earned in appropriate advanced courses in other University departments.

The more suitable plan will be mutually determined by the faculty and the student.

The program expects students to pass a comprehensive exam in the third semester of residency. Its purpose is to demonstrate a broad knowledge of Asian and Pacific art history. Those failing must pass successfully on a second attempt. Students must also demonstrate a reading knowledge in a foreign language appropriate to their field of specialization, chosen in consultation with the area adviser.

MFA Degree

The MFA is the terminal degree in studio art. The normal period of study is three years in residence. Areas of specialization include ceramics, electronic media, fiber, glass, graphic design, painting, photography, printmaking, and sculpture. Although most MFA applicants apply to one of the above media specializations for admission, students may take electives in more than one medium and are encouraged to investigate new genres.

Applicants for the MFA must present evidence of a BFA or a BA with a strong studio art and art history background. The Department of Art acknowledges that some MFA applicants may not fit traditional criteria and will thus consider exceptional bachelor's degree recipients that exhibit relevant backgrounds, strong commitment, and distinct potential in the visual arts. An applicant with a nontraditionally graded undergraduate or graduate transcript must submit GRE scores and course performance report forms if the transcript contains 25 percent or more of the applicant's credit hours.

Supporting materials must include approximately 20 slides of original work that illustrate abilities in an area of specialization, as well as potential for development within the scope of the department's facilities and personnel. This visual material and three letters of recommendation should be sent to the Department of Art. The application form for graduate admission should be sent under separate cover to the Graduate Division.

Deficient or incompatible undergraduate preparation may result in admission on a conditional basis and will require, at the discretion of the graduate faculty, additional course work.

After acceptance into the graduate program, admission to candidacy for the MFA degree will be based upon results of the graduate evaluation and a positive review of course work. The graduate evaluation is administered in the fall to all classified students who have completed at least one semester of study. Those failing must successfully pass on their second attempt.

Failure to meet the requirements for continued registration or to show progress in course work will lead to probation and/or dismissal from the graduate program.

Requirements

Students must complete 60 credit hours, including:

- 24 credit hours in 600-level courses within the area of specialization, with a minimum of 6 credit hours at each of three graduate studio levels. (These courses are repeatable and must be taken in units of 3 or 6 credits per semester. Conditional or unclassified graduate students may enroll only at level 1 for a maximum of 6 credits. Consent of instructor is required.)
- Two art history courses (numbered 300 or above)
- ART 690
- ART 700 thesis, including an exhibition and written documentation

As part of the 60-credit degree requirement, ART 699 Directed Work may be taken for a maximum of 15 credits. Art courses numbered 300 and above and not required at the undergraduate level in the area of specialization are acceptable for graduate credit. Elective courses also may be selected from any other University department, provided such study is deemed useful and pertinent to the student's degree plan. All elective courses require appropriate preparation and the consent of the instructor and graduate student's adviser.

Astronomy

College of Natural Sciences

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E-mail: grad-chair@ifa.hawaii.edu

Web: www.ifa.hawaii.edu/gradprog

Faculty

- *C. G. Wynn-Williams (Graduate Chair), PhD—infrared astronomy
- *J. Barnes, PhD—astrophysical theory
- *A. M. Boesgaard, PhD—stellar spectroscopy
- *K. Chambers, PhD—extragalactic astronomy
- *A. S. Cowie, PhD—interstellar matter
- *L. L. Cowie, PhD—extragalactic astronomy
- *D. N. B. Hall, PhD—infrared astronomy
- *J. N. Heasley, PhD—stellar photometry
- *J. P. Henry, PhD—x-ray astronomy, instrumentation
- *G. H. Herbig, PhD—stellar spectroscopy
- *K. Hodapp, PhD—infrared astronomy
- *E. M. Hu, PhD—extragalactic astronomy
- *D. C. Jewitt, PhD—planetary astronomy
- *R. Joseph, PhD—infrared astronomy
- *N. Kaiser, PhD—theoretical astronomy
- *R-P. Kudritzki, PhD—stellar astronomy
- *J. R. Kuhn, PhD—solar astrophysics
- *B. J. LaBonte, PhD—solar physics
- *G. Luppino, PhD—extragalactic astronomy
- *E. G. Martin, PhD—stellar astronomy
- *R. McLaren, PhD—infrared astronomy
- *K. Meech, PhD—planetary astronomy
- *D. Mickey, PhD—solar physics
- *T. Owen, PhD—solar system astronomy
- *A. J. Pickles, PhD—extragalactic astronomy
- *J. T. Rayner, PhD—infrared astronomy
- *C. Roddier, PhD—adaptive optics
- *F. Roddier, DSc—adaptive optics
- *D. B. Sanders, PhD—infrared and millimeter astronomy
- *T. Simon, PhD—stellar spectroscopy
- *A. N. Stockton, PhD—extragalactic spectroscopy
- I. Szápudi, PhD—cosmology
- *D. Tholen, PhD—planetary science
- *A. T. Tokunaga, PhD—infrared astronomy
- *J. Tonry, PhD—extragalactic astronomy
- *R. B. Tully, PhD—galaxies and cosmology
- *R. Wainscoat, PhD—extragalactic astronomy

Degrees Offered: MS in astronomy, PhD in astronomy

The Academic Program

Astronomy (ASTR) is the branch of science that studies the structure and development of the physical world beyond Earth. It includes the study of planets and other objects of the solar system; the sun and stars and their evolution; the interstellar medium; the nature and dynamics of star clusters, galaxies, and clusters of galaxies; and the study of the nature and history of the universe itself—of the physical world taken in its largest extent in space and time.

Incomparable facilities for ground-based observational astronomy in the optical, infrared, and submillimeter regions of the spectrum reside in Hawai'i. The University of Hawai'i's

facilities are located on Haleakalā on the island of Maui at an elevation of 3,000 meters and on Mauna Kea on the Big Island of Hawai'i at an elevation of 4,200 meters. The summit of Mauna Kea is internationally recognized as the best observing site in the world. As a consequence, the major telescopes of 11 nations are located there, and the University of Hawai'i is guaranteed access to them. The Institute for Astronomy of the University of Hawai'i has major programs in the study of galaxies and cosmology, stellar and interstellar astronomy, solar astronomy, infrared and submillimeter astronomy, and planetary astronomy.

Graduate Study

Undergraduate preparation for admission to the graduate program in astronomy includes a minimum of 35 undergraduate credit hours in physics or astronomy, some of which must be in atomic and nuclear physics, electromagnetism, mechanics, optics, and thermodynamics. An undergraduate course in introductory astronomy is recommended. Courses in mathematics through differential equations are also required. Official scores of the General Test and the physics subject test of the GRE must be submitted prior to admission. The deadline for submission of applications is February 1. The deadline for international students is January 15.

The graduate program is directed toward producing research scientists at the PhD level. The MS degree is also offered. Areas of concentration emphasize the use of the University's observatories for the solution of problems in solar physics, planetary astronomy (atmospheres and surfaces), stellar astronomy, extragalactic systems, and cosmology.

Master's Degree

Graduates with a terminal MS degree have found employment in space-related industries and teaching positions in high schools and two-year colleges. Such teaching positions may require additional courses in education.

Requirements

Course requirements for the MS Plan B degree (which must be earned en route to the PhD) are a minimum of 30 credit hours, which would normally include ASTR 633, five additional 600-level astronomy courses, 3 credit hours of ASTR 734, 735, or 736, and 9 credit hours of ASTR 699. Exceptions to these requirements can be made in special cases.

Doctoral Degree

Graduates with the PhD have found employment primarily on college and university faculties, in government laboratories, and in space-related industry.

Requirements

Additional courses are not necessarily required for the PhD, but the student's program of courses must be judged by the faculty to provide both adequate general background and specialized preparation for research. Normally, students will be expected to be familiar with the content of all the 600-level astronomy courses.

Students must pass the qualifying examination (which also serves as the final examination for the MS Plan B) and the oral comprehensive examination before admission to candidacy for the PhD. They must write an acceptable dissertation based on original research and defend it in a public final examination before being awarded the PhD degree.

Biology

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Faculty

A. K. Fok, PhD (Director)—cell biology

H. Ako, PhD—analytical biochemistry

D. Borthakur, PhD—molecular genetics of rhizobia, plant-microbe interaction, biotechnology

K. W. Bridges, PhD—systems ecology

R. L. Cann, PhD—molecular and evolutionary genetics

D. A. Christopher, PhD—photosynthesis, plant biochemistry, plant molecular biology

S. Conant, PhD—ornithology, ecology, behavior, conservation biology

C. C. Daehler, PhD—population genetics and dynamics, breeding system, reproductive ecology, herbivore of invasive plants

H. G. de Couet, PhD—molecular cell biology and genetics

D. S. Haymer, PhD—molecular evolution and developmental genetics

D. M. Jameson, PhD—fluorescence spectroscopy; biomolecular dynamics and interactions; ribosomal proteins

S. C. Keeley, PhD—molecular systematics, evolution in island systems

R. A. Kinzie III, PhD—coral reef biology, marine ecology, limnology

T. W. Lyttle, PhD—population genetics, cytogenetics

W. C. McClatchey, PhD—ethnobotany

M. Merlin, PhD—biogeography, natural history of the Pacific

S. Robinow, PhD—developmental neurobiology, genetics, molecular biology

J. Seifert, PhD—biochemical toxicology

S. E. Seifried, PhD—macromolecular interactions, transcription factor recognition of specific DNA sequences, protein subunit assembly

C. Z. Womersley, PhD—environmental physiology, biochemical adaptation, parasitology

G. J. Wong, PhD—mating systems and biosystematics of basidiomycetes

Degrees Offered: BA in biology, BS in biology

The Academic Program

The Biology Program (BIOL) is a cooperative program whose faculty members are from the Biology Program and the Departments of Botany, Cell and Molecular Biology, Microbiology, Molecular Biosciences and Biosystems Engineering, and Zoology. It provides an academic home to students who wish to pursue a broad training in the biological sciences. It offers a BA degree for pre-professional students and a BS degree with five specializations: cell & molecular biology, ecology/evolution/conservation biology, marine/aquatic biology, organismic biology and general biology.

Biology is of fundamental importance in a science or liberal arts education, as it provides students with a keener insight into and a deeper appreciation of the many facets of living systems. Most students plan to use their training as preparation for professional work, such as aquaculture, biotechnology, biological research, dentistry, marine biology, medicine, optometry, park services, pharmacy, and teaching. Our graduates have an outstanding record of acceptance in advanced degree programs at dental, medical, pharmacy, and graduate schools. Many of our graduates also become teachers after obtaining a post-baccalaureate teaching certificate at the College of Education.

The biology curriculum is designed to provide students with a strong background in the principles of biology and with rigorous upper-division instruction in a number of basic areas. This combination of breadth and in-depth instruction allows students to develop the intellectual foundations and the skills necessary to deal with the specific biological concerns of today and the flexibility to meet the needs of the various professions. From this base, our graduates can pursue future specialization with confidence.

Advising

Student advising is mandatory. Prospective majors should come to Dean 2 for advising immediately, so as to design a curriculum that satisfies program requirements.

Undergraduate Study

BA Degree

Requirements (C grade minimum)

- BIOL 172, 265, 275, and 375 plus laboratories
- 14 credit hours in approved courses, including one each from botany, microbiology, physiology, and zoology
- One or more laboratory courses at the 300 level or above

Related Requirements (D grade minimum)

- CHEM 161, 162, 272 plus laboratories and 273
- PHYS 151 and 152 or 170 and 272 plus laboratories
- MATH 215 or 241
- ICS 101/101L

BS Degree

Requirements (C grade minimum)

- BIOL 172, 265, 275, and 375 plus laboratories
- One course each from morphology/systematics and physiology
- BIOG 441 or BIOL 402 or BIOL 405
- 15 credit hours in approved courses in one of the following tracks or concentrations:
 - cell/molecular biology
 - ecology, evolution and conservation biology
 - general biology
 - marine/aquatic biology
 - organismic biology
- 1 or 2 credits of directed research in approved disciplines
- One or more laboratory courses at the 300 level or above
- The above courses to include one or more courses at the 300 level or above each from botany, microbiology, and zoology

Related Requirements

- CHEM 161, 162, 272 plus laboratories and 273
- PHYS 151 and 152 or 170 and 272 plus laboratories
- MATH 215 and 216 or 241 and 242/242L
- ECON 321 or MATH 243
- ICS 101/101L

Minor

Requirements (C grade minimum)

- Students must complete BIOL 172, 265, 275, and 375 plus related laboratories; and a minimum of 3 credits from the following:
- BIOL 363, 399, 401, 406/406L, 407/407L, 409, 425, 441, and 499
 - Approved upper level botany, microbiology, and zoology courses

Botany

College of Natural Sciences

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Faculty

*G. D. Carr, PhD (Chair)—biosystematics, cytotoxonomy, chromosome evolution

*K. W. Bridges, PhD—systems ecology

*C. C. Daehler, PhD—population biology, invasive plants, plant-herbivore interactions

D. R. Drake, PhD—seed ecology and conservation of Polynesian plants

*D. C. Duffy, PhD—conservation, restoration ecology

*S. C. Keeley, PhD—molecular systematics, evolution in island systems

- *W. C. McClatchey, PhD—Pacific ethnobotany, ethnopharmacology
- *C. W. Morden, PhD—molecular systematics and evolution of plants and algae
- *C. M. Smith, PhD—physiological ecology of marine macrophytes, marine ecology, cell biology
- *A. H. Teramura, PhD—global climate change, ozone depletion, physiological ecology
- *T. B. Ticktin, PhD—ethnobotany, conservation
- *D. T. Webb, PhD—plant anatomy, electron microscopy, morphogenesis, symbiosis
- *G. J. Wong, PhD—mating systems and biosystematics of basidiomycetes

Cooperating Graduate Faculty

- D. Borthakur, PhD—plant molecular genetics
- D. A. Christopher, PhD—gene regulation of photosynthesis, uv effects
- D. E. Hemmes, PhD—plant ultrastructure (University of Hawai‘i at Hilo)
- C. Hunter, PhD—reef ecology
- Y. Sagawa, PhD—cytogenetics, tissue culture
- W. S. Sakai, PhD—ultrastructure, physiological anatomy (University of Hawai‘i at Hilo)
- C. S. Tang, PhD—allelopathy, phytochemistry, plant biochemistry

Affiliate Graduate Faculty

- J. J. Ewel, PhD—tropical forest succession
- K. C. Ewel, PhD—ecology, management practices, wetland and terrestrial ecosystems
- D. E. Gardner, PhD—biocontrol, taxonomy of rust fungi
- D. R. Herbst, PhD—endangered and threatened Pacific flora, plant morphology
- G. T. Kraft, PhD—systematics and evolution of Pacific Basin macroalgae
- L. L. Loope, PhD—ecology, conservation of rare and endangered species (Maui)
- W. A. Whistler, PhD—systematics, Pacific ethnobotany

Adjunct Faculty

- A. K. Chock, MS—Hawaiian ethnobotany
- R. Gay, MS—plant ecology
- D. H. Lorence, PhD—systematics of flowering plants (Kaua‘i)

Degrees Offered: BA in botany, BS in botany, MS in botany, PhD in botany

The Academic Program

The University of Hawai‘i at Mānoa has the only botany department (BOT) located in a tropical environment in the United States. Both aquatic and terrestrial tropical ecosystems provide the subjects of research and teaching. The department is committed to broad-based botanical training that focuses on developing an understanding of Hawai‘i’s unique island environment. While it maintains traditional areas of botanical study, the department also uses new approaches and current technologies. It has faculty in anatomy, ecology, systematics, ethnobotany, physiology, and population and evolutionary

biology. Research programs focus on ecology, evolution and conservation of Hawai‘i’s ecosystem and unique endemic flora; the ecology and physiology of marine macroalgae; invasion biology by alien weeds; and the uses of plants by the human cultures of the Pacific Basin. Participation in the interdepartmental undergraduate biology program and the graduate program in ecology, evolution and conservation biology provides interactions with other departments and expands opportunities for breadth in research and instruction. All botany faculty members, regardless of rank, teach courses in the undergraduate curriculum as well as at advanced levels.

The department offers bachelor of arts, bachelor of science, and minor degrees in botany at the undergraduate level; the MS and PhD degrees at the graduate level. Undergraduate majors follow a number of career paths leading to employment as naturalists, environmental planners, policy makers, conservation biologists, teachers, researchers, and museum or organizational directors. A number of graduates have assumed important positions in public and private institutions at the national and international levels. Support at the undergraduate and graduate levels is available via competitive tuition waivers and scholarships. Teaching and research assistantships are available at the graduate level.

The botany programs strongly emphasize field experience and hands-on laboratory training with locally important plants, their environment, historical and present uses, as well as the unique aspects of plant evolution and ecology in Hawai‘i and the Pacific. The department’s World Wide Web site (www.botany.hawaii.edu) allows glimpses into the many environments and special plants in Hawai‘i, and provides further information about faculty interests and research.

Over half of all the endangered plant species in the United States are endemic to Hawai‘i. Botanical knowledge and understanding are essential to the continued preservation of these unique plants. The botany department cooperates with government and private agencies (see “Affiliations” below) in conservation efforts for these species. The department also provides identifications and fundamental knowledge about Hawai‘i’s unique plants to local citizens, schools, and state and federal agencies.

Hawai‘i’s location provides botany students with the best opportunity for exploration of tropical marine or terrestrial ecosystems available anywhere in the United States. The varied environments and climates present in the islands allow work from oceanic reefs to the tops of snow-covered volcanoes. The isolation and geology of the islands have produced a unique flora, unmatched in its potential for effective study of systematic, evolutionary, ecological, and ethnobotanical questions.

Affiliations

Botanical studies are enhanced by cooperative working relationships between the department and Hawai‘i Institute of Marine Biology, Harold L. Lyon Arboretum, Kewalo Marine Laboratory of the Pacific Biomedical Research Center, Pacific Cooperative Studies Unit of the National Park Service, The Nature Conservancy, State of Hawai‘i Department of Land

and Natural Resources, U.S. Fish and Wildlife Service, National Tropical Botanical Garden, Honolulu Botanical Garden, Herbarium Pacificum and the Department of Botany of the B. P. Bishop Museum, Hawai'i Agriculture Research Center (formerly Hawaiian Sugar Planters' Association), and Waikiki Aquarium.

Advising

Student advising is coordinated by the undergraduate adviser who is available to talk with prospective majors about their interests. An information sheet is available in the department office. Graduate students entering the department are assigned an interim committee of three faculty members who provide general advice. The students committee and the Chair of Botanical Sciences oversee requirements and provide a link between the Graduate Division and the student. Graduate students are encouraged to interact with each faculty to become acquainted with various research approaches and areas of expertise. Once a research topic has been identified, a permanent committee will be established to provide specific assistance.

Undergraduate Study

BA Degree

The BA degree provides students flexibility to pursue a broad liberal arts education and still gain a sound foundation in botany with an area of particular interest. Courses are available in conservation, ecology, ethnobotany, evolution, physiology, structural botany, systematics, and selected faculty research specialties. The courses applied toward the botany major may be selected with the student's interest area in mind.

Requirements

- 28 semester hours in approved biological courses beyond BOT 101 and 101L or equivalent
- BOT 201/201L and 351/351L
- 2 credit hours of BOT 399
- One option from each area:
 - ecology and conservation: BOT 350, 450, 453, 456, or 482/482L
 - form and function: BOT 311, 410/410L, 446, 470/470L
 - genetics and evolution: BIOL 275/275L, 375/375L, BOT 450, 462, CMB 351
 - organisms: BOT 430, 461, 480
- CHEM 151/151L, 152/152L, or higher
- ICS 101/101L
- PHYS 100/100L or higher

Prospective majors should consult the department promptly to design a curriculum that satisfies these requirements.

BS Degree

The BS degree is designed for those students who plan a career in science with an emphasis on plants, especially those intending to do graduate studies. A full complement of basic

courses in biology, chemistry, math, and physics is required in addition to botany courses. As with the BA degree, students may choose among a variety of courses to fulfill requirements for the major.

Requirements

- BIOL 171/171L, 172/172L and the specific requirements in the following areas:
 - cell and molecular biology: BIOL 275/275L, BOT 470/470L
 - ecology and conservation: BIOL 265/265L or BOT 351/351L and one of BOT 350, 450, 453, 456, 482/482L
 - organismal and structural botany: BOT 201/201L, 461, 311 or 410/410L, and 430 or 480
 - genetics and evolution: BIOL 375/375L, BOT 462
- CHEM 161/161L, 162/162L, 272/272L
- ICS 101/101L
- MATH 215, 216 or higher
- PHYS 151/151L, 152/152L

Prospective majors should consult the department promptly to design a curriculum that satisfies these requirements. BOT 101 to BOT 160 do not fulfill major requirements.

Minor

Requirements

Students must complete 15 credit hours in non-introductory courses with a grade of C or higher.

For evolutionary botany:

- BOT 201/201L, and 462
- Electives: BOT 410/410L, 430, 450, 461, 470/471L, 480, 662, or 663

For tropical field botany:

- BOT 453
- Electives: BOT 201/201L, 350, 450, 454, and 461

Individual programs may be designed by the student and adviser for approval by the faculty.

Graduate Study

The department offers programs leading to MS and PhD degrees. Hawai'i's location offers unique opportunities to study the patterns and processes of evolution, adaptation, and morphological and physiological variations within a geographically variable and isolated setting. Faculty expertise spans from the molecular to the whole organism in marine and terrestrial environments, with emphasis on evolutionary biology, ecology, ethnobotany, molecular evolution, physiology, structural botany, and systematics. The faculty includes a number of nationally and internationally recognized scientists in ecology, ethnobotany, physiological ecology, and systematics.

In addition to the previously listed affiliations, botany is closely affiliated with the program in ecology, evolution, and

conservation biology, providing a variety of opportunities for graduate student education, research, and support.

Recipients of the MS degree often teach at the high school level, pursue careers with government agencies such as the U.S. Fish and Wildlife Service or National Park Service, or work with environmental organizations like the Nature Conservancy or the Sierra Club. Those with a PhD may teach and/or conduct research in private industry or in colleges and universities or work with environmental organizations or the government.

A brochure listing faculty members and their research areas and publications is available from the botany office and on the World Wide Web (www.botany.hawaii.edu). Applications for admission and opportunities for financial aid and support are available upon request.

At the time of application, an official record of the student's performance on the GRE General Test must be submitted to the department. The subject test in biology is also recommended. Three letters of recommendation from persons who can appraise the student's aptitude for advanced work are required. Students will be evaluated for pre-program preparation in chemistry, physics, mathematics, genetics, and basic areas of botany; if accepted, students must make up pre-program deficiencies before they can advance to candidacy. Application deadlines are February 1 for fall semester and September 1 for spring semester. Normally, teaching assistantships are available for the beginning of fall semester, but openings may occur mid-year.

MS and PhD students are admitted to candidacy when they have successfully completed any requirements and pre-program deficiencies identified by their committee and after they have demonstrated the ability to collect, analyze, integrate, and communicate scientific information effectively in the English language. This requirement may be satisfied by a class paper, publication, or other written evidence deemed acceptable by the committee.

Because scientific findings are typically presented orally, as well as in writing, all students must gain and demonstrate proficiency in the presentation of seminars. Students must complete at least two BOT 610 seminars to satisfy this requirement. In addition, MS Plan A and PhD students must present two public seminars: first, outlining the background of a research problem and the student's proposed research program; and second, at the conclusion of their program, describing the research results and conclusions. The latter seminar also includes a final examination by the thesis or dissertation committee. The final examination for the MS Plan B students includes the presentation of a public seminar summarizing the results of one of their directed research studies.

Master's Degree

Plan A (thesis) and Plan B (non-thesis) are separate MS programs with distinct purposes. Before admission to candidacy, the plan that a candidate intends to follow must be declared and approved. Plan A is the usual program to be taken by candidates. Plan B is for students who do not intend to make research in botanical sciences their profession. Plan B programs emphasize the methodological aspects of botanical sciences.

MS Plan A (Thesis) Requirements

For Plan A, a minimum of 30 credit hours is required. Of that, a total of 12 credit hours shall be for thesis and a minimum of 18 additional credit hours for courses approved by the candidate's committee.

MS Plan B (Non-thesis) Requirements

For Plan B, a minimum of 30 credit hours is required. Of that, a total of 18 credit hours shall be earned in the major field or an approved related field in courses numbered 600 and above. Of these credits, at least 6 (but not more than 9) must be for directed research in aspects of botanical sciences chosen by the candidate in consultation with his or her committee.

Doctoral Degree

The PhD program includes gaining a working knowledge in an approved foreign language or other research-tool subject, as well as passing a comprehensive examination and writing a dissertation. Suitability of the language or tool subject is determined by the graduate faculty according to the student's area of specialization, and proficiency is ordinarily determined by examination or satisfactory completion of a specific course of study.

Requirements

The comprehensive examination is solely oral, or a combination of oral and written, and is conducted by the candidate's committee, plus any members of the graduate faculty who wish to attend. In addition to general botany, the candidate is examined in-depth in areas of related disciplines that have been previously agreed upon by the student and the committee.

The dissertation is expected to be an original contribution based on independent research. It is initiated by the preparation of a critical review of the literature that becomes the basis for a dissertation proposal. Dissertation research for the PhD degree is carried out in an aspect of botanical sciences for which a member of the graduate faculty of the field will accept responsibility as committee chair.

Chemistry

College of Natural Sciences

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Faculty

- *K. Seff, PhD (Chair)—physical chemistry, intrazeolitic chemistry, structure determination by x-ray crystallography
- *G. Andermann, PhD—physical analytical chemistry, surface chemistry, natural products material science, x-ray spectroscopy, optical properties, superconductors
- *T. T. Bopp, PhD—physical chemistry, nuclear magnetic resonance
- *R. E. Cramer, PhD—inorganic chemistry, structure and bonding of metal complexes, ionophores
- *J. D. Head, PhD—theoretical chemistry, electronic structure determination of large molecules and clusters
- *T. K. Hemscheidt, PhD—organic and bioorganic chemistry, biosynthesis of natural products
- *D. Hoffmann, PhD—biochemistry and molecular biology of natural products, biosynthesis in cyanobacteria (blue-green algae)
- *C. M. Jensen, PhD—inorganic and organometallic chemistry, polyhydride and dihydrogen metal complexes, homogeneous catalysts, hydrogen storage materials
- *R. I. Kaiser, PhD—physical chemistry, reaction dynamics, chemistry in extraterrestrial environments
- *K. K. Kumashiro, PhD—physical chemistry, solid-state nuclear magnetic resonance of proteins and peptides
- *R. W. Larsen, PhD—physical and biophysical chemistry, time-resolved optical spectroscopy, protein structure/function, electron transfer and biocatalysis
- *R. S. H. Liu, PhD—organic and bioorganic chemistry, photochemistry, visual pigments
- *K. Michael, PhD—organic and bioorganic chemistry, synthesis of carbohydrates, molecular recognition
- *R. E. Moore, PhD—organic chemistry, structure determination and biosynthesis of natural products from microalgae marine organisms
- *D. W. Muenow, PhD—physical chemistry, high-temperature chemistry, geochemistry, mass spectrometry
- *M. A. Tius, PhD—organic chemistry, synthesis of natural products

Degrees Offered: BA in chemistry, BS in chemistry, MS in chemistry, PhD in chemistry

The Academic Program

Chemistry (CHEM) stands at the crossroads between physics and biology. As biological processes are examined in ever finer detail, chemistry is increasingly called upon to

provide the insights, techniques, and materials needed to understand the workings of living organisms, including ourselves. Chemistry is thus a popular major for those interested in biomedical careers. In another direction, chemistry is also essential to the search for solutions to the ecological problems created by the ever-expanding range of human activities. Chemists create new substances with new properties that find application throughout our civilization.

As a major, chemistry provides a solid foundation of scientific knowledge and experimental skills that enables one to specialize in many directions toward careers in research, teaching, business, or professional practice. Also, because virtually all constructed things we see and use in our daily lives involve chemistry, there is a huge pool of jobs for chemists in the manufacturing industries.

Undergraduate Study

BA Degree

Requirements

- 27 credit hours in chemistry courses numbered 200 and above, including CHEM 272/272L, 273/273L, 274/274L, 333/333L, 351, and 352/352L
- Math Calculus III
- PHYS 170/170L, and 272/272L
- Recommended languages: German, French, Russian, or Japanese

BS Degree

Requirements

- 40 credit hours in chemistry courses numbered 200 and above, including CHEM 272/272L, 273/273L, 274/274L, 333/333L, 351, 352/352L, 422, 423 and 443
- A minimum of 6 credits from CHEM 399, 445, 601, 602, 621, 622, 623, 631, 632, 633, 641, 642, 643, 651, 653, or 658, HON 493 and 494, ENBI 402 or BIOC 441
- Math Calculus III
- PHYS 170/170L and 272/272L
- Recommended electives: Math Calculus IV and PHYS 274
- Recommended languages: German or French

Minor

Requirements

- 17 credit hours in chemistry courses numbered 200 and above, including CHEM 272/272L, 273/273L, 274/274L, and 351

Graduate Study

The department offers MS and PhD research and study opportunities in inorganic, organic, and physical chemistry,

with specialized research opportunities in geochemistry and marine-related chemistry.

Intended candidates for the MS or PhD must present the minimum undergraduate preparation in general, organic, analytical, and physical chemistry courses. Foreign applicants for the MS and all PhD applicants must take the GRE General Test and subject test in chemistry.

Graduate study in chemistry consists of course work, independent study, teaching, and research. A thesis or dissertation based on original research is the most important part of the master's or doctoral degree respectively. Candidates for advanced degrees are required to serve as teaching assistants for a portion of their program.

Additional details concerning MS and PhD degree requirements, as well as assistantships available to prospective students, are outlined in brochures available upon request from the department.

Master's Degree

Requirements

The candidate for the MS in chemistry (Plan A only) is granted 12 credit hours for an acceptable thesis. The remaining 18 credit hours must be selected from acceptable graduate courses in chemistry (listed in the back of this *Catalog*) or from graduate offerings in mathematics and the natural sciences. Required courses are CHEM 691 or 692, and 700.

Doctoral Degree

Requirements

Doctoral candidates must complete a minimum of six semesters of graduate study of which at least three semesters must be in residence at the University. Courses are selected from acceptable graduate courses in chemistry listed in the back of this *Catalog* and from graduate offerings in related disciplines as directed by the faculty. Candidates must demonstrate mastery of core material in graduate courses in their chosen areas. Each candidate must pass a comprehensive oral examination consisting of the defense of an original research proposal written by the candidate and a résumé of the candidate's dissertation research and its current status.

The most important requirement for the PhD degree is the research project that culminates in the dissertation. Prior to beginning the second semester of study, each candidate selects one member of the chemistry graduate faculty to serve as his or her research director. The research director works with the candidate throughout his or her program and chairs the candidate's dissertation committee.

More information about the chemistry department and its programs can be found on its web site.

Communication

School of Communications
College of Social Sciences
George 301
2560 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8715
Fax: (808) 956-5396
Web: www.soc.hawaii.edu/css/com/

Faculty

- *T. Brislin, PhD (Chair)—mass communication, journalism, ethics
- *D. M. Davis, PhD (Graduate Chair)—social impact of communication technologies, telecom services, communication and gender
- *J. C. Ady, PhD—intercultural and organizational communication
- *G. Fontaine, PhD—intercultural and organizational communication
- *T. Kelleher, PhD—media campaigns and effects
- *J. I. Kim, PhD—communication theory and research, development communication, network analysis, diffusion of innovations
- *E. N. Kunimoto, PhD—health communication, intercultural communication
- *C. G. R. Macdonald—multimedia, telecommunication, research
- *M. Tehrani, PhD—political economy of communication, telecommunication policy and planning, communication and international development
- *D. J. Wedemeyer, PhD—communication policy and planning, telecommunication, forecasting

Cooperating Graduate Faculty

- A. R. Arno, PhD—communication law, ethnography of communication
- A. Auman, MA—journalism
- R. Brislin, PhD—cross-cultural communication
- L. D. Frazier, EdD—public relations
- C. Ho, PhD—communication technologies
- M. Jackson, PhD—library sciences/information services
- B. Keever, MS—journalism
- W. Remus, PhD—decision sciences
- M. Shapiro, PhD—political science

Affiliate Graduate Faculty

- M. Jussawalla, PhD—telecommunication economics
- D. Lassner, PhD—telecommunication

Degrees Offered: BA in communication, MA in communication, PhD in communication and information sciences (interdisciplinary)

The Academic Program

Communication (COM) study provides undergraduate and graduate students an academic climate consistent with the mission of the College of Social Sciences. The program focuses on research and active learning in fundamental communication processes with specific emphasis on the areas of interpersonal

communication, intercultural communication, international communication, organizational communication, telecommunication, and multimedia production as preparation for fruitful careers, enlightened citizenship, and lifelong learning.

In addition to the faculty and staff, resources include both a state-of-the-art media laboratory, computer-communication laboratory, and teleconferencing room. The internship program facilitates the merging of academic knowledge with applied experience in the students' fields of interest.

Affiliations

The East-West Center, Pacific Telecommunications Council, PEACESAT, Hawai'i Interactive Television System (HITS), and the many international conferences dealing with Asian/Pacific affairs provide a stimulating environment for international and intercultural communication.

Advising

Each undergraduate major is assigned a faculty adviser. In addition, an undergraduate chair provides a general point of contact for aspiring and declared majors. The graduate program parallels the undergraduate advising structure. However, once a student is admitted to candidacy, the student chooses a permanent adviser for the remainder of his or her program.

Undergraduate Study

The undergraduate program offers courses that provide students with a sound understanding of fundamental communication processes in contexts ranging from dyads and small groups to formal organizations, the community, and society at large. The program also provides students the opportunity to select courses that allow them to specialize in a variety of interest areas within the field, including interpersonal communication, intercultural communication, international communication, organizational communication, telecommunication, and multimedia production.

Bachelor's Degree

Requirements

Students must complete 36 credit hours of communication courses with a 2.5 GPA, including the following:

- Introduction to Communication (COM 201)
- At least 12 credits at the 400 level or above
- Senior Thesis Project (COM 490)

To declare a major in communication, students must be enrolled in, or have completed with at least a "C," Introduction to Communication (COM 201) and have completed at least 12 credit hours with a 2.5 GPA. Upon declaration of their major, students are assigned a personal faculty adviser to assist them in their progress through the program. Students select the remaining number of credit hours from courses that will support their personal and career interests. To assist in that selection, there are a number of "specialization pathways" through the curriculum identified by the faculty, for example, in areas such as organizational communication, intercultural

communication at home and abroad, and media, multimedia and telecommunications. Alternatively, students with the assistance of their faculty adviser can follow their own specialization pathway through the curriculum.

Graduate Study

Master's Degree

Communication offers a graduate program leading to the MA degree. The program areas of specialization—in management communication, telecommunication, and global communication—reflect the expertise of the graduate faculty in interpersonal, organizational, intercultural, and international communication; telecommunication; and communication policy and planning. Both individual faculty members and the program as a whole work within sociocultural and sociotechnical perspectives. Detailed information may be obtained directly from the school.

Career opportunities for graduates with an MA in communication are numerous and varied. In recent years, for example, graduates have been employed as college-level instructors, as managers of communication companies and training programs, as consultants, and as specialists in social action programs and in research units. Some graduates continue their studies in a professional school or PhD program.

Qualified applicants are admitted to the communication program in the fall semester only. Applicants are not required to have a communication degree for admission, but they may be required to make up undergraduate deficiencies. The following information supplements the general requirements and procedures of the Graduate Division.

All applicants to the program must submit directly to the School of Communications a statement of academic goals and how the program's areas of specialization relate to those goals. In addition, the student should arrange for three letters of recommendation to be mailed directly to the school. These letters should be written by persons who are in a position to assess in detail the academic accomplishments of the student. Letters from former professors are preferred. Qualified students whose academic goals are in harmony with the resources of the department will be admitted into the program as classified students on a space-available basis.

Each classified student in the program is assigned an interim committee chair, who assists the student in planning his or her degree program. During the first year, each student is expected to complete COM 611 and 612. On completing COM 611 and achieving a GPA of 3.0 in all completed course work, the classified regular student is eligible for formal admission to candidacy. At the time of admission to candidacy, the student may change his or her committee chair. With the advice of the committee chair and with Graduate Division approval, a thesis or practicum committee is formed. That committee is responsible for supervising and evaluating the student's thesis or practicum activity. The primary responsibility for supervision is on the committee chair.

Each student must complete a total of 36 credits in the program. These must include the two foundation courses

(COM 611 and 612); a pair of area courses (either COM 623 and 624, or 633 and 634, or 643 and 644); two seminars (COM 691 and 692); and, with the approval of the committee chair, 6 credits of COM 700 Thesis or COM 695 Practicum.

The student must, in addition, complete at least 12 approved elective credits. Each student is expected to take at least one 3-credit course or seminar each semester even while completing his or her thesis or practicum—exceptions require approval from the graduate chair prior to registration. For the total program, each student must maintain a minimum GPA of 3.0. In pursuit of their academic goals, many students earn more than the minimum 36 credit hours. The program can be compressed into 15 months or stretched over 60 months; typically, however, students complete the program in 18 to 24 months.

Two degree plans, Plan A (thesis) and Plan B (practicum), are normally offered. For Plan A, the student enrolls for at least 6 credits of COM 700 Thesis. In Plan B, the student enrolls for at least 6 credits of COM 695 Practicum. At the completion of his or her program, each student must take a two-hour oral exam. Both degree plans require at least 36 credits and are equal in difficulty and merit.

Doctoral Degree

Communication is one of four academic programs that cooperate in an interdisciplinary doctoral program in communication and information sciences. See the “Communication and Information Sciences” section that follows for more information.

Communication and Information Sciences

College of Arts and Sciences
BusAd C-502E
Honolulu, HI 96822
Tel: (808) 956-7608
Fax: (808) 956-9889
E-mail: cis@cba.hawaii.edu
Web: www.hawaii.edu/cis

Faculty

- *W. E. Remus, PhD (Chair)—information technology management
- *J. C. Ady, PhD—intercultural and organizational communication
- *E. S. Biagioni, PhD—networking protocol design
- *T. X. Bui, PhD—electronic commerce, information policy
- *H. M. Chen, PhD—information systems
- *D. Chin, PhD—artificial intelligence, natural language processing, cognitive science
- *W. G. Chismar, PhD—information systems
- *J. C. Corbett, PhD—software engineering, program verification
- *M. E. Crosby, PhD—human-computer interaction, cognitive science
- *E. J. Davidson, PhD—information systems

- *D. Davis, PhD—social impact of communication technology and telecom services
- *G. M. Fontaine, PhD—intercultural and organizational communication
- *W. M. Gersch, PhD—mathematical statistics, time series
- *A. Hac, PhD—software systems, telecommunication networks
- *V. H. Harada, PhD—library management
- *C. Hundhausen, PhD—human-computer interaction
- *S. Y. Itoga, PhD—database systems, expert systems, logic programming
- *P. Jacso, PhD—CD ROM technology, computer system analysis
- *P. M. Johnson, PhD—software engineering, artificial intelligence
- *R. Kazman, PhD—software engineering, human-computer interaction
- *J. Kim, PhD—communication theory
- *R. Knuth, PhD—international librarianship, history of libraries
- *E. N. Kunimoto, PhD—intercultural communication
- *R. Lamb, PhD—interorganizational technologies, sociotechnical networks
- *A. Y. Lew, PhD—systems programming, systems analysis, software engineering
- *MacDonald, C.—multimedia, telecommunication
- *I. Miyamoto, DrEng—software engineering
- *D. M. Nahl, PhD—human-computer interaction, information technology literacy
- *L. N. Osborne, PhD—information systems
- *D. Pager, PhD—compiler theory, theory of computability, artificial intelligence
- *R. R. Panko, PhD—information systems
- *W. W. Peterson, PhD—programming languages, software engineering
- *L. Quiroga, PhD—information retrieval, databases, library systems
- *R. H. Sprague, DBA—information sciences
- *J. Stelovsky, DrTechSc—computer hypermedia, human computer interaction
- *K. Sugihara, DrEng—algorithms, distributed computing, visual languages
- *D. Suthers, PhD—technology for learning
- *M. Tehranian, PhD—telecommunication policy and planning
- *D. J. Wedemeyer, PhD—communication policy and planning, telecommunication
- *R. G. Worthley, PhD—statistics

Cooperating Graduate Faculty

- D. L. Alden, PhD—marketing communications
- *A. R. Arno, PhD—intercultural and organizational communication
- D. Ashworth, PhD—learning technology
- K. Bridges, PhD—computer cartography
- R. W. Brislin, PhD—intercultural communication
- R. Doktor, PhD—international business, organizational behavior, strategy
- J. M. Gersting, PhD—computer science
- J. L. Gersting, PhD—computer science
- C. P. Ho, PhD—instructional technology
- M. K. Lai, PhD—research methods

M. P. McGranaghan, PhD—computer cartography, geographical information systems
 D. Neubauer, PhD—public policy, political economy
 O. Shenkar, PhD—international business, organizational behavior
 M. S. Snow, PhD—telecommunications economics
 J. R. Wills, DBA—technology marketing
 S. Zhang, PhD—quantitative research methodology

Affiliate Graduate Faculty

N. Abramson, PhD—electrical engineering
 M. F. Jussawalla, PhD—telecommunication and cultural change
 S. A. Rahim, PhD—communication and cultural change

Degree Offered: PhD in communication and information sciences

The Academic Program

The Interdisciplinary Doctoral Program in the Communication and Information Sciences (CIS) offers a PhD degree integrating and drawing faculty from the fields of communication, computer science, library and information science, and management information systems. Because of the broad knowledge base required to support this interdisciplinary approach, the program also draws on such fields as political science, economics, engineering, operations research, and behavioral sciences.

Recipients of the PhD will undertake careers in industry, government, private organizations, and colleges and universities.

Complete details on this program are outlined in a pamphlet, available from the department chair.

Admission Requirements

- Master's degree in business administration, communication, library and information science, information and computer sciences, or a closely related field
- GRE or GMAT scores
- Three letters of recommendation
- Elementary statistics knowledge advisable

Applicants from foreign countries must be academically qualified, proficient in English (TOEFL scores of at least 600 are required), and financially self-sufficient.

Program Requirements

The student will select four areas of emphasis from these seven: communication and information theories, computer software systems, data communications, information storage and retrieval, management information systems, organizational communication policy and planning, and human-computer interaction.

Students must pass comprehensive examinations in the four areas of emphasis and complete and defend an original dissertation.

Course Requirements

Regardless of area of emphasis, students are required to complete the following three core courses with a grade of at least a B:

CIS 701 Communication/Information Theories of Society
 CIS 702 Communication/Information Technologies

CIS 703 Communication/Information Research Methods

All students are required to be enrolled while in residence in CIS 720 Interdisciplinary Seminar in Communication and Information Sciences.

Courses for the program are to be selected from among the courses listed below and from graduate offerings in related disciplines as directed by the student's advisory committee.

Communication/Information Theories

COM 611 Communication Theories (3)
 COM 633 Telecommunications Architectures (3)
 COM 650 Communication Policy (3)
 COM 660 Communication Planning (3)
 SOC 611 Macro-Sociological Theory (3)
 SOC 612 Micro-Sociological Theory (3)
 SOC 711 Seminar in Sociology of Knowledge (3)
 ECON 606 Microeconomic Theory I (3)
 ECON 607 Macroeconomic Theory I (3)
 POLS 610 Political Theory and Analysis (3)
 LIS 715 Seminar in Information Policy and Planning (3)

Communication Policy and Planning

COM 633 Telecommunication Architectures (3)
 COM 634 Telecommunication Services (3)
 COM 650 Communication Policy (3)
 COM 660 Communication Planning (3)
 LIS 668 The Information Industry (3)
 Track 1: National
 LIS 715 Seminar in Information Policy and Planning (3)
 PLAN 600 Planning Theory and Practice (3)
 POLS 670 Introduction to Public Policy (3)
 POLS 671 Public Policy (3)
 Track 2: International
 COM 643 Intercultural Communication (3)
 COM 644 International Communication (3)
 LIS 715 Seminar in Information Policy and Planning (3)
 POLS 630 International Relations (3)
 POLS 635 Topics in International Relations (3)
 POLS 640 Comparative Politics (3)
 POLS 645 Politics and Development: Regional (3)
 POLS 735 Peace/Development Connection (3)

Computer Software Systems

ICS 611 Compiler Theory and Construction (3)
 ICS 612 Theory of Operating Systems (3)
 ICS 613 Advanced Software Engineering (3)
 ICS 621 Analysis of Algorithms (3)
 ICS 622 Systems Modeling and Evaluation (3)
 ICS 641 Theory of Computation (3)
 ICS 661 Artificial Intelligence II (3)
 ICS 662 Computer Algebra (3)

ICS 681 Computer Graphics (3)
ICS 691 Topics in Software (3)

Culture and Communication in Organizations

COM 623 Organizational Communication (3)
COM 624 Organizational Communication Training (3)
COM 643 Intercultural Communication (3)
ITM 687M Seminar in Decision Sciences—Communication and Technology (3)
MGT 648 International Business: Environment and Enterprise (3)
MGT 670 International Management and Industrial Relations (3)

Data Communications

ITM 687D Seminar in Decision Sciences—Telecommunications (3)
ITM 687J Seminar in Decision Sciences—Data Communication (3)
ICS 451 Data Networks (3)
ICS 651 Computer Networks (3)
EE 449 Computer Communication Networks (3)
EE 668 Telecommunication Networks (3)

Information Storage and Retrieval

LIS 663 Basic Online/CD-ROM Database Searching (3)
LIS 664 Abstracting and Indexing for Information Services (3)
LIS 667 Advanced Online/CD-ROM Database Searching (3)
LIS 670 Introduction to Information Storage and Retrieval (3)
LIS 674 Database Design and Creation (3)
LIS 676 Expert Systems for Library and Information Environment (3)
ICS 321 Data Storage and Retrieval (3)
ICS 421 Database Systems (3)
ICS 461 Artificial Intelligence I (3)

Management Information Systems

ITM 660 Current Topics in Decision Sciences (3)
ITM 683 Management of Information Systems (3)
ITM 684 Decision Support Systems (3)

Human Computer Interaction

LIS 677 Human Dimension in Information Systems
ICS 463 Human Computer Interaction
ICS 464 Introduction to Cognitive Science
ICS 664 Human-Computer Interaction
ICS 665 User Interfaces and Hypermedia
ICS 667 Advanced HCI Design Methods

Dance

See Theatre and Dance

East Asian Languages and Literatures

College of Languages, Linguistics and Literature
Moore 382
1890 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8940
Fax: (808) 956-9515
Web: www.hawaii.edu/eall/

Faculty

- *Y. C. Li, PhD(Chair)—Chinese syntax and semantics, language acquisition, comparative dialects, classical Chinese, sociolinguistics, language planning, second language acquisition
*D. E. Ashworth, PhD—Japanese and Asian language pedagogy; telecommunications and language learning; translation pedagogy
*R. L. Cheng, PhD—Mandarin and Taiwanese lexicon, phonology and syntax, comparison of Chinese and Japanese (writing and phonology), computer-assisted research on language contacts
*J. R. Cohn, PhD—Japanese literature, especially comedy and modern fiction; and bibliography
*H. M. Cook, PhD—Japanese linguistics, sociolinguistics, discourse analysis and pragmatics; language socialization
S. A. Curry, MA—Japanese language teaching
*J. H. Haig, PhD—Japanese linguistics, syntax, and semantics, functional syntax, linguistic theory
*K. Hijirida, EdD—Japanese language pedagogy; language for special purposes; curriculum design, development and assessment
S. H. Hirate, MA—Japanese language teaching
C. I. Hitosugi, MA—Japanese language teaching
*H. I. Hsieh, PhD—Chinese language and linguistics; Chinese literature and culture; mathematical linguistics; semantics; cognitive grammar
*R. N. Huey, PhD—classical Japanese literature (especially *waka*)
T. Iwai, MA—Japanese language teaching
S. Jiang, MA—Chinese language teaching
*K. Kanno, PhD—Japanese linguistics, syntax, second language acquisition, parsing
*Y.-H. Kim, PhD—modern Korean women writers; modern Korean literature; Korean culture; East Asian women writers and society
K. S. Kitsutani, MEd—Japanese language teaching
T. D. Klafehn, MA—Japanese language teaching
K. Kondo-Brown, EdD—Japanese language pedagogy, second language assessment, heritage language development
J. Kwan, MA—Chinese language teaching
M. Lachmann, MA—Japanese language teaching
J. R. Landers, PhD—Chinese language and culture
*D. J. Lee, PhD—Korean language and linguistics, language acquisition
*L. B. Lower, PhD—Japanese language and literature, comparative literature
J.-Y. Lu-Chen, PhD—Chinese language teaching, translation and interpretation

- K. A. Masunaga, MA—Japanese language teaching
- *D. R. McCraw, PhD—Chinese classical literature, especially poetry, particularly *Tang shi*, *Song shi* and *ci*, and *Qing ci*
- H. Nagahara, PhD—Japanese linguistics, phonology, morphology
- G. E. Nakahara, PhD—Japanese language teaching
- *N. M. Ochner, PhD—modern Japanese literature, comparative literature of Japan and the West
- M. Ogasawara, MA—Japanese language teaching
- D. T. Ogawa, MA—Japanese language teaching
- J. K. Omura, MA—Japanese language teaching
- K. J. Ota, PhD—Japanese language teaching
- G. E. Ray, MA—Japanese language teaching
- *K. A. Reynolds, PhD—Japanese socio-historical linguistics, and sociolinguistics (gender and class)
- *L. A. Serafim, PhD—Japonic linguistics: Japanese and Ryukyuan language history and dialectology; the relation of Japonic to Korean
- K. Shoji, MA—Japanese language teaching
- *H. M. Sohn, PhD—Korean language and linguistics, Korean-Japanese comparative syntax, general linguistics
- M. Steverson, MA—Japanese language teaching
- *M. M. Tahara, PhD—Japanese: Heian poetry and prose, modern literature
- Y. Tateyama, MA—Japanese language teaching
- *A. H. Thornhill, PhD—medieval Japanese literature and religion
- *V. H. Viglielmo, PhD—Japanese: modern literature with emphasis on Meiji-Taisho fiction: modern Japanese philosophy
- *G. Vitiello, PhD—traditional Chinese fiction
- *A. V. Vovin, PhD—Japanese, Korean and Tungusic historical and descriptive linguistics; Central Asian linguistics; the Ainu language
- Y. Wada, MA—Japanese language teaching
- C-K. P. Woo, MA—Japanese language teaching
- *T-C. Yao, PhD—Chinese language pedagogy, computer-assisted language instruction in Chinese
- *D. R. Yoshimi, PhD—Japanese second language acquisition and pedagogy; discourse analysis, pragmatics and sociolinguistics
- *M-B. Yue, PhD—modern Chinese literature, literary history and theory, feminism, cultural studies, film theory
- S. M. Zeng, PhD—Chinese language teaching, translation and interpretation

Cooperating Graduate Faculty

- G. Kasper, PhD—second-language discourse analysis, pragmatics, learning strategies, qualitative research methods

Degrees and Certificates Offered: Certificate in Chinese, Certificate in Japanese, Certificate in Korean, Minor in Chinese, Minor in Japanese, Minor in Korean, BA in Chinese, BA in Japanese, BA in Korean, MA in East Asian languages and literatures, PhD in East Asian languages and literatures

The Academic Program

The Department of East Asian Languages and Literatures (EALL) is the largest department of its kind in the country and offers a curriculum unparalleled in its breadth, depth, and variety of courses in Chinese (Cantonese, Mandarin, Taiwanese), Japanese, and Korean.

At the undergraduate level, language skill courses are aimed at developing a high level of proficiency in both the spoken and written aspects of the languages. Cultural awareness as well as language proficiency are promoted through extra-curricular activities such as student clubs, video/film showings, lectures, and study abroad programs. The department currently offers through the Study Abroad Center programs in Hainan, China and Kobe, Japan. Other courses provide both introductory and advanced coverage of the literatures of East Asia and the analysis and description of the languages themselves. The graduate program is primarily designed to provide students with advanced professional training in language history, structure, pedagogy, and sociolinguistics, as well as literary history and criticism.

While most students enroll in language courses to fulfill the General Education Core requirement for foreign languages, there are many who plan to use Chinese, Japanese, or Korean in research or graduate studies. Those who plan to enter the work force immediately upon completing their undergraduate studies find that their language proficiency opens doors to employment in the local travel industry and other internationally oriented businesses.

Undergraduate Study

BA in Chinese

Requirements

Students must complete a minimum of 34 credit hours, including the following upper division courses:

- CHN 301, 302, 401, and 402
- CHN 451 or 452
- EALL 361 or 362
- One of CHN 470 or EALL 363B, 363C
- 9 credit hours of approved courses in Chinese language and literature

BA in Japanese

Requirements

Students must complete a minimum of 36 credit hours, including:

- JPN 350, 370, 401, 402, and 407E
- JPN 407B, 407C, or 407D
- EALL 271 and 272
- 12 credit hours in approved courses

BA in Korean

Requirements

Students must complete a minimum of 36 credit hours, including:

- KOR 301, 302, 401, 402, 451, and 452
- EALL 281 and 282
- 12 credit hours in approved courses

* Graduate Faculty

Minor

Students planning to declare a minor should have completed successfully four semesters of language skill courses or their equivalent and must have a GPA of 2.0 or higher. A minimum of 15-17 credits from five courses in one of the three languages (Chinese, Japanese, Korean) will be required. At least 9 credits will be from non-language skills courses with a focus on linguistics or literature. In the case of native speakers, they will be required to take five non-language skill courses. All courses selected must have the approval of advisers in both the student's major department and the EALL Department. Only courses with a C or above will be counted, and the student must have a cumulative GPA of 3.0 or higher for the five courses. All courses must be taken within the UH system, with minimum of at least three courses taken at UH-Mānoa. A detailed description of program requirements is available at the Department Office in Moore Hall 382.

Certificate

Certificates in Chinese, Japanese, and Korean are offered to eligible students. A minimum of 15 credit hours from 301 or above in the language of choice must be earned with a minimum GPA of 3.0. A detailed description of the program requirements is available from the Department Office in Moore 382.

Graduate Study

Complete details on the graduate programs are available from the Department Office in Moore Hall 382. All of our graduate degree programs are academic in nature, and are not simply for advanced language study.

MA graduates of the programs have obtained positions as instructors in private schools, two- and four-year colleges and universities; as translators; and in various capacities in private firms and government service. PhD graduates have obtained teaching positions at universities in the USA mainland and in several Asian countries.

The MA and PhD are recognized Western Interstate Commission for Higher Education (WICHE) regional graduate programs. Residents of Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming are eligible, upon admission, to enroll at Hawaii-resident tuition rates. See the "Tuition, Fees, and Financial Aid" section of this *catalog* for more information on WICHE programs.

The MA degree is offered in the fields of Chinese language, Chinese literature, Japanese language, Japanese literature, Korean language, and Korean literature. The PhD degree is offered with concentrations in the same fields. All applicants for the MA program must have a BA in the language of their concentration or equivalent preparation and must submit three letters of recommendation and GRE General Test scores. All applicants for the PhD program must have a BA, and must have earned with distinction an MA in the language or literature of their concentration, and must submit three letters of recommendation, GRE General Test scores, and a sample of their scholarly writing in English. Normally, all MA students

are required to pass a General Examination and all PhD students are required to pass a Qualifying Examination before being advanced to candidacy.

The MA candidate may select either the Plan A (thesis) or Plan B (non-thesis) program; Plan A must have the approval of the graduate chair.

Master's Degree**Requirements**

For Plan A, students must complete a minimum of 30 credit hours, including at least 18 credit hours in the major field and 6 credit hours of thesis research. A minimum of 12 credit hours in the major field must be earned in courses numbered 600 or higher, including a 700-level seminar and excluding 699V.

For Plan B, students must complete a minimum of 30 credit hours, including at least 21 credit hours in the major field. A minimum of 18 credit hours in the major field must be earned in courses numbered 600 or higher, including a 700-level seminar and excluding 699V.

Doctoral Degree**Requirements**

PhD candidates are expected to master four fields, at least one of which will be outside the students' areas of specialization. They must pass a comprehensive examination covering the four fields, complete an original dissertation, and pass a final oral examination in defense of the dissertation. Apart from having a command of English and their concentration language, candidates must have knowledge of a second East Asian language equivalent to two years of study; in some cases a third East Asian language or an additional European language may be required.

Economics

College of Social Sciences
Saunders Hall 542
2424 Maile Way
Honolulu, HI 96822
Tel: (808) 956-8496
Fax: (808) 956-4347
E-mail: econ@hawaii.edu
Web: www2.soc.hawaii.edu

Faculty

- *S. La Croix, PhD (Chair)—industrial organization, law and economics, economic history
- *C. Bonham, PhD—applied macroeconomics, monetary theory
- *B. Gangnes, PhD—international macroeconomic modeling, U.S.-Japan trade relations
- T. Greaney, PhD—international economics, industrial organization
- *D. E. Konan, PhD—international trade
- *C. Lee, PhD—international economics, development economics
- *S. H. Lee, PhD—econometrics, labor economics

- *J. Mak, PhD—economics of tourism, health economics, economic history
- *A. Mason, PhD—population economics, macroeconomics
- *J. Moncur, PhD—water resource economics, economic statistics, microeconomics
- *S. Naya, PhD (on leave)—international economics, development economics
- *J. Roumasset, PhD—development economics, public resource allocation, resource economics
- *J. Russo, PhD—health economics, applied microeconomics
- *K. V. Sherstyuk, PhD—experimental economics, game theory
- X. Wang, PhD—macroeconomics, monetary economics, econometrics, applied microeconomics, labor economics
- *Y. Yeh, PhD—international economics, macroeconomics

Cooperating Graduate Faculty

- P. Garrod, PhD—marketing and production economics
- E. Im, PhD—econometrics, statistical theory
- P. S. Leung, PhD—production economics, quantitative methods
- Affiliate Graduate Faculty
- R. Blair, PhD—industrial organization antitrust economics
- L. Cho, PhD—population economics
- L. Endress, PhD—growth theory
- F. Fesharaki, PhD—energy economics
- M. Jussawalla, PhD—telecommunication economics

Affiliate Graduate Faculty

- D. Ernst, PhD—science and technology in Asia
- R. Hasan, PhD—economic development, international economics
- S. G. Rhee, PhD—Asia-Pacific financial markets

Degrees Offered: BA in economics, MA in economics, PhD in economics

The Academic Program

Economics (ECON) is the social science that deals with the allocation and use of human and material resources under conditions of scarcity and uncertainty. It examines this subject matter at the micro level (the consumer, the household, the firm, and the industry) and the macro level (the region, the labor force, the government, the nation, and the world). Courses in these topics are complemented by instruction in the statistical and mathematical tools necessary for modeling, data collection and analysis, and hypothesis testing. Students of economics will learn a body of knowledge that is essential to understanding many aspects of the modern world and contemporary public policy issues, including such vital matters as international trade, economic development, the environment, the budget deficit, Hawai'i's economic challenges, deregulation, business cycles, and consumer behavior. A BA in economics is an excellent background for demanding analytical and policy positions in the public and private sectors; it is also a highly regarded preparation for graduate work in law, business, and political science, as well as economics.

Economics at the University of Hawai'i at Mānoa is

consciously directed toward policy challenges in the Asia Pacific region, which comprises the nations of the Pacific rim and the Pacific Islands, as well as Hawai'i. Many of the department's undergraduate and graduate students come from this part of the world. Geographic and subject matter interests of students and faculty contribute to a regional specialization in accord with the University of Hawai'i's overall mission. Theses and dissertations are thus well grounded in recent theory and methodology but deal insightfully with crucial policy issues of the region.

Exchange Programs

The UH Mānoa Department of Economics participates in academic and educational exchanges with Nihon University, Tokyo, Japan; Yonsei University, Seoul, South Korea; Kobe University, Kobe, Japan, and Thammasat University, Bangkok, Thailand.

Advising

Advising is mandatory for all graduate and undergraduate economics majors. Contact the department office for specific information.

Undergraduate Study

Bachelor's Degree

The bachelor of arts in economics provides students with an intensive knowledge of the theory and practice of economics, with an emphasis on the analysis of contemporary policy challenges of Hawai'i and the United States in the Asia Pacific region. Majors study a wide range of current economic policy issues and learn a powerful framework for analyzing these issues. They also develop reasoning and communication skills that are useful across disciplines. As a result, the BA program has been successful in preparing graduates for advanced study in economics, business, law, and other social sciences, as well as challenging careers in business management, technical analysis, policy evaluation, and education.

Requirements

Students must complete 24 credit hours of approved upper division courses, including ECON 300, 301, and either 321 or 424.

Minor

Requirements

Students must complete 15 credit hours of approved upper division courses, including ECON 300 and 301.

Graduate Study

The department offers a graduate program leading to the MA and PhD degrees. Graduate alumni are successful economists, entrepreneurs, and government policy experts in a variety of settings and institutions, especially in Hawai'i, Asia,

and the Pacific region. Faculty research interests facilitate graduate field specializations with regional emphasis on Hawai'i, Asia, and the Pacific. Student and faculty research focuses on analyses of policy issues of importance to countries in Asia and the Pacific.

The MA program prepares students for policy analysis in government, international agencies, and the private sector, emphasizing application of theory to economic decision-making. The PhD program provides state-of-the-art theoretical and empirical training for high level academic, government, and private-sector careers.

The department maintains strong links with the East-West Center, particularly with the center's programs on population, economics, and energy. Relationships also exist with various country centers located in the University's School of Hawaiian, Asian, and Pacific Studies and with other programs in the College of Social Sciences. In conjunction with the College of Business Administration, the department also offers a program leading to a PhD in economics and business.

Entering graduate students are expected to have a bachelor's degree, not necessarily in economics, and to have completed courses in intermediate micro- and macroeconomic theory, elementary statistics, and mathematics through calculus. Students with deficiencies must make them up prior to entering the program or within the first year of study.

TOEFL scores (for all applicants from foreign countries where English is not the primary means of communication) and two letters of recommendation must be submitted by applicants. Students applying for the graduate program must submit official GRE General Test scores.

Master's Degree

To receive an MA, students must be in residence for at least two semesters, and all work must be completed within seven years of admission.

Requirements

MA students must earn a minimum of 30 credit hours, of which 21 or more must be in graduate-level courses (600-level and above). The credit-hour requirements may be met through some combination of the following:

- Required four-course core (ECON 606, 607, 627, 628)
- Area of concentration courses consisting of at least two 600-level courses selected in consultation with the Graduate Chair
- Required individual research project (ECON 732)

Graduate credit will not be granted for 300-level courses. Students who complete the PhD core may substitute a pass on any PhD qualifying or field exam for the individual research project requirement for a master's degree.

Doctoral Degree

A PhD student must be in residence for at least three semesters and complete all requirements within seven years of admission to the doctoral program.

Requirements

Seven core courses (ECON 606, 607, 608, 609, 627, 628, and 629) must each be completed with a grade of B or better by doctoral students. After completing the core requirements, students must complete six additional field courses in economics, two of which must be completed in a major field and two in a minor. Fields offered by the department are as follows:

1. Economic Development (ECON 610 and 611)
2. Health and Population Economics (ECON 672 and 674)
3. Labor Economics (ECON 670 and 671)
4. International Economics (ECON 660 and 662)
5. Macroeconomic Policy and Modeling (ECON 640 and 641)
6. Public Economics (ECON 650 and 651)
7. Resource and Environmental Economics (ECON 637 and 638)

PhD students must receive passing grades on the two qualifying exams in micro- and macroeconomic theory and on a qualifying exam in their major field. Students failing a qualifying examination may retake it only once. With prior approval of the graduate committee, the minor field can be outside of economics.

After passing the three qualifying examinations, PhD candidates will complete a research project leading to a dissertation proposal. This will be done under the supervision of the graduate chair and one or more faculty members approved by the graduate chair. Concurrently, the student must enroll in one or more of the workshops offered each semester (ECON 730). With advance approval of the graduate chair, field research over a period of one semester or more may be used in lieu of ECON 730 to satisfy the research project requirement.

The comprehensive examination—of which the written qualifying examinations are a part—will include a broad probing of the candidate's general economic knowledge. The oral part of the PhD comprehensive examination will be administered jointly with the defense of the dissertation proposal, before a dissertation committee chosen by the student and approved by the graduate chair and the Graduate Division of the University. A student who fails the comprehensive examination may repeat it once. A student who fails a second time is dropped from the program.

The final examination, which is oral, covers the candidate's defense of the final dissertation draft. It is administered orally and is open to the public. Candidates failing the final examination may be allowed to repeat it once upon petition approved by the graduate faculty concerned and the dean of the Graduate Division. Those failing it twice are dropped from the program. The final dissertation must also conform to University standards in content and format.

English

College of Languages, Linguistics and Literature
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Faculty

*N. G. Altizer, MA—creative writing, poetics, feminist criticism
*F. R. Ardolino, PhD—Renaissance literature, drama
*C. Bacchilega, PhD—folklore, 20th-century fiction, feminist and other literary theory, translation studies, narratology
*D. Baker, PhD—early modern literature and history, post-colonial studies
*M. Blair, MA—creative writing
*S. Canham, PhD—Victorian and juvenile literature, the novel
*J. Caron, PhD—19th-century American literature, Mark Twain, comic art and literature, popular culture
*J. Carroll, PhD—rhetoric and composition, American novel, fiction
*S. Curry, PhD—American literature, children's literature, comparative literature, critical theory
*L. Despain, PhD—theory and practice of teaching composition, American literature, 20th-century fiction
*D. Desser, PhD—20th-century rhetorics, writing and difference, and composition studies
R. Fand, PhD—composition and literature instruction
*W. Foltz, PhD—Victorian poetry, classical literature, biography
*C. Franklin, PhD—contemporary women's literature, ethnic American literatures, feminist theory
*R. Friederich, PhD—Renaissance, German, and comparative literature
*M. Fuchs, PhD—modern American literature, autobiography, women writers
*C. Fujikane, PhD—literatures of Hawai'i, Asian American literatures, feminist/nationalist critical theory and practice
*S. Goldsberry, PhD—creative writing
N. Hamai, PhD—rhetorics of difference, composition studies, writing and diversity
M. Hara, MA—composition and literature instruction
*M. Heberle, PhD—Renaissance literature, Spenser
L. Hershinow, MA—composition and literature instruction
*T. Hilgers, PhD—composition, psychology and literature
*C. Howes, PhD—19th-century literature, literary theory, research methods
*R. Hsu, PhD—modernism, ethnic literature, Asian American literature, feminist criticism
*R. Hughes, PhD—late 19th- and 20th-century American literature, fiction
*J. Kellogg, PhD—medieval English and French literature, comparative literature, social backgrounds, medieval women writers
S. Kosanke, MA—composition and literature instruction
*R. Lessa, PhD—English romanticism, English poetry, pastoralism

*J. Lew, PhD—late 18th-century literature, English and European romanticism, Gothic
*L. Lyons, PhD—post-colonial literatures and theory, Irish literature, cultural studies
*P. Lyons, PhD—American literatures, literary theory
*I. MacMillan, MFA—creative writing
*G. Man, PhD—19th-century British literature, narrative, film
*J. A. Marsella, PhD—composition studies, writing across the curriculum, academic literacy
B. Masuda, PhD—globalization, Marxist theory, culture and social movements in Hawai'i
K. McAndrews, PhD—composition and literature instruction
*R. W. McHenry Jr., PhD—Restoration and 18th-century literature, Shakespeare, literature and art
*B. Menikoff, PhD—19th- and 20th-century literature, textual criticism
L. Middleton, PhD—composition and literature instruction
*R. Morales, MA—creative writing, Pacific literature, American ethnic literature
*J. Morse, PhD—American literature, literary history
R. Nettell, PhD—composition and literature instruction
*P. Nicholson, PhD—old English, Chaucer, medieval literature, English language
*J. H. O'Mealy, PhD—Victorian literature, literature and society, modern drama
*R. Onopa, PhD—creative writing, science fiction
G. Pak, PhD—creative writing, literature of Hawai'i and the Pacific, Asian American literature, Ethnic American literature
*D. Payne, PhD—composition and rhetoric, computer-mediated writing, collaborative learning
*J. Peters, PhD—modern British and American literature, narratology, the British novel (1700-1945)
*K. Phillips, PhD—20th-century comparative literature, Biblical and mythical backgrounds
*A. Rayson, PhD—African American literature, ethnic literature, professional editing, autobiography
*J. Rieder, PhD—English romanticism, literary theory
*T. Sammons, PhD—Renaissance and 17th-century literature, Milton, science fiction
*S. Schultz, PhD—20th-century poetry in English, American literature, creative writing
S. Shankar, PhD—postcolonial literature and theory, South Asian literatures
*R. Shapard, PhD—creative writing, contemporary American fiction
*G. Sibley, PhD—British and American novel, Victorian literature, satire
*C. Sinavaiana-Gabbard, PhD—Pacific literature and drama, ethnic literatures, folklore, feminist criticism
*J. Spahr, PhD—poetic theory and criticism
*F. Stewart, MA—creative writing, modern and contemporary poetry and poetics, American nature writing
E. Suyama, MA—composition and literature instruction
*B. Tobin, PhD—18th-century cultural studies
*C. Ward, PhD—critical theory, post-colonial literature, popular culture, oral and performance theory, the novel
*V. Wayne, PhD—Shakespeare, feminist criticism, Renaissance literature, textual editing

*J. Zuern, PhD—computer-mediated communication, comparative literature

Degrees Offered: BA in English, MA in English, PhD in English

The Academic Program

The Department of English encourages students to develop their critical reading, writing, and creative skills through study of a variety of literatures in English, composition and rhetoric, and creative writing. The Department recognizes the unique diversity of cultures in Hawai'i and employs a variety of approaches, including multicultural and Asia Pacific perspectives, to address this uniqueness. Students work directly with faculty in relatively small classes to allow personal attention. The Department participates actively in the University's Honors Program and its London Study Abroad Semester and offers professional internships for interested students in the senior year.

The goals of the undergraduate English program are (a) to offer a comprehensive range of courses which recognizes Hawai'i's geographic and cultural location in the Pacific as part of a challenging program in literary and cultural studies, composition and rhetoric, and creative writing; (b) to develop students' critical thinking and reading skills; (c) to develop students' interests and abilities in rhetoric and writing across a variety of genres.

The graduate program enriches students' knowledge of literature, composition, and cultural studies. MA students are asked to take approximately half of their course work in a specific concentration so that they begin to develop an area of expertise while broadening their understanding of other areas of study. The MA thesis or final project at the end of the program gives them the opportunity to do extended research and writing on a topic of their own choosing.

The doctoral program prepares students to become professionals in the field. Required courses are not its focus; rather, it offers students considerable latitude in course selection and requires disciplined, independent work on examinations and the dissertation. Candidates completing the program should have the skills and experience to function as critics, scholars, and writers in an area associated with the profession of English.

Undergraduate Study

Bachelor's Degree

The Department of English offers the BA degree with informal emphases in American, British, and Pacific literatures; composition and rhetoric; and creative writing.

Requirements

Students must complete 33 credit hours of upper-division courses, including:

Level Requirements

- at the 300 level:
 - A. ENG 320, Introduction to English Studies; this course is foundational and should be taken in the student's first or second semester of upper-division English work; 3 credits
 - B. 5 courses in addition to ENG 320; 15 credits. Several of these courses should be in areas prerequisite to/preparatory for specific courses at the 400 level.
- at the 400 level (ENG 320 and one 300-level course are prerequisite to "Studies" courses):
 - C. Single Author (440 Alpha Single Author; 442 Chaucer; 445 Shakespeare; or 447 Milton); 3 credits.
 - D. 2 additional elective courses; 6 credits.
- at the 300 or 400 level:
 - E. 2 courses; 6 credits

Total: 33 credits

Breadth Requirements

Breadth of Field: the five 300-level courses in addition to Introduction to English Studies must come from at least three different categories:

- Composition/Language/Rhetoric (300-309)
- Creative Writing (310-319)
- Literary History (321-59)
- Genre (360-69)
- Literature and Culture (370-89)

Historical Breadth: of the ten courses in addition to Introduction to English Studies, one must be pre-1700, one 1700-1900, and one after 1900.

Non-English Department Course

With the consent of the student's adviser or the Director of Undergraduate Programs, one appropriate three-credit upper-division course from outside English may be counted as a major elective.

Minor

English offers a fifteen-credit minor for students who wish to emphasize a specific aspect of English studies without completing the actual major. Beyond the two required courses, the minor may focus on literary studies, creative writing, or rhetoric and composition. Or the student may take electives from all three of these areas.

ENG 100 and two ENG 250-257 courses are prerequisite for Arts and Sciences students; the second ENG 250-257 may be taken concurrently with 300-level ENG courses. Students enrolled in colleges other than Arts and Sciences may elect ENG 250-257 courses (as per current policy). All Mānoa courses applied to the English minor will come from the Department of English or cross-listed courses. Appropriate upper-division transfer credits may apply toward the minor. The minor consists of:

1. ENG 320, Introduction to English Studies. This course is foundational and should be taken in the student's first or second semester of upper-division English work.

2. Single author course (440 Alpha Single Author; 442 Chaucer; 445 Shakespeare; or 447 Milton)
3. 300-level ENG elective
4. 400-level ENG elective
5. 300 or 400-level ENG elective

Advising is mandatory; new majors and minors will be assigned an adviser when they meet with the Director of Undergraduate Programs (Kuykendall 429; (808) 956-9137 for appointments) for their initial intake/informational meeting.

Graduate Study

The Department offers the MA in English with four concentrations: literary studies in English, composition and rhetoric, creative writing, and cultural studies in Asia/Pacific. It offers the PhD in these and other areas, for the doctoral program is sufficiently flexible to allow students to develop individualized courses of study. Students applying for the MA are expected to have acquired between 24 and 30 upper division undergraduate credit hours in English or closely related subjects. PhD applicants normally will have completed the MA in English, although exceptionally well-qualified students may petition to transfer into the PhD program after completing 18 credit hours in the MA program in English. In addition to the application and transcripts required by the Graduate Division, all applicants must submit directly to the department three letters of recommendation and the GRE General Test scores. The advanced literature section of the GRE is required of PhD applicants (it may be waived in extraordinary circumstances). PhD applicants must also submit a comprehensive statement of professional goals and objectives and a representative sample of their writing (scholarly paper or MA thesis); those interested in a dissertation with a creative emphasis must also submit examples of their creative work. Residents of O'ahu applying to the PhD program may arrange for an interview with the graduate director. The completed application should be sent to the Graduate Division by January 1 for the PhD program and February 1 for the MA program, but the GPC may consider, during the fall semester, unusually strong applications to the PhD program from students currently enrolled in other UHM graduate programs at the PhD level. Complete information on the graduate program is provided in a graduate student manual, available on request from the department.

Courses for the MA and PhD are to be selected from the list of English (ENG) courses, although advanced courses in other disciplines may be substituted with the prior approval of the graduate director. The consent of the instructor is required for ENG 691, 699, 700, and 800; the consent of the graduate director is required for all graduate courses. The following courses may be repeated for credit, since content differs from semester to semester: ENG 611, 633, 660, 675, 691, 699, 735, 737, 740, 745, 760, 775, 780, and 785.

Master's Degree

Graduates of the MA program in English have taught in secondary schools, junior and community colleges, four-year colleges, and universities. Some have pursued doctoral work; others have combined their work in English with another professional field (e.g., business, law, library studies). Still others have found employment in writing, editing, or research-related fields.

MA candidates are required to select a concentration by the end of their first semester in the program. Plan A (thesis) applies only to those admitted into the concentration in creative writing. Plan B (non-thesis) applies to those who have selected the concentrations in literary studies in English, composition and rhetoric, or cultural studies in Asia/Pacific.

Plan A (Thesis) Requirements

- Is applicable only to those students admitted to the concentration in creative writing. Students should submit a writing sample during the admission process or apply to the chair of creative writing for admission to the concentration during their first semester in the program
- 27 credit hours of course work, including 21 credit hours of courses numbered 600 and above
- 6 additional credit hours of work on the MA thesis
- ENG 620—taken during the first semester if possible
- ENG 633D—taken during the second semester if possible
- Final oral examination on the thesis
- A minimum of 12 credit hours of course work in creative writing and 12 credit hours of course work outside of that concentration. Courses listed in different concentrations may be applied to either area.
- One graduate course in a subject area before 1900. In exceptional cases, the graduate director may approve the use of a 400-level course to meet this requirement.
- One course in the English language (ENG 402, 403, 404, 640, or equivalent)—taken prior to entering the program. Students may meet this requirement within the program by taking an undergraduate course in the English language in addition to the total of 33 credit hours required for the MA degree or by taking an appropriate graduate course, such as 640, which will count towards the MA degree but may not also be used to fulfill the pre-1900 course requirement.
- Reading knowledge of one foreign language

Plan B (Non-thesis) Requirements

- 33 credit hours of course work, including 27 credit hours in courses numbered 600 and above. Applies to all students except those in creative writing
- ENG 620—taken during the first semester if possible
- ENG 633B, C or E—a course in theories and methods associated with the concentration selected by the student, taken during the second semester if possible
- ENG 691—a minimum of 3 credit hours and a maximum of 6 credit hours required for work on the MA final project
- Final oral examination on the MA project
- One course in the English language (ENG 402, 403, 404, 640, or equivalent)—taken prior to entering the program. Students may meet this requirement within the program by

taking an undergraduate course in the English language in addition to the total of 33 credit hours required for the MA degree or by taking an appropriate graduate course, such as 640, which will count towards the MA degree but may not also be used to fulfill the pre-1700 or pre-1900 course requirement.

- Reading knowledge of one foreign language
- Requirements for those in literary studies: between 12 and 24 credit hours of course work in the student's concentration, including ENG 633B; one graduate course in a subject area before 1700
- Requirements for those in composition and rhetoric: ENG 633C, 680, 740 and 760; a minimum of 12 credit hours of course work outside the concentration; one graduate course in a subject area before 1900. Courses listed in different concentrations may be applied to either area.
- Requirements for those in cultural studies in Asia/Pacific: a minimum of 12 credit hours of course work in the concentration, including ENG 633E and 3 credit hours in Hawai'i's local literature, Asian American literature, or Pacific literature; a minimum of 12 credit hours of course work outside the concentration; one graduate course in a subject area before 1900. Courses listed in different concentrations may be applied to either area. Students in cultural studies will be allowed to meet 3 credit hours of work in their concentration with a course outside of the English department with permission of their concentration adviser.

Doctoral Degree

Since the PhD program offers diverse courses and the opportunity to specialize in a range of different areas, graduates may pursue careers from among several professions, including teaching, research, and writing.

Requirements

PhD candidates must fulfill the residency requirement and are required to take seven graduate-level courses in the Department of English; two courses, normally at the 400 level or above, in a field outside of English but related to the student's research interests. They must pass three area examinations and a comprehensive examination and demonstrate competence in two languages other than English (one of which, if appropriate to the candidate's research, may be a computer language) or in one language at an advanced level of proficiency. Candidates will be required to complete an original scholarly or creative dissertation representing a substantial contribution to the discipline of English, suitable for publication, and a final oral examination on the dissertation.

Environmental Studies

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E-mail: jackiem@hawaii.edu
Web: www2.hawaii.edu/~envctr

Faculty

- J. T. Harrison, PhD (Environmental Studies Coordinator/Adviser)—environmental studies, environmental management, ecosystem dynamics
J. N. Miller, PhD—environmental assessment, environmental oceanography, environmental studies

Affiliate Faculty

- D. C. Cox, PhD—Emeritus Geophysicist, hydro-geology, tsunamis, earthquakes
S. Conant, PhD—Professor of Zoology, ornithology, ecology, behavior, conservation biology
G. D. Curtis, BS—Affiliate Professor and Lecturer of Natural Sciences at UH Hilo, instrumentation, oceanography, tsunami research
E. P. Dashiell, MA—Environmental Planning Consultant, environmental and facilities planner, environmental impact statements, environmental investigations
D. Drigot, PhD—natural resource management
P. Ekern, PhD—Emeritus Professor of Natural Resources and Environmental Management, soil management, agricultural meteorology
M. C. Jarman, JD, LL.M.—Associate Professor of Law, environmental law, ocean law, legal writing
E. A. Kay, PhD—Emeritus Professor of Zoology, systematics, biogeography, malacology
K. E. Kim, PhD—Professor of Urban and Regional Planning, planning theory, planning methods, infrastructure planning, alternative tourism planning
G. K. Lowry, PhD—Professor of Urban and Regional Planning, alternative dispute resolution, coastal management, planning theory, community-level planning
F. T. Mackenzie, PhD—Professor of Oceanography, geochemistry; biogeochemical cycling, global environmental change
J. Maragos, PhD—U.S. Fish and Wildlife Service, Pacific Island Ecoregion, ecology of coral reefs
J. Morrow, PhD—Environmental Management Consultant, air quality
P. J. Rappa, MA—Associate Extension Agent in Sea Grant College Program, environmental assessment, coastal zone management
M. A. Ridgley, PhD—Associate Professor of Geography, water resources, urbanization and environmental quality, human-environment system modeling
H. Takemoto, MS—U.S. Army Corps of Engineers, environmental chemistry, hazardous waste management
R. Wilkens, PhD—Associate Researcher in Hawai'i Institute of Geophysics and Planetology, rock and sediment properties, bore-hole research
D. W. Woodcock, PhD—Associate Professor of Geography, climatology, paleobiogeography

Degree and Certificate Offered: BA in liberal studies (major equivalent in environmental studies), Certificate in Environmental Studies

The Academic Program

Environmental studies is an individually designed, interdisciplinary program established in 1975 and coordinated by the Environmental Center. Students wishing to earn a BA degree with a major equivalent in environmental studies may do so under the Liberal Studies Program. The program encourages a great deal of self-direction to accommodate the student's individual goals and interests.

Environmental studies students may focus their curriculum on either the social or natural/physical sciences and find employment in both the public and private sectors as environmental resource managers, environmental specialists, hazardous waste managers, or any number of related fields. Others pursue graduate studies in environmental sciences, law, chemistry, biology, public health, planning, geography, resource management, etc. A unique feature of the program is the ability to undertake an internship with a local agency or organization chosen by the student. In this internship (IS 489), students design and carry out an environmental research project complete with proposal, progress and final reports, and formal oral presentation to the internship sponsors. During the past 14 years, the EVS program has enjoyed the consistent cooperation and enthusiasm of more than 40 federal, state, and county agencies and departments and many private organizations as sponsors of EVS students.

Undergraduate Study

Bachelor's Degree

The equivalent of an undergraduate major in environmental studies is available in the BA in liberal studies program. For information, contact the Environmental Center or Liberal Studies Program. Interested students should refer to the "Liberal Studies" section within the Colleges of Arts and Sciences.

Requirements

- Introductory courses:
 - BIOL 101/101L or BIOL 171/171L
 - BIOL 124/124L
 - CHEM 151/151L or 161/161L or 171/171L
 - ECON 120 or 130
- Major courses: Students must complete a minimum of 36 credit hours, including:
 - BIOL 310
 - IS 489
 - BOT 351/351L or 454 or ZOO 200/200L
 - OCN 320
 - GEOG 301
 - 20 to 24 credit hours in courses specific to the student's area of environmental studies specialization

Students must maintain a 2.5 GPA in the major course work.

Certificate in Environmental Studies

A Certificate in Environmental Studies signifies that a student has completed substantial environmental course work in addition to the requirements of his or her regular major. Certificate candidates are required to submit a proposal and complete 15 credit hours of course work, including two required courses and three electives from an approved list of courses. The required courses are BIOL 310 and IS 489.

Electives for social science or humanities majors are two courses in the natural sciences and one from the social sciences. Natural science majors must select two courses from the social sciences and one from the natural sciences.

- Electives for the natural science courses include the following:
 - BIOL 265/265L, 360, 410, 490
 - BOT 350, 351/351L, 450, 453, 454, 455
 - GEOG 300, 301, 305, 309, 401, 405, 410, 412
 - GG 454, 455
 - OCN 320, 330, 331
 - OEST 310
 - ZOO 439/439L, 450, 485
- Electives for the social science courses include the following:
 - ARCH 341
 - AREC 432, 456
 - AMST 320, 420
 - ANTH 303, 415, 435
 - ECON 358, 491
 - GEOG 326, 328, 330, 335, 380, 415
 - OEST 261, 480, 481
 - PH 415
 - PLAN 310
 - POLS 335G, 346E
 - SOC 412

For information, contact the Environmental Center.

Ethnic Studies

College of Social Sciences
1859 East-West Road, Room 115
Honolulu, HI 96822
Tel: (808) 956-8086
Fax: (808) 956-9494
E-mail: aoude@hawaii.edu

Faculty

- D. T. Alegado, PhD (Chair)—Filipino American experience in the United States/Hawai'i, international labor migration
- I. G. Aoude, PhD—Hawai'i political economy, Middle East politics, social movements in Hawai'i and the South Pacific
- C. Fan, PhD—Asian Pacific American women, Chinese in America
- M. Kelly, MA—land tenure and use history in Hawai'i, modern Polynesia, contemporary issues in the Pacific Islands
- N. Kent, PhD—political economy in Hawai'i and the Pacific, American ethnic relations
- D. McGregor, PhD—Hawaiian history, South Pacific social movements
- J. Y. Okamura, PhD—Japanese in Hawai'i and the United States
- K. Takara, PhD—African American experience

Degree and Certificate Offered: BA in ethnic studies, Certificate in Ethnic Studies

The Academic Program

The Department of Ethnic Studies (ES) is an interdisciplinary program with emphasis on undergraduate education. Initiated in 1970, ethnic studies combines traditional and contemporary methodologies with new perspectives on issues of race, ethnicity, and class. The focus is Hawai'i with its rich legacy of multiethnic heritages, but the research, teaching, and service components also involve the United States as a whole and comparative studies of societies around the globe.

Ethnic studies provides introductory and advanced courses on theories and practices of ethnicity, race, and class. The program also offers courses on the history and experiences of specific groups, including African Americans and Native Americans. Among groups in Hawai'i, Caucasians, Chinese, Filipinos, Hawaiians, Japanese, and Koreans are subjects of separate courses. There are also courses dealing with critical topics such as ethnic identity, land tenure, social movements, and labor history.

Students may earn a BA or the Certificate in Ethnic Studies. Graduates have gone on to successful work in public service, social service, business, law, labor organization, education, and other fields that require sensitivity to people and their backgrounds.

Undergraduate Study

Bachelor's Degree

Requirements

Students must complete 36 credit hours, including:

- ES 101 and 380
- 12 credit hours on the history and social dynamics of ethnic groups from ES 221, 305, 306, 330, 331, 332, 333, 335, and 338
- 12 credit hours on the history, theories, and problems of ethnic groups and ethnicity in the framework of social, economic, and political change from ES 301, 310, 318, 320, 340, 348, 350, 360, 365, 370, 381, 390, 392, 399, 410, 420, 430, 455, 492, 493, 495
- 6 credit hours of related courses approved by a department adviser

European Languages

(See Languages and Literatures of Europe and the Americas)

Geography

College of Social Sciences

Social Sciences 445

2424 Maile Way

Honolulu, HI 96822

Tel: (808) 956-8465

Fax: (808) 956-3512

E-mail: uhmgeog@hawaii.edu

Web: www2.soc.hawaii.edu/css/dept/geog

Faculty

- *M. Chapman, PhD (Chair)—population mobility, field methods, Melanesia
- *S. D. Chang, PhD—China, urban development
- *G. A. Fuller, PhD—population (fertility, policy aspects), geography of prophylaxis (fertility control, population and political instability)
- *T. W. Giambelluca, PhD—climatology, hydrology
- *J. Goss, PhD—urbanization, built environment, social theory, Southeast Asia
- *N. D. Lewis, PhD—geography of health, human ecology, Pacific
- *M. G. McDonald, PhD—agricultural change, social theory, political geography, Japan
- *M. McGranaghan, PhD—computer cartography, geographic information systems
- *B. J. Murton, PhD—cultural and historical geography, tropical agrarian systems, South Asia
- *M. A. Ridgley, PhD—water resources, urbanization and environmental quality, human-environment system modeling, Latin America
- *K. Suryanata, PhD—political ecology, agricultural geography, natural resource management, Third World
- *R. A. Sutherland, PhD—geomorphology, soil erosion, water quality
- *L. Wester, PhD—plant geography, biogeography of islands, human-plant relationships
- *E. A. Wingert, PhD—cartography, remote sensing
- *D. Woodcock, PhD—climatology, paleobiogeography

Cooperating Graduate Faculty

K. W. Bridges, PhD—computer cartography

P. Jokiel, PhD—coral reefs

J. O. Juvik, PhD—climatology, biogeography, resource management, humid tropics

J. Liu, PhD—tourism, regional development

M. D. Merlin, PhD—biogeography, natural history of Hawai'i

Affiliate Graduate Faculty

J. Fox, PhD—social forestry

C. J. Johnson, PhD—mineral resources and policies

J. Maragos, PhD—coastal and marine resources

J. R. Morgan, PhD—marine geography

T. A. Siddiqi, PhD—energy technology, environmental policy

Degrees Offered: BA in geography, MA in geography, PhD in geography

The Academic Program

Geography (GEOG) provides a broad perspective on people as inhabitants and transformers of the face of the Earth. It explores the complexity of the cultures, economies, histories, and ecologies that lie behind places on a map—places that make up the world we live in and pass on to our children. Three themes (the operation of interlocking systems of the natural environment; the relationship between nature and society; the relationship between location and society) focus upon challenges in the contemporary world such as global environmental change and its implications for human existence; resource management and regional development in the Third World; regional conflict fed by long standing economic, religious, or territorial differences; the making of resource and location decisions; and the display and management of spatial information. The department is uniquely placed to examine these issues in the Asia Pacific region. Hawai'i's historical, cultural, economic, social, and environmental context provides a fascinating setting for learning and research and can serve as a springboard into the wider region.

Students with a geography degree have gained both a holistic understanding of the world and a specific set of concepts and methodologies that can be applied to a wide range of career opportunities dealing with environmental and resources issues, location and resource decision-making, planning and policy questions, and the display of information on maps and through geographic information systems in all levels of government, private firms, nonprofit organizations, and international agencies.

Undergraduate Study

Bachelor's Degree

Requirements

- Students must complete 37 credit hours including:
- GEOG 101/101L, 151, 375, 380, and 390
 - One upper division course in each subdiscipline:
 - human geography (GEOG 305, 312, 314, 321, 324, 325, 326, 328, 330, 335, 336, 385, 409, 410, 411, 412, 415, 420, 421, 425, 435, 445, 455)
 - physical geography (GEOG 300, 301, 303, 309, 400, 401, 402, 403, 404, 405, 409, 410, 411, 412, 420)
 - Hawaiian, Asian and Pacific regional problems (GEOG 340, 352, 353, 355, 356, 365, 366, 368, 453, 468)
 - cartography, remote sensing, and geographic information systems (GEOG 370, 375, 387, 470, 472, 475, 476, 480, 487, 488)
 - Three additional upper division courses concentrated in one of four subdisciplines listed above

Individual programs are designed in consultation with the undergraduate adviser.

Minor

Requirements

The minor in geography requires 15 credits of upper division course work in geography, which should include at least one course in three of four areas: human geography; physical geography; Hawaiian, Asian and Pacific regional problems; and cartography, remote sensing, and geographic information systems.

Graduate Study

The department offers programs of graduate study and research leading to the MA and PhD degrees. Faculty interests and supporting strengths of the University provide advantages for study of the following general topics: (a) environmental studies and policies; (b) resource systems; (c) population, urbanization, and regional development; (d) cartography, remote sensing, and geographic information systems; and (e) Pacific and Asian regional problems.

Applicants are expected to have a broad-based undergraduate education encompassing basic courses in the physical sciences, social sciences, and humanities. They should have a firm grasp of the fundamentals of physical and human geography and of basic cartographic and quantitative techniques. Intended candidates for the MA or PhD need not have an undergraduate major in geography; students from related fields are welcome, but any subject-area weakness must be remedied by course work.

Holders of graduate degrees in geography are employed in research and administrative positions in county, state, federal, and international agencies; research positions in private business, especially consulting firms; and teaching positions in secondary schools, community colleges, colleges, and universities.

Master's Degree

Applicants for admission to the MA program in geography must provide two transcripts, GRE scores (General Test only), completed application forms (available from the department, the Graduate Division, and the Web), and three letters of reference.

Requirements

The department offers a Plan A (thesis) program. In consultation with an advisory committee, the candidate plans a coherent program of study drawn from departmental offerings and pertinent courses from other University departments and programs. Each MA student must complete a minimum 31-credit program, including:

- 7 credit hours of core classes (GEOG 692, 695, 696)
- 15 credit hours in the chosen field of specialization
- 3 credit hours in advanced research skills
- 6 credit hours in GEOG 700 Thesis Research

Doctoral Degree

The PhD program is highly selective, and admission is based upon demonstrated competence in previous work and

promise of research ability. In addition to the materials required for MA admission, PhD applicants must submit representative samples of research writing and a comprehensive statement of professional goals and objectives. Students who have completed MA degrees in fields other than geography may be considered for admission to the PhD program. If admitted, however, they must undertake any remedial course work recommended by the department.

Requirements

The PhD program consists of advanced courses and research seminars in the department, independent reading and research, and work in related disciplines. Each candidate will be expected to have taken the core program required for MA candidates or its equivalent. In addition, the following are common elements of all geography PhD programs:

1. Attendance and participation, while in residence, in the geography colloquium;
2. Familiarity with the general development of geographic thought (GEOG 695);
3. 30 credit hours in a major field and 15 credit hours in a minor field of departmental specialization (course work taken at the MA level may be used in partial fulfillment of this requirement)
4. Fulfillment of a research skills requirement including (a) one language and (b) 9 credit hours in research technique courses (quantitative, computer applications, cartography, remote sensing, field, bibliography, or laboratory) or a second language;
5. Passing of written and oral comprehensive examinations; and
6. Submission and defense of a satisfactory dissertation.

Hawaiian and Indo-Pacific Languages and Literatures

College of Languages, Linguistics and Literature

Spalding 255

2540 Maile Way

Honolulu, HI 96822

Tel: (808) 956-8672

(808) 956-7452

Fax: (808) 956-5978

E-mail: hip@hawaii.edu

Faculty

- T. V. Ramos, PhD (Chair)—Philippine linguistics, language learning and teaching, multilingualism, sociolinguistics, child acquisition of language, Filipino language
- C. Baker, MA—Hawaiian grammar, construction of Hawaiian identity through language, Hawaiian language theatre, linguistic anthropology
- J. Clausen, PhD—Ilokano language, language learning and teaching, Philippine linguistics, language and multimedia
- P. L. Espiritu, MA—Ilokano language, Philippine theater, language learning and teaching

- E. Hawkins, PhD—language learning and teaching, Polynesian linguistics, Hawaiian, immersion education
- Y. Hoonchamlong, PhD—Thai linguistics, language learning and teaching, information technology in language research and language learning
- U. Kozok, PhD—Indonesian language and literature, prehistory and paleography of Island Southeast Asia, Sumatran philology
- F. Lesa, MA—language learning and teaching, Samoan
- R. Lopes Jr., MA—innovative instruction of Hawaiian language through cultural means such as hula and music
- N. C. Losch, MA—Hawaiian language and culture, Pacific cultures
- K. K. Lucas, BA—Hawaiian language learning and instruction
- R. E. S. Mabanglo, PhD—Philippine literature, poetry, drama, creative writing, Filipino language
- K. Makekau-Whittaker, MEd—Hawaiian language, immersion education, curriculum development, culture and learning
- J. F. Mayer, PhD—language learning and teaching, Samoan
- M. R. Nogelmeier, MA—Hawaiian language and literature, language teaching and learning
- S. D. O'Harrow, Doceo—Vietnamese language, philology and civilization, Sino-Vietnamese
- K.R.K. Oliveira, MA—innovative instruction of Hawaiian language through various cultural activities, Hawaiian place names and land tenure
- R. N. Sharma, PhD—Indian linguistics, Hindi, Sanskrit, and Panini
- R. Solis, MA—Hawaiian language learning and instruction, Hawaiian religion, newspaper translating and broadcasting
- C. Takahashi, MA—Thai language learning and teaching, comparative literature
- J. H. Ward, PhD—Polynesian linguistics, Tahitian, Balinese
- S. L. Warner, PhD—Hawaiian language, Hawaiian language immersion education, evaluation, curriculum development and second-language acquisition, educational psychology
- A. K. Wong, BA—Hawaiian language and culture, immersion education, curriculum development, native Hawaiian language speaker
- K. L. Wong, MA—revitalization of Hawaiian language and people
- M. S. Zamar, MA—Filipino (Tagalog) language, Philippine linguistics, language and multimedia, second/foreign language teaching

Degrees and Certificates Offered: BA in Hawaiian; BA in liberal studies (concentration in Filipino, Hindi, Ilokano, Indonesian, Samoan, Sanskrit, Thai, or Vietnamese); Certificate in Hawaiian; Certificate in Indo-Pacific languages (Burmese, Hindi, Ilokano, Indonesian, Samoan, Sanskrit, Filipino, Tahitian, Thai, or Vietnamese)

The Academic Program

Hawaiian (HAW) and Indo-Pacific (IP) Languages and Literatures provides instruction in the languages of the Indo-Pacific area to a broad spectrum of students at the University. The department's coverage of these languages is unique in the United States: this is the only department in the country to offer a BA degree in Hawaiian language and the only one to

offer every national language of Southeast Asia, as well as classical and modern Indian languages. Beyond language, the department offers courses in the literatures and cultures of the area, including literature in translation of Hawai‘i, South and Southeast Asia, and the Philippines. Opportunities are available for study abroad in certain areas. The department at the Mānoa campus provides an opportunity without parallel elsewhere in the country for students to acquire an in-depth knowledge of the languages and cultures of that part of the world that encompasses more than 25 percent of the Earth’s population and an unusual diversity of peoples.

All the department’s elementary- and intermediate-level language courses may be used to fulfill the Hawaiian or foreign language requirement for all bachelor’s degrees on the Mānoa campus. Students of Indo-Pacific languages and cultures can also enhance their opportunities to find a career in international relations; provide service to the community in such fields as social work, public health, nursing, medicine, and law; perform research on Asia and the Pacific; and develop cross-cultural awareness and understanding in Hawai‘i’s multicultural environment.

Language offerings include Burmese, Cambodian (Khmer), Hawaiian, Hindi, Ilokano, Indonesian, Pali, Prakrit, Samoan, Sanskrit, Filipino, Tahitian, Thai, Classical Tibetan, and Vietnamese. For additional languages and topics, see Indo-Pacific languages (IP) courses listed at the back of the *Catalog*.

Undergraduate Study

BA Degree in Hawaiian

Requirements

30 credit hours above HAW 201 and 202 with a GPA of 3.0 or better, including:

- HAW 301, 302, 401, 402, and 452
- HAW 321, 331, 332, 425, 426, 435B, 435C, 435D, 454, 463, 470, 484, 497A, and 499
- Remaining credit hours (up to 3) from SAM 102, TAHT 102, MUS 330E, 312, 412, 413, LING 345, ENG 482, SLS 360

Minor

In collaboration with the College of Education, the Hawaiian Language Division administers this minor in Hawaiian (immersion education) to prepare secondary subject area teachers for the Hawaiian Language Immersion Program in the Department of Education. Acceptance into the minor follows:

- Completion of 55 credits of university work with a 2.75 cumulative and major GPA
- Admission to an appropriate academic major
- Successful completion of the College of Education entrance exam and personal admissions interview
- Successful completion of HAW 302 or higher
- Attainment of a B average for all advanced level Hawaiian language courses.

Requirements

A total of 27–36 credits will be required with a minimal GPA requirement of 2.75 in the minor courses: 15–18 from the College of Education and 12–18 from Hawaiian Language

- College of Education: TECS 312D, EDEP 311, EDEF 310, one complementary course (ETEC 414; SPED 445; TECS 360; TECS 431), TECS methods course (33X–34X) in subject area
- Hawaiian: HAW 331, 332, 401–402, 463, and 470

Certificates

On recommendation of the Department of Hawaiian and Indo-Pacific Languages and Literatures, the University confers certification of achievement in Burmese, Filipino, Hawaiian, Hindi, Ilokano, Indonesian, Samoan, Sanskrit, Tahitian, Thai, and Vietnamese.

Requirements

15 credit hours beyond the intermediate level in the language of choice, including:

- 6 credit hours in continuing language study
 - 9 credit hours in language, literature, or structure courses selected to complement the major field of study
- A 3.0 GPA in courses leading to the certificate is required.

Honors and Awards

Lokomaika’iokalani Snakenberg Hawaiian Language Graduate Scholarship

Offered to encourage graduate-level research and study for students specializing in Hawaiian language and related fields, this scholarship provides an award of up to \$5,000 per semester to students registered in graduate programs at the University.

Dorothy M. Kahananui Scholarship in Hawaiian Language

This scholarship is offered to students who have successfully completed at least the intermediate level of Hawaiian language, with preference given to doctoral or master’s degree candidates who plan to teach the language. The minimum amount of the award is resident tuition at UH Mānoa.

Red Mandarin and Lady Yi-suen Shen Scholarship in Hawaiian Studies

Offered to undergraduate students in Hawaiian studies at the University of Hawai‘i at Mānoa, this scholarship covers tuition for the academic year. It is awarded to a degree candidate who demonstrates exceptional promise and achievement. Applicants must be pursuing a program of study that shows a central commitment to Hawaiian studies, including Hawaiian language.

History

College of Arts and Humanities
Sakamaki A-203
2530 Dole Street
Honolulu, HI 96822
Tel: (808) 956-8486
Fax: (808) 956-9600

Faculty

*K. L. Jolly, PhD (chair)—medieval Europe
*L. Y. Andaya, PhD—Southeast Asia, Indonesia
*J. H. Bentley, PhD—early modern Europe, world history
*D. A. Chappell, PhD—Pacific Islands
*E. L. Daniel, PhD—Islam, Middle East
M. L. Daniel, PhD—early America, early national United States
*E. L. Davis, PhD—middle China
Q. Guo, PhD—Ming-Qing China
*D. L. Hanlon, PhD—Pacific Islands, ethnographic history
*M. A. Henriksen, PhD—contemporary U.S.
*P. H. Hoffenberg, PhD—England, British Empire
*H. H. W. Kang, PhD—pre-modern Korea
L. C. Kelley, PhD—Southeast Asia
*P. N. King, PhD—Hawai‘i, U.S. in the Pacific
*J. P. Kraft, PhD—U.S. business and labor
M. V. Lanzona, PhD—Philippines, Southeast Asia
M. J. Lauzon, PhD—European intellectual
*R. E. McGlone, PhD—19th-century United States, social and family history
M.T. McNally, PhD—Tokugawa Japan, Japanese intellectual
*L. L. McReynolds, PhD—Muscovite and imperial Russia
*S. A. Minichiello, PhD—modern Japan
*R. L. Rapson, PhD—U.S. cultural and intellectual history
R. C. Rath, PhD—colonial America
*J. P. Sharma, PhD—South Asia
N. Shibusawa, PhD—U.S. foreign relations, cultural, Asian American
*M. P. Speidel, PhD—Greece and Rome; ancient Near East
*P. Varley, PhD—traditional Japan
T. J. Yoo, PhD—modern Korea
*H. F. Ziegler, PhD—modern Europe, Germany, quantitative methods

Cooperating Graduate Faculty

B. Andaya, PhD—Southeast Asia

Degrees Offered: BA in history, MA in history, PhD in history

The Academic Program

History (HIST) is the study of change and continuity in human society over time. Drawing upon concepts and methods of many disciplines, history provides perspective on the human condition, past and present. The discipline of history develops skills in evaluating evidence, organizing information, clarifying and structuring concepts, and writing narratives and expositions. History is a core around which liberal education can be structured. The study of history lays a foundation upon which one can develop a cultural, social, and

intellectual life that brings daily living into contact with the wider world.

Majoring in history is an excellent way to move into specialized study in such areas as teaching, library and information science, foreign service, medicine, law, and business. Those who plan to pursue a career as professional historians will want to continue their education and obtain the MA and PhD degrees. The Department of History of the University of Hawai‘i at Mānoa offers a full range of courses in American, Asian, European, Pacific, and world history.

Undergraduate Study

Bachelor's Degree

Requirements

Students must complete 33 credit hours of history at the 200-level and above, including:

- HIST 396 and 496
- 15 credit hours in one of four fields (United States, Europe, Asia/Pacific or comparative/world)
- One upper division course (3 credit hours) in each of the other fields
- One additional history course

No more than 6 credit hours in 200-level courses are applicable to the major.

Minor

Requirements

For a student to minor in history, the declaration of intent should be made as early as possible after matriculation. The student must contact the undergraduate adviser of the department and complete the appropriate forms. The minor requires the successful completion with a grade of C or better of 15 credit hours of upper-division history courses. It is possible to concentrate in a particular area of history, but it is not necessary to do so. No one specific course is required for the minor.

Graduate Study

The department of history offers the MA and PhD degrees in the American, Asian, European, and Pacific fields. A field of world history is offered at the PhD level only. All applicants for advanced degree programs in history are requested to supplement the application and transcripts required by the Graduate Division with letters of recommendation (two for the MA, three for the PhD), preferably from professors with whom the applicant has worked; a sample of written work such as a term paper, seminar paper, or MA thesis; and the General Test scores from the GRE. These supplementary items should be sent directly to the department.

Complete details on all graduate programs in history, as well as financial aid available to prospective students, are outlined in a departmental brochure, available upon request from the department in Sakamaki A-203, 2530 Dole Street.

* Graduate Faculty

Recipients of advanced degrees in history have undertaken careers as teachers of history and social studies in secondary schools, community colleges, colleges, and universities. In addition, the study of history provides an excellent background for alternative careers in museology, library and archival work, government service, historical preservation, business and marketing research, and allied research fields. The department has a placement officer to assist graduates with career choices and in locating employment opportunities.

Courses for the graduate programs are to be selected from among the history courses listed in back of the *Catalog* and from graduate offerings in related disciplines as directed by the student's supervisory committee. The consent of the instructor is required for admission to all courses numbered 600 and above. Courses numbered over 600, except HIST 602, may be repeated *once* for credit.

Master's Degree

Intended candidates for the MA degree must present a minimum undergraduate preparation of 18 upper division credit hours in history or some closely allied field such as Asian studies, American studies, etc. Students who lack this preparation or who wish to undertake study in an area of history other than that of their undergraduate preparation must make up deficiencies either before or during graduate study. In the latter case the student will be admitted only conditionally, pending removal of the deficiencies.

The prospective MA candidate may select either Plan A (thesis) or Plan B (non-thesis). Both plans require the intended candidate to give evidence of competence in a foreign language appropriate to the field of major interest. In addition, students in the United States or East Asia history areas in either Plan A or Plan B must also meet seminar distribution requirements, which raise the minimum required 600-level work to 18 credit hours.

Plan A (Thesis) Requirements

Plan A requires a minimum of 24 credit hours of graduate work, at least 15 of which must be in courses numbered 600 and above (including HIST 602), plus 6 credit hours of HIST 700 Thesis Research, a written thesis, and a final oral examination, which is a defense of the thesis.

Plan B (Non-thesis) Requirements

Plan B requires a minimum of 30 credit hours of graduate work, at least 18 of which must be in courses numbered 600 and above (including HIST 602), comprehensive examinations in two fields of history, a final oral examination covering the two fields of history from the comprehensive examination, and two major research papers from graduate seminars in the major and minor fields.

Doctoral Degree

Intended candidates for the PhD degree are expected to possess the MA degree in history or its equivalent. The PhD candidate must demonstrate the capability of pursuing a successful career as a professional historian by showing initiative

in historical research and by giving evidence of the ability to present findings both orally and in writing.

Requirements

The candidate must prove competence by the acquisition of a broad background in general history, passing four comprehensive examinations in two broad geographic areas of history and completing an original dissertation and a final oral examination. The candidate must also demonstrate a knowledge of at least two foreign languages related to the dissertation topic; for students of American or Hawaiian history an alternative requirement may, at the discretion of the doctoral committee, be substituted for one of the languages.

Information and Computer Sciences

College of Natural Sciences
POST 317
1680 East-West Road
Honolulu, HI 96822
Tel: (808) 956-7420
Fax: (808) 956-3548
Web: www.ics.hawaii.edu

Faculty

- *S. Y. Itoga, PhD (Chair)—database systems, expert systems, logic programming
- *E. Biagioni, PhD—networks, systems, languages
- *D. Chin, PhD—artificial intelligence, natural language processing, cognitive science
- *M. E. Crosby, PhD—human-computer interaction, cognitive science
- D. DeRyke, MA—software engineering, data modeling
- *W. Gersch, DEngSc—mathematical statistics, time series, biomedicine, geophysics
- *C. Hundhausen, PhD—human-computer interaction, visualization, computer-supported collaborative learning
- *P. Johnson, PhD—software engineering, artificial intelligence
- *A. Lew, PhD—systems programming, systems analysis, software engineering
- *I. Miyamoto, DrEng—software engineering
- *D. Pager, PhD—compiler theory, theory of computability, artificial intelligence
- *W. W. Peterson, PhD—programming languages, software engineering
- *L. Quiroga, PhD—information retrieval, databases, library systems, Web site design
- *J. Stelovsky, DrTechSc—computer-hypermedia, human-computer interaction
- *K. Sugihara, DrEng—algorithms, distributed computing, visual languages
- *D. Suthers, PhD—educational technologies, artificial intelligence, human-computer interaction
- *J. Yuh, PhD—control, robotics, design

Affiliate Graduate Faculty

D. R. Stoutemyer, PhD—computer algebra, mathematical software

Degrees Offered: BA in information and computer sciences, BS in computer science, MS in information and computer sciences, MLISc in library and information science, PhD in computer science, and PhD in communication and information sciences (interdisciplinary)

The Academic Program

Information and computer sciences (ICS) is the study of the description and representation of information and the theory, design, analysis, implementation, and application of algorithmic processes that transform information. Students majoring in ICS will learn to use computer systems, a valuable skill which can be applied in all fields of study. Students will also learn the scientific principles and technology required to develop new computer systems and applications. The curriculum covers all major areas of computer science with special emphasis on software engineering and computer networks, areas uniquely suited to Hawai'i's role as a multicultural and geographical center of the Pacific.

Undergraduate Study

Bachelor's Degree

To be admitted into the program, first-year students entering UH Mānoa directly from high school must first be admitted into the Colleges of Arts and Sciences. For continuing students, a cumulative GPA of at least 2.0 is required for admission.

BA in Information and Computer Sciences

Requirements

Students pursuing this degree are required to submit a short proposal listing the courses they intend to take to complete their ICS major. An ICS faculty adviser must approve this proposal in writing. Samples of course proposals are available at the ICS department Office. Students must complete the following courses (49 credits):

- ICS 111/111L, 141, 211, 212, 241, 311, 312, 313, and 321,
- At least three ICS courses at the 400-level or above,
- Four upper division (300-level or above) courses in some area of concentration. The area of concentration courses do NOT have to be from the same department.

BS in Computer Science

Requirements

- Students must complete the following courses (44 credits):
- ICS 111, 141, 211, 212, 241, 311, 312, 313, 321, and 331/331L
 - At least five ICS or other approved courses at the 400 level or above

Substitutions are permitted with the written approval of a faculty adviser.

Waiver of certain requirements, such as by Advanced Placement CS exam, must be approved by the faculty adviser.

Minor

A cumulative GPA of at least 2.0 and a grade of B or higher in ICS 111 and 111L are required for admission.

Requirements

Students must complete ICS 211, 212, and 241 and their prerequisites, 111 and 141, and three ICS courses at the 300 level and above with a grade of C or better.

Graduate Study

The department offers the MS degree in information and computer sciences, the MLISc degree in library and information science (see the "Library and Information Science" section within the Colleges of Arts and Sciences for more information), and the PhD degree in computer science. The department is one of four academic programs that cooperate in an interdisciplinary doctoral program in communication and information sciences (see the "Communication and Information Sciences" section within the Colleges of Arts and Sciences for more information).

Applicants for the MS in information and computer sciences and the PhD in computer science are required to take the GRE General Test and subject area examination in computer science. Applicants from foreign countries must be academically qualified, proficient in English (minimum 600 TOEFL), and have sufficient financial support.

The department offers three forms of financial aid: teaching assistantships, research assistantships, and tuition waivers. The department offers a limited number of assistantships each semester, most of which are teaching assistantships. Teaching and research assistants work approximately 20 hours per week under the supervision of a faculty member and receive a stipend as well as a tuition waiver. Teaching assistants support instruction and research assistants support extramurally funded research projects. Teaching assistantships are awarded to those applicants who can best support the instructional program. Similarly, research assistantships are awarded to those applicants who can best assist faculty with their research projects. Applicants accepted for admission may be eligible for partial financial aid in the form of a tuition waiver from the Graduate Division and foreign applicants from Pacific or Asian countries may be eligible for Pacific-Asian Scholarships. Prior to submitting a tuition waiver application form, foreign applicants must submit TOEFL scores and documentation of financial support for expenses other than tuition to the Graduate Division Admissions Office. To apply for any of these forms of support, student should submit the ICS Graduate Assistantship Application along with three letters of recommendation using the Graduate Assistantship Evaluation Form. Because we can offer assistance to only a small fraction of applicants, we highly encourage students to also seek other forms of support, such as

the East-West Center or computer-assisted databases such as CA\$H (Computer-Assisted Scholarship Help), which lists over a thousand scholarships.

Master's Degree

The master's program is intended for students planning either to specialize in computer science or to apply computer science to another field. Applicants in computer science, business, engineering, mathematics, or a natural science must present a baccalaureate degree. Applicants with degrees in other fields should consult with a graduate adviser prior to applying for admission. The applicant should present the following as minimum preparation for the program:

1. A working knowledge of the Java or C programming language and at least one advanced computer science course (for example, ICS 311, 312, 313, 321, or 331); and
2. A one-year course in calculus (for example, MATH 241 and 242).

Graduates of the master's program have secured programming, systems analysis, and other technical positions in industry, business, and government. Some have applied their technical skills to other careers while others have pursued doctoral studies in computer science.

Requirements

Plan A (thesis) and Plan B (non-thesis) are available. A minimum of 30 credit hours is required under both plans. Student programs must be approved by an adviser. A minimum B average must be maintained in all courses. The program or previous study must include the following:

1. ICS 141, 241, 311, 312, 313, 321, and 331; two of ICS 411, 412, 413, and 414; and ICS 442 or 471; or equivalent courses;
2. At least six ICS courses numbered 600 to 692 including two in decade 1 (i.e., numbered 610–619);
3. Plan A: thesis taken as ICS 700; Plan B: one ICS course numbered 600–699 (a substitution is permitted with *written* approval of adviser) and a final project (based on prior graduate-level course work; computer programming projects must be accompanied by a written report) taken as ICS 699 for at least 3 credits at the end of the student's program of study; and
4. ICS 690 (taken for CR/NC), which does not count toward the 30-credit-hour minimum.

The administrative procedures for the program include the following rules:

1. The student must meet with his or her adviser during the first semester. Deficiencies that must be remedied are indicated at this time.
2. The student is admitted to candidacy following completion of at least 12 credit hours of courses applicable to the degree or after two semesters. After being admitted to candidacy, the student must file a degree plan prior to registering for the final semester; a student selecting Plan A must choose a thesis topic within one semester.
3. All changes in the degree plan must be approved in writing by the adviser before the diploma application is filed. At the

beginning of the semester of expected graduation, the student must have a departmental "goldenrod" form signed by his or her adviser.

Doctoral Program

The department offers a PhD in computer science intended to prepare students for creative research, teaching, and service. There are two programs leading to the PhD degree, one designed for applicants entering with bachelor's degrees, and the other for those who already have master's degrees. Students may begin their program either in the spring or fall semesters.

Applicants with bachelor's degrees must first satisfy the admission and degree requirements of the ICS master's degree. The advantages are: (1) they are admitted at an early stage to the PhD program, (2) they will, in practice, usually take a year LESS to obtain their PhD degree since they will be motivated to select courses in the MS portion of the requirements which prepare them for their comprehensive examinations, and (3) students who have completed the MS requirements will have the option of obtaining an MS degree even if they do not continue with the program.

Applicants with master's degrees in areas other than computer science may be admitted to the program, but will be required to fulfill their program deficiencies with additional coursework.

Requirements

Students must pass the comprehensive examinations by the end of their fifth semester or be dropped from the program. The comprehensive examination may cover the following areas:

- Compilers (ICS 611)
- Operating Systems (ICS 612)
- Software Engineering (ICS 613)
- Algorithms (ICS 621)
- Theory of Computation (ICS 641)
- Networks (ICS 651)
- Artificial Intelligence (ICS 661)
- Databases (ICS 624)

In addition, students must pass a seminar course(s), ICS 690, during the "PhD portion" of their program. After passing an oral examination covering their general preparation for the research involved, students must write a dissertation, which must be approved by a doctoral committee.

International Cultural Studies

International Cultural Studies Program
East-West Center, 1601 East-West Road
Burns Hall 2107
Honolulu, HI 96848
Tel: (808) 944-7585
Fax: (808) 944-7070
E-mail: culture@hawaii.edu
Web: www2.hawaii.edu/~culture/

Faculty

J. Goss, PhD (Co-Director)—Geography
 T. Bigalke, PhD (Co-Director)—East-West Center
 A. Arno, PhD—Anthropology
 T. Bigalke, PhD—East-West Center
 E. Buck, PhD—East-West Center
 A. Feeser, PhD—Art
 K. Ferguson, PhD—Political Science
 C. Franklin, PhD—English
 C. Fujikane, PhD—English
 D. Gladney, PhD—Asian Studies
 D. Hanlon, PhD—History
 M. Helbling, PhD—American Studies
 V. Hereniko, PhD—Pacific Island Studies
 R. Hsu, PhD—English
 L. McReynolds, PhD—History
 F. Lau, PhD—Music
 J. Logan, PhD—Languages and Literatures of Europe and the Americas
 L. Lyons, PhD—English
 B. Murton, PhD—Geography
 J. Okamura, PhD—Ethnic Studies
 J. K. Osorio, PhD—Hawaiian Studies
 K. Pauka, PhD—Theater
 J. Rieder, PhD—English
 A. Robillard, PhD—Sociology
 M. Shapiro, PhD—Political Science
 M. Sharma, PhD—Asian Studies
 N. Shibusawa, PhD—History
 N. Silva, PhD—Political Science
 C. Sinavaiana, PhD—English
 N. Soguk, PhD—Political Science
 R. Trimillos, PhD—Asian Studies
 T. Wesley-Smith, PhD—Pacific Island Studies
 G. White, PhD—East-West Center and Anthropology
 G. Yan, PhD—Sociology
 C. Yano, PhD—Anthropology
 M.B. Yue, PhD—East Asian Languages and Literature
 M. Yoshihara, PhD—American Studies

Certificate Offered: Graduate Certificate in International Cultural Studies

The Academic Program

The Certificate in International Cultural Studies offers a graduate interdisciplinary course of study that enhances existing degrees in Arts and Sciences, area studies, and the professional schools.

Given that the language of culture is increasingly heard in debates about issues as diverse as nationalism, human rights, immigration, trade, the environment, education, media, and the arts, the certificate program develops tools for a more informed and critical understanding of the role of culture in public debates and policy.

Hawai‘i’s location at the intersection of local, U.S. and Asian spheres of influence provides an important vantage point from which to take up the social and cultural transformations taking place in today’s era of economic globalization and restructuring. Issues of cultural identity and politics are sharply drawn in the distinctive mix of indigenous, local and international communities in Hawai‘i today. Program courses and activities support a variety of approaches to analyzing and understanding the significance of culture, and of cultural difference, as global flows of people, culture and capital increase the heterogeneity and flux of everyday life throughout the world.

The certificate program brings together faculty whose research and teaching focus on the politics and production of culture in the context of local, national and international relations. Faculty research methods and styles emphasize the interpretive approaches of the humanities and social sciences.

Certificate Requirements

The Certificate program combines course work with directed research and, where possible, community involvement.

- A core of three courses (7 credits), including:
 - International Cultural Studies: History and Theory (CUL 610)
 - International Cultural Studies Speaker Series (CUL 609)
 - Capstone Experience (CUL 750). The Capstone Experience is an individual research project supervised by a participating faculty member.
- Three electives (9 credits), including two taken outside the student’s department.

Interpretation and Translation Studies

College of Languages, Linguistics and Literature
 Center for Interpretation and Translation Studies
 Moore 161

1890 East-West Road
 Honolulu, HI 96822

Tel: (808) 956-6233

Fax: (808) 956-2078

E-mail: cits@hawaii.edu

Web: nts.lll.hawaii.edu/cits/

Faculty

D. Ashworth, PhD (Director)—translation and interpretation theory, translation, computer applications
 J. Y. Lu-Chen, PhD, Certificate in T&I—translation, computer-assisted translation, consecutive and simultaneous interpretation
 S. Zeng, PhD, Certificate in T&I—translation and interpretation theory, Web-based translation, consecutive and simultaneous interpretation

Certificates Offered: Certificate in Interpretation, and Certificate in Translation

The Academic Program

Interpretation and translation (IT) is the study of appropriateness in interlingual and cross-cultural communication. Translation students focus on written work. They acquire basic knowledge of computer-assisted tools and programs that facilitate translation, as well as an understanding of analytical and research techniques needed for translating written texts. Interpretation students focus on oral work. They learn the techniques needed to facilitate interpersonal, interlingual oral communication. Both fields of study emphasize sociolinguistic and communication skills and techniques needed to facilitate cultural, scientific, and technical exchanges in cross-cultural and multinational settings. Students may also focus on both fields of study by following, concurrently or sequentially, both programs of study.

The Center for Interpretation and Translation Studies was established at the University of Hawai'i at Mānoa within the College of Languages, Linguistics and Literature in 1988. The center's primary goal is to provide, through theoretically based academic programs, basic training in interpretation and nonfiction translation. Additional objectives of the center include developing of an interdisciplinary research program and serving the community as a clearinghouse for information on professional resources and practices. It also aims to provide the community at large with a broad range of educational opportunities by sponsoring lectures, seminars, and workshops. For the latest information, please visit the center's webpage at nts.lll.hawaii.edu/cits/.

Journalism

School of Communications
College of Social Sciences
George 301
2560 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8881
Fax: (808) 956-5396
E-mail: jour@hawaii.edu
Web: www2.hawaii.edu/~jour/

Faculty

T. J. Brislin, PhD (Chair)—mass communication, history/trends, ethics
A. Auman, MA—news editing, publication layout and design
L. Frazier, EdD—public relations, publication layout and design
G. Y. Kato, MA—broadcast news, law, reporting
B. D. Keever, PhD—public affairs reporting
T. Kelleher, PhD—public relations, media campaigns and effects

Degree Offered: BA in journalism

The Academic Program

Journalism (JOUR) education helps students develop their ability to gather, analyze, and organize information and to communicate it to others clearly, effectively, and responsibly—skills that are particularly important in this Age of Information. Assignments in journalism courses also lead students to increase their knowledge of public institutions and major public issues and to become more at ease in meeting and talking with other people at many different levels. Many students major in journalism to prepare for careers with the print or broadcast news media or in public relations work. However, a journalism education also serves as an excellent foundation for graduate study in other fields.

Journalism, which is largely professional in its orientation, is one of 106 departments or schools of journalism in the United States with national accreditation and is among the leaders in its emphasis on ethics and quality writing. More than half of its classes are “writing-intensive,” and most call for more writing than that designation requires. Students are encouraged to work for *Ka Leo O Hawai'i*, the campus newspaper, and to participate in journalism's extensive program of professional internships, many of which offer pay as well as valuable experience.

Accreditation

The program is accredited by the Accrediting Council on Education in Journalism and Mass Communications.

Advising

Advising is mandatory for all journalism majors.

Undergraduate Study

Bachelor's Degree

Requirements

- 30 credit hours minimum (maximum of 33) in journalism courses
- 15 additional non-introductory credit hours in a discipline of choice
- 90 credit hours in non-journalism courses
- All students enrolled in journalism classes requiring off-campus assignments must sign a University of Hawai'i Waiver Form—Assumption of Risk and Release

Required Courses

- For all students: JOUR 150, 205, 206, and 365
- For students in print journalism sequence: JOUR 315, 415, 445, and 460
- For students in broadcast journalism sequence: JOUR 315, 366, 436, 466, and 460
- For students in public relations sequence: JOUR 320, 410, and 420.

Languages and Literatures of Europe and the Americas

College of Languages, Linguistics and Literature
Moore 483
1890 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8520
Fax: (808) 956-9536
E-mail: fadil@hawaii.edu
Web: www.hawaii.edu/lla

Faculty

- *A. Dias, PhD (Chair)—modern Spanish literature, Puerto Rican literature
- L. Aranda, PhD—U. S. Latino literature, translation
- *R. J. Ball, PhD—Latin literature, Augustan poetry, teaching methodology
- *V. Bennett, PhD—Russian language and literature, 19th-century Russian literature, Russian symbolism, modernism and literature of the 1920s
- *J. E. Brown, PhD—Russian language and literature, 19th-century Russian literature and poetics
- *W. Burgwinkle, PhD—French medieval literature, literary theory, Italian, Occitan
- *P. M. Chandler, PhD—second language acquisition, coordinator of elementary Spanish, teaching assistant supervisor, Portuguese language
- *J. D. Ellsworth, PhD—Greek literature, classical philology, classical mythology
- *M. J. Fassiotto, PhD—18th-century French literature, 19th-century poetry, coordinator of second-year French
- *M. C. Garneau, PhD—19th century French literature, oral genres, Italian
- *K. Hoffmann, PhD—17th-century French literature, critical theory, theater
- *K. Klingebiel, PhD—French linguistics and language, history of French, phonetics, Italian, Occitan, Welsh
- *R. J. Littman, PhD—Greek literature, ancient history, ancient medicine
- *J. Logan, PhD—Spanish American literature and cultural studies, women's studies
- *R. Moody, PhD—applied linguistics, Portuguese and Spanish, psychology of second language learning, Spanish American literature
- *M. Overstreet, PhD—discourse analysis, sociolinguistics, German language teaching
- *J. G. Sang, DrPhil—contemporary German literature, 18th- and 19th-century genres
- *W. Scherer, PhD—medieval German lyric, romanticism, evolution of European consciousness
- P. A. Schroeder, PhD—Spanish American literature, Caribbean literature, Latin American film
- *N. Schweizer, PhD—18th-century German classicism, Germans/Europeans in the Pacific

*J. M. Toyama, PhD—20th-century French novel, criticism, poetry

L. F. Wilson, PhD—medieval and Golden Age Spanish literature

Degrees and Certificate Offered: BA in Classics, BA in French, BA in German, BA in Russian, BA in Spanish; MA in languages and literatures of Europe and the Americas; Certificate in Classics, Certificate in French, Certificate in German, Certificate in Russian, Certificate in Spanish

The Academic Program

The Department of Languages and Literatures of Europe and the Americas (LLEA) is divided into five language divisions: Classics, French, German, Russian, and Spanish. Courses of language instruction at the beginning and intermediate levels are offered in Dutch, French, German, Greek, Italian, Latin, Portuguese, Russian and Spanish. Advanced courses in composition, conversation and linguistics are offered in French, German, Russian and Spanish. Courses in the literatures of France, Francophone Africa, Germany, Latin America, Italy, Russia, Spain and Wales are offered regularly in the original language, as are courses in classical literary texts written in Greek and Latin. Cultural studies courses designed to acquaint students from other fields with the traditions and cultures of Europe and the Americas are also available, both in English and in the target language, and advanced courses in specialized topics have been designed for students at the graduate level. Such courses include Hispanic cultural studies; U.S. Latino literature and culture; French and German film and French and German civilization; Spanish and Latin American cultural perspectives; Russian arts and culture; classical foundations; Europeans in the Pacific; literary theory; opera; exile literature; and courses on specific authors and literary movements. At the graduate level, particular attention is paid to literary analysis and cultural history. MA programs are offered in Classics, French, German and Spanish. In addition, BA degrees and certificate programs are offered in Classics, French, German, Russian, and Spanish. The department promotes language proficiency and cultural awareness through its sponsorship of student clubs, films, lectures, scholarships, and Study Abroad programs. Currently the department supports programs in Angers, Annecy and Paris, France; Florence, Italy; Berlin, Germany; Vladivostok, Russia; and several sites in the Hispanic world.

Undergraduate Study

Bachelor's Degree

BA in Classics

- 24 credit hours of Greek and/or Latin courses numbered 300 and above
- GRK 101 and 102 and LATN 101 and 102
- Emphasis may be on Greek or Latin or a combination approved by the major adviser

BA in French

- 33 credit hours of FR, exclusive of FR 101, 102, 201, and 202
- FR 311, 312, 331, and 332
- Four French 400-level courses, including three on literature

BA in German

- 30 credit hours of courses numbered 300 and above

BA in Russian

For a language emphasis:

- 30 credit hours of courses above RUS 202
- 6 credit hours of LLEA Russian-related courses

For a literature emphasis:

- 18 credit hours of language beyond the 202 level
- 18 credit hours of literature (including 6 credit hours of LLEA Russian-related courses)

BA in Spanish

- 33 credit hours above the 200 level
 - SPAN 301[†], 303[†], 304[†], 351, 352
 - SPAN 361 or 362
 - SPAN 371 or 372
 - Two 400-level courses^{††}
 - Two electives^{††}
- Minimum GPA of 2.5 for advanced (300- to 400-level) courses used to satisfy major requirements

[†]Language skill courses (SPAN 301 to 304) are normally limited to nonnative speakers of Spanish. Native and near-native speakers should consult a department adviser to determine what courses they may take.

^{††}Recommended courses for prospective teachers: SPAN 330, 403, 451, and 452

^{††}Recommended courses for prospective graduate students: SPAN 451, 452, and two 400-level literature courses

Approved study abroad of at least one semester in a Spanish-speaking country is recommended for all majors.

Certificate**Certificate in Classics, French, German, Russian, or Spanish**

Upon recommendation of the appropriate division chair of the Department of Languages and Literatures of Europe and the Americas, the University confers certification of achievement in Classics, French, German, Russian, or Spanish. Students must complete 15 credit hours beyond the intermediate year in the language of choice. A minimum GPA of 3.0 must be achieved. (For German certificate, GER 203 counts.)

Graduate Study**Master's Degree**

The master's degree in Languages and Literatures of Europe and the Americas is based on the view that European culture is a unity that expresses itself in the different European languages and literatures. This culture finds its roots in the classical

civilizations of ancient Greece and Rome and currently extends far beyond the geographical boundaries of Europe.

The department has designed the master's program to emphasize this unity of culture, while at the same time preserving high standards of competence and performance in a particular language area. This aim is accomplished by providing a common core of courses for all students in the program, yet allowing for concentration in a given language and literature.

Students are encouraged to extend their competence by taking courses in languages outside their area of concentration. The program aims for flexibility in order to promote individual interests. It recognizes current job needs in which knowledge of two or more languages is useful and often required.

Each candidate will choose an area of concentration from the following: Classics, French, German, Russian, or Spanish.

Admission Requirements

In addition to meeting the requirements of the Graduate Division, applicants must have the following:

1. A major or its equivalent in the chosen area of concentration with a minimum GPA of 3.0 (B);
2. The competence equivalent to two years of study at the college level in a second foreign language. For candidates in Classics, one foreign language is required in addition to Latin and/or Greek; and
3. For French, German, Russian, and Spanish, an acceptable accent and fluency in the language of the area of concentration as demonstrated in a personal interview or by a tape recording as specified by the department.

Applicants with deficiencies may be accepted provisionally, but course work taken to make up deficiencies may not be counted toward satisfaction of the degree requirements. Students deficient in a second modern language are strongly advised to make up this deficiency as soon as possible in order to participate meaningfully in the interdisciplinary aspects of the program.

Requirements

- All students in the program will be required to
- present during the first semester a plan of study approved by the graduate chair, two graduate faculty members from the area of concentration, and, if a significant number of credits from another department is elected, a member of the graduate faculty from that department;
 - earn 6 credit hours selected from among the core courses (LLEA 680, 681, 682, and 683);
 - satisfy remaining specific requirements in the area of concentration; and
 - pass satisfactorily the comprehensive examinations required in the area of concentration.

Students who select Plan A (thesis) in their area of concentration must present a thesis proposal, including justification of the topic and a bibliography, for approval by the thesis director and two members of the thesis committee before the end of the second semester of work. The completed thesis must be

presented to the thesis committee at least four weeks before the Graduate Division deadline. The Graduate Division requires all theses to be written in English.

All graduate students must take at least one 600-level course in the selected area of concentration each semester.

The core courses are designed to show how the European languages and literature are interconnected and stem from a common influence in classical antiquity. Although the courses are taught in English, candidates are expected to read the works from their own area of concentration in the original language.

Classics Requirements

Since no GRE scores are required, more weight will be given to the candidate's achievement at the undergraduate level, as evidenced by grades and recommendations. Candidates who are unable to meet the two-year foreign language requirement upon entrance will be required to make up the deficiency before receiving the MA.

Plan A (thesis) requires a minimum of 30 credit hours in Greek and/or Latin; it is intended primarily for prospective PhD candidates. Under this plan, students must complete 24 credit hours, at least 12 of these in courses numbered 600 and above and at least 6 of these in LLEA 680, 681, 682, and 683. Students must also take 6 credit hours of thesis research under a sponsor of their choice and defend the thesis at a final oral examination.

Plan B (non-thesis) requires a minimum of 30 credit hours in Greek and/or Latin; it is intended primarily for prospective high school teachers. Under this plan, students must take 30 credit hours, at least 18 of these in courses numbered 600 and above and at least 6 in LLEA 680, 681, 682, and 683. Students must also pass a final comprehensive examination on Greek and Roman literature.

French Requirements

Candidates in French literature may select Plan A (thesis) or Plan B (non-thesis). A minimum of 18 credits must be earned in courses numbered 600 and above, for a total of 30 credit hours, including 6 credit hours from among the core courses. FR 661 is also required but may be waived by the graduate chair. All specified requirements are minimal; a program for each student will be worked out based on the results of the preliminary conference and general examination.

Plan A requires a minimum of 30 credit hours: at least 24 credit hours of course work and 6 credit hours of thesis research. A minimum of 18 credits must be earned in courses numbered 600 and above. Of these, a minimum of 15 credit hours must be in French courses numbered 600 and above, including at least one graduate seminar. Additional requirements are a written comprehensive examination and a thesis.

Plan B requires a minimum of 30 credit hours of course work. A minimum of 18 credits must be earned in courses numbered 600 and above. Of these, a minimum of 15 credit hours must be in French courses numbered 600 and above, including at least one graduate seminar. A written comprehensive examination is also required.

German Requirements

Candidates select either Plan A (thesis) or Plan B (non-thesis). Both plans require a minimum of 30 credit hours. The requirements specified below are the minimum requirements; a program for each student will be worked out on the basis of a preliminary conference.

Plan A requires a minimum of 30 credit hours with a minimum cumulative GPA of 3.0. At least 12 credit hours must be in German courses numbered 600 and above, 3 credit hours in LLEA 630, 6 credit hours of thesis research, and 6 credit hours from among the core courses. Electives may be arranged upon consultation with a graduate adviser. Thesis approval and a thesis defense complete the requirements.

Plan B requires a minimum of 30 credit hours with a minimum cumulative GPA of 3.0. At least 18 credit hours must be in courses numbered 600 and above, 3 credit hours in LLEA 630, 3 credit hours in LLEA 480 or 481, 3 credit hours in LLEA 680 or 681, and 6 credit hours (or more) of electives. A final written comprehensive examination completes the degree requirements.

Graduate assistants in German are also required to take EDCI 641C Seminar in Teaching College German.

Russian Requirements

At the beginning of the first semester of study, a conference with the student will be arranged. This conference is mainly to assist the student and the program committee in preparing an individual program of study. Based on the results of the conference, the committee will prepare a reading list for the student.

All degree candidates must complete a minimum of 30 credit hours, 6 of which must be taken from the common core of LLEA graduate courses.

Plan A (thesis) includes a minimum of 15 credit hours in courses numbered 600 to 700, including LLEA 630, and a minimum of 3 credit hours in RUS 735. In addition students must complete 6 credit hours from the common core of LLEA graduate courses. They must also complete 6 credit hours of LLEA 700 Thesis Research.

The thesis must be completed and submitted at least three weeks in advance of the oral comprehensive examination. The final oral examination will consist of two parts. The first part will be based on the thesis. Candidates must defend their points of view. The second part will be based on the minimum reading list. The candidates will have to demonstrate a thorough knowledge of Russian phonology and grammar and a solid understanding of the history of the Russian language. In the field of literature, the candidates have to demonstrate good knowledge of Russian literary figures and their major works. Reading knowledge of a second Slavic language is not required but is strongly recommended.

Plan B (non-thesis) includes a minimum of 18 credit hours in courses numbered 600 to 700, including LLEA 630 and a minimum of 3 credit hours in RUS 735, 622, or 650. In addition, the candidates will take 6 credit hours in the common core of LLEA courses. The remaining credits are electives; one appropriate course in linguistics is recommended.

Plan B candidates must pass a comprehensive final examination in all fields of study of Russian language and literature. The examination will be based on the minimum reading list. In the field of the language, the candidates will be required to show a knowledge of phonology, grammar, and history of the Russian literary language. In the field of literature, the candidates will have to demonstrate knowledge of literary history through all the periods, major literary movements and ideas, and major authors and their main works.

Spanish Requirements

Candidates in Spanish may select Plan A (thesis) or Plan B (non-thesis). Candidates in both plans are required to take 30 credit hours, including 6 credit hours of LLEA core courses. At least 18 of the 30 credit hours must be numbered 600 and above, including at least one graduate seminar. Students electing Plan A (thesis) must complete 6 credit hours of LLEA 700 Thesis Research. Graduate assistants in Spanish are also required to take SPAN 658 Seminar in Spanish Linguistics. Candidates of both plans must pass a comprehensive final examination in literature (Peninsular and Spanish American) and in one of the following three areas (language, Latino Studies, cultural studies/critical theory). The examination is based on the minimum reading list and is also tailored to fit the background and course work of the individual candidates and the thesis, if offered.

Liberal Studies

Colleges of Arts and Sciences
Krauss 116
2500 Dole Street
Honolulu, HI 96822
Tel: (808) 956-7297
Web: www.hawaii.edu/libst/

Faculty

P. Manicas (Director), PhD
E. Drechsel, PhD
J. Odin, PhD

Degree Offered: BA in liberal studies

The Academic Program

The objective of the Liberal Studies Program is to provide students with an opportunity to pursue a course of study that is not restricted to conventional departmental or unit boundaries. A crucial feature is the advising process, which aims to develop the student's ability to formulate a major equivalent comprised of non-introductory courses with thematic integrity and continuity. This ensures that while flexibility in the curriculum is encouraged, it precludes loss of academic substance and rigor. Thus students create their own degree proposals that draw upon a number of disciplines in the study of a particular problem or theme.

While the program primarily encourages creation of individually conceived curricula, it also serves to accommodate students in a variety of fields that lack an undergraduate major and are interdisciplinary in nature:

1. Pre-professional majors (e.g., pre-law, pre-med, pre-optometry, pre-physical therapy);
2. Undergraduate majors that are established only as graduate programs (e.g., astronomy, educational psychology, English as a second language, linguistics);
3. Majors that are predominantly interdisciplinary (e.g., aging, comparative literature, environmental studies, international studies, Pacific Islands studies, peace studies, women's studies); and
4. Majors that combine work in several colleges (e.g., business communications, arts administration, health and public policy, etc.).

Degree proposals must focus upon the identified academic theme, be made in writing, and be accepted by the liberal studies faculty before the student enrolls for 21 of the 36 credits required in the major equivalent.

Liberal studies students must satisfy the University degree requirements and those for the Colleges of Arts and Sciences. Students must also maintain a minimum 2.5 GPA for the major equivalent courses. These courses may not be taken CR/NC, unless mandatory. Successful candidates earn a bachelor of arts in liberal studies from the Colleges of Arts and Sciences.

There are a number of interdisciplinary programs within the University that offer undergraduate courses but do not provide a baccalaureate degree. Students electing to pursue a major in these disciplines presently do so in liberal studies.

Details about admission to the program and assistance in preparing an individually designed major are available at the program office.

Library and Information Science

College of Natural Sciences
Hamilton Library, Ground Floor
2550 McCarthy Mall
Honolulu, HI 96822
Tel: (808) 956-7321
Fax: (808) 956-5835
E-mail: slis@hawaii.edu
Web: www.hawaii.edu/slisl/

Faculty

- *P. Jacsó, PhD (Chair)—CD-ROM and online technology, computer system analysis, databases
- d. Bair-Mundy, MLIS—information systems
- *V. Harada, EdD—school library administration, information literacy
- *R. Knuth, PhD—youth service, international librarianship
- *D. Nahl, PhD—information services, information literacy

*L. N. Osborne, PhD—information systems, library automation
L. Quiroga, PhD—information retrieval, databases, library systems

Adjunct Faculty

K. Anderson, MLIS—science information resources
J. Cartwright, MLIS—archives management
R. Christiansen, MLIS—information services
L. Davis, MLIS—preservation
N. Fujii-Babb, MLS—oral narration, storytelling
R. Hensley, MLS—information services
J. Hori, MLS—Hawaiian information resources
S. Johnson, MLIS—information retrieval
M. Jackson, PhD—library administration
V. Lebbin, MLS—social sciences resources
A. Luster, PhD—library administration
K. Peacock, PhD—Pacific Islands resources
S. Roggia, MLS—collection management
M. Suzuki, MLIS—government documents
L. Wageman, MLS—Asian languages collection
D. Weingand, PhD—library administration and marketing
J. Yukawa, MLIS—information services

The Academic Program

Founded in 1965, the Library and Information Science (LIS) Program prepares professionals for work in libraries and other types of information-handling agencies. It currently offers a master's in library and information science (MLISc) and a Certificate in Advanced Library and Information Science and participates in an Interdisciplinary doctoral program in communication and information sciences. The LIS program is aware of the opportunities and the responsibilities inherent in its Pacific setting and the unique cultural amalgam of Hawai'i. Its major goals are:

1. To furnish students with the knowledge, skills, and attitudes that are basic to professional competence and career-long professional growth in the field of library and information services.
2. To expand the knowledge base of the profession through research.
3. To share its resources by extending services to the University of Hawai'i and its academic units and to the people of Hawai'i and beyond.

Graduate Study

Master's Degree

The MLISc degree program was first accredited by the American Library Association in 1967 and was reaccredited in 1974, 1980, 1986, 1996, and 2000. The curriculum is subject to continuous review and modification, and every effort is made in academic advising to ensure that students plan programs of study suited to their individual goals. Entering students are expected to be computer literate. Graduate standing is the normal prerequisite for all courses.

Degree Requirements

Students are required to take the following courses:

- LIS 601 Introduction to Reference and Information Services
- LIS 605 Basic Cataloging and Classification
- LIS 610 Introduction to Library and Information Science

In addition, they must take one of the following:

- LIS 650 Management of Libraries and Information Centers
- LIS 684 Administration of School Library Media Centers

Plan A (Thesis)

The normal requirement for the MLISc degree under the thesis option is a minimum of 42 credit hours of approved graduate study. At least 27 credits must be taken in LIS courses or a combination of LIS and approved Information and Computer Sciences courses. In addition, 3 credit hours in LIS 695 Seminar in Research in Librarianship and 6 credit hours in LIS 700 Thesis Research must be taken. No directed reading credits are allowed as part of thesis research.

General examination is not required for admission to candidacy. After completing 15 credits of course work, students are advanced to candidacy upon the recommendation of the program's graduate faculty. The oral examination is not required, but research results will be presented at a student-faculty colloquium.

Plan B (Non-thesis)

The normal requirement for the MLISc degree under the non-thesis option is a minimum of 42 credit hours of approved graduate study. At least 36 credits must be taken in LIS courses or in a combination of LIS and approved ICS courses. Up to 6 credits may be taken in other schools or colleges when the courses are relevant to the individual student's specialization and approved by the LIS program chair and the Graduate Division.

The maximum course load is 15 credit hours per term. Therefore, 42 credit hours would require at least two terms and a summer. A full load is a minimum of 8 credit hours per term. The program may be undertaken on a part-time basis but must be completed within five years (a two-year extension is allowed by the Graduate Division for a total of seven years).

Students who were in MLISc-degree programs from other ALA-accredited library programs may, in special circumstances, transfer up to 21 credit hours toward their MLISc degree at UH Mānoa, provided the work to be credited has been completed within the time limit previously cited. Such requests must be included in the application.

Comprehensive Examination

All Plan B students are required to take an oral comprehensive examination as a requirement for the MLISc degree. The examination is taken during the semester the student expects to graduate.

Distance Education

The MLISc program utilizes the Hawai'i Interactive Television System (HITS) to deliver courses to remote sites

in the state. LIS has been one of the pioneers on campus in using this innovative instructional delivery system. It currently offers approximately 35 percent of its courses through HITS; at least two courses are available through HITS each fall and spring.

Summers-Only Program

Students may select to enroll in the MLISc program exclusively during the summer sessions. There are four sessions in the summer, each three weeks long. Only one course may be taken in each three-week session. Every effort is made to ensure a balanced selection of courses during the summers. The deadline for the summers-only program is April 1 of each year. The summers-only program is not open to international students.

Dual Master's Degree Programs

Students may pursue the MLISc degree and a second master's concurrently, cooperating with the following departments and fields of study: information and computer sciences (MS), history (MA), Pacific Islands studies (MA), American studies (MA), Asian studies (MA), and law (JD). For more information on these programs, contact the LIS program chair or the other respective departments.

Doctoral Degree

Interdisciplinary Doctoral Degree Program

LIS participates in an interdisciplinary PhD program in communication and information sciences (CIS) integrating computer science, communication, library science, and management information systems. Because of the broad knowledge base required to support the interdisciplinary approach, the program also draws on political science, economics, engineering, operations research, and behavioral sciences. This unique program is sponsored by four academic faculties: communication, decision sciences, information and computer sciences, and library and information science.

For information on admission and requirements, refer to the "Communication and Information Sciences" section within the Colleges of Arts and Sciences.

School Library Media Specialist Certification

The LIS program recommends graduates to the Hawai'i Department of Education for certification as school library media specialists. To be eligible, graduates must meet the MLISc degree program requirements and the course requirements approved for certification by the Hawai'i Department of Education. The National Association of State Directors of Teacher Education and Certification (NASDTEC) Standards for Advanced Programs are used in conducting periodic reviews of the program.

A student who enters the LIS program to earn this certification must have completed a state-approved teacher education program. For more specific and current information on prerequisites and required as well as recommended LIS courses, contact the LIS program chair.

Certificate Program

The Certificate in Advanced Library and Information Science (CALIS) offers two options. Option A is available for those who complete a successful, coherent program of specialized study and research beyond the MLISc degree. The program allows for specialization 1) applying computer and information technologies to information environments and 2) extending information management skills in information system design, evaluation, and the development of user services.

Option B focuses on school librarianship. It allows for specialization in 1) applying computer and information science technologies in elementary and secondary school libraries, and 2) extending curriculum planning skills in information literacy and general literacy instruction.

For both options, students must complete a research paper that meets the approval of the CALIS Committee and give an oral presentation of their research to students and faculty. Students are expected to remain enrolled each semester until the requirements are completed. If it is necessary to withdraw temporarily, students must reapply for admission within application deadlines before returning. Credits more than five years old cannot be applied to the certificate requirements; thus, the program must be completed in five years. For more specific information on prerequisite and elective courses, contact the LIS program chair.

Linguistics

College of Languages, Linguistics and Literature
Moore 569
1890 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8602
Fax: (808) 956-9166
E-mail: linguist@hawaii.edu
Web: www2.hawaii.edu/ling

Faculty

- *W. O'Grady, PhD (Chair)—syntax, language acquisition, Korean
- V. A. Anderson, PhD—phonetics, phonetics-phonology interface, computer speech technology
- *B. K. Bergen, PhD—cognitive linguistics; computational linguistics; psycholinguistics; sound symbolism
- *R. A. Blust, PhD—historical linguistics; Austronesian linguistics and culture history; field methods
- *P. J. Donegan, PhD—natural phonology, vowel systems, acquisition; typology; computerized lexicography; Munda
- *M. L. Forman, PhD—general linguistics, ethnographic linguistics, Philippine studies
- *P. A. Lee, PhD—linguistic theory, formal linguistics, syntax and semantics, pragmatics
- *P. G. Lee, PhD—theoretical linguistics, phonology, syntax, computer applications
- Y. Otsuka, DPhil—syntax; Tongan
- *A. M. Peters, PhD—children's speech; neurolinguistics; psycholinguistics

- *K. L. Rehg, PhD—phonology, Micronesian linguistics
 *A. J. Schafer, PhD—sentence comprehension and production; sentence prosody; psycholinguistics
 *D. Stampe, PhD—computational linguistics; phonology and prosody; holistic typology and drift; Munda languages
 *S. Starosta, PhD—syntactic theory; Asian and Pacific languages
 K. Ud Deen, PhD—language acquisition, Bantu

Cooperating Graduate Faculty

- D. E. Ashworth, PhD—language learning and teaching, Japanese linguistics
 J. M. Bilmes, PhD—sociolinguistics, discourse analysis, ethnosemantics, Tai linguistics
 *R. Bley-Vroman, PhD—English syntax, language acquisition
 J. D. Brown, PhD—language learning and teaching, language testing
 C. J. Chaudron, PhD—applied psycholinguistics, discourse analysis
 *R. L. Cheng, PhD—Chinese linguistics, Japanese linguistics
 H. M. Cook, PhD—Japanese linguistics, sociolinguistics, discourse analysis and pragmatics
 R. Day, PhD—language learning and teaching, discourse analysis, language planning
 E. Drechsel, PhD—ethnolinguistics; American Indian languages
 J. D. Ellsworth, PhD—classical linguistics, Indo-European linguistics
 *J. Haig, PhD—Japanese linguistics
 E. Hawkins, PhD—language learning and teaching, Polynesian linguistics
 H. I. Hsieh, PhD—Chinese linguistics, semantics, pragmatics, mathematical linguistics
 G. Kasper, PhD—second-language curriculum, discourse analysis, interlanguage pragmatics
 Y. C. Li, PhD—Chinese linguistics, semantics, language learning and teaching
 M. Long, PhD—second-language acquisition, language teaching
 R. A. Moody, PhD—language learning and teaching, Spanish and Portuguese
 T. V. Ramos, PhD—Philippine linguistics
 K. A. Reynolds, PhD—classical Japanese, history of the Japanese language, Japanese sociolinguistics
 R. Schmidt, PhD—psycholinguistics, sociolinguistics, language learning and teaching
 L. Serafim, PhD—Japanese linguistics; Japanese language history, dialectology, and Ryukyuan languages
 R. N. Sharma, PhD—Indo-Aryan linguistics, Hindi, Sanskrit
 *H. M. Sohn, PhD—Korean linguistics
 *A. V. Vovin, PhD—history of the Japanese and Korean languages, comparative Altaic linguistics, the Ainu language
 J. Ward, PhD—Polynesian linguistics, Tahitian, Balinese

Affiliate Graduate Faculty

- S. P. Harrison, PhD—Oceanic linguistics

Adjunct Faculty

- K. Cook, PhD—cognitive and relational grammar; Polynesian languages, especially Samoan
 M. Meyerhuff, PhD—sociolinguistics, creoles

Degrees Offered: BA in liberal studies (linguistics), MA in linguistics, PhD in linguistics

The Academic Program

Linguistics (LING), also called linguistic science or the science of language, is the study of how language works—of how it is acquired, how it is used, how it is represented in the brain, how it changes over time and so on. Major subfields are phonetics, phonology, morphology, syntax, semantics, discourse analysis, pragmatics, historical linguistics, sociolinguistics, psycholinguistics (including developmental psycholinguistics), neurolinguistics, mathematical and computational linguistics and ethnographic linguistics.

Linguistics is relevant to many endeavors, including language planning, language teaching, speech synthesis and recognition, treatment of language disorders, repair of communication breakdowns, and information technology. Our program presents unique opportunities for the study of Austronesian (Malayo-Polynesian) linguistics and for access to speakers of Pacific and Asian languages. It also has special strengths in language acquisition, psycholinguistics and sociolinguistics, among other areas.

The program is recognized as one of the top 25 in the United States.

Advising

All faculty in the department participate in the advising of students majoring in linguistics. Undergraduates majoring in linguistics under liberal studies are advised initially by the department chair. Graduate majors are advised by the chair of the graduate field of study. Students are later assigned to other faculty members as advisers according to their special interests.

Undergraduate Study

Bachelor's Degree

Students may major in linguistics for the BA degree at the University through the Liberal Studies Program. In this program, students create for themselves a major equivalent with the guidance of a faculty adviser. The major equivalent may combine the study of linguistics with that of one or more foreign languages or with related disciplines, such as anthropology or psychology. Students majoring in linguistics in this way may include some or all of the MA core of courses in their BA programs and are thus able to do more advanced work in their later MA program.

Graduate Study

The faculty represents a variety of theoretical viewpoints. The various faculty members are especially qualified to direct research on languages of the Pacific and parts of Asia. Fields of special competence include descriptive and comparative

linguistics, general linguistic theory, language contact and variation, ethnolinguistics, language development, experimental phonetics, psycholinguistics, and cognitive linguistics.

Although the Department of Linguistics is primarily a graduate department and is thus focused mainly on research, it recognizes that many graduates will eventually seek teaching positions and would be more likely to obtain one if they can provide evidence of teaching experience in linguistics or a language-related field.

Accordingly, the department requires each student enrolled in either the MA or PhD program, in addition to the 30 and 33 credits required, respectively, for the completion of those degrees, to have at least 1 credit of LING 699 (Directed Research) or 799 (Apprenticeship in Teaching Linguistics) that involves teaching a linguistics or language-related course (such as a foreign language course) under the supervision of a faculty member either at the University or, by special arrangement, at another institution.

Students may be excused from this requirement if they have already had an equivalent teaching experience before coming into the program. In addition, the chair of the graduate field of study may waive this requirement if it is determined that the student was unable to obtain an appropriate teaching appointment through no fault of his or her own and that no suitable alternative was available.

Students admitted to graduate programs in linguistics normally have a background in at least one foreign language. Some background in mathematics or one of the sciences may also be useful. Students without a course equivalent to LING 320 are required to take this course to make up for this deficiency in their preparation for graduate work.

The GRE General Test is required of all applicants.

The MA program provides a basic introduction to the subject matter and skills of the discipline. The PhD program provides full professional training for careers in research and teaching. Employment opportunities for graduates of both programs today often require additional knowledge of one or more related disciplines. Students are, therefore, encouraged to broaden their training in linguistics by including work in other disciplines. Such programs, and those that include many of the specializations previously listed, will involve the inclusion of faculty members from other fields of study on students' program committees. Students should make known their interests to the chair as early as possible so that appropriate advisers can be chosen to direct students to courses, and any key prerequisite courses, that will help them explore their interests further. It is also possible for students to include concentrations in linguistics in their programs for the MA degree in Asian studies or Pacific Islands studies.

The courses listed below are offered to guide students in their preparation for the various examinations, although individual study must be done in areas not covered by course offerings. Linguistics courses bearing 700-level numbers are seminars, and various sections of these seminars are typically offered in a given semester, depending on the interests of the resident faculty and students. Each semester there are normally a number of seminars dealing with geographical areas, particu-

lar language families, the structures of individual languages, and particular theoretical problems. A major portion of the work done beyond the MA level is in seminars and in directed research.

Master's Degree

Requirements

Students must complete LING 410, 420, 421, 422, 615, 645 (or their equivalents), and at least one 700-level seminar.

The department offers the MA Plan A, Plan B, and Plan C programs. In addition to the University-wide residence requirement of a minimum of two semesters of full-time work, all three programs require that students demonstrate competence in one language other than their native language.

Plan A requires a thesis (12 credit hours) and a minimum of 18 credit hours of course work. A final oral examination covering the thesis and related areas is also required.

Plan B requires a minimum of 30 credit hours and a final seminar presentation near the end of the course work. The topic and format of the seminar must be approved in advance by the graduate chair.

Plan C requires a final examination with both written and oral portions. Plan C is open to selected students with some previous work in linguistics who show both high potential for scholarly development and the motivation and discipline necessary for an independent course of study. A committee of faculty is appointed for each prospective student for Plan C. The committee administers a general examination during the student's first semester of study to determine the appropriateness of Plan C, advises the student in developing a program of study, and administers the final examination.

Doctoral Degree

Requirements

Students in the PhD program are required to complete a minimum of 33 credit hours of course and seminar work at the University of Hawai'i (exclusive of LING 800) beyond those counted toward their MA degrees (or, for students not holding an MA, beyond those specified for the MA as above). Courses in field methods (LING 630), phonology (LING 621), and grammar (LING 622) are required of all PhD students.

PhD students must pass a preliminary examination, a comprehensive examination, and a final oral examination in defense of the dissertation. The preliminary examination is normally taken at a point soon after the completion of the core of courses required for the MA. It consists of two parts, the first of which is a written examination. Students are encouraged to form their PhD program committees in consultation with the graduate chair as soon as possible after they have completed this part. The second part of the PhD preliminary examination is fulfilled by having a paper written by the student accepted for dissemination in the departmental Working Papers series or published in an acceptable form elsewhere. Both parts of the preliminary examination are waived for those students receiving the MA under Plan A who also have their theses accepted for publication in an outlet agreed to beforehand by

the linguistics faculty. Students hoping to have their theses published under this latter provision are required, before submitting their theses for publication, to identify the publication outlet (or sequence of outlets) to which they plan to submit their theses and, for each outlet, to provide as much background information as possible, including the names of the editorial board, stated review policies, a list of recently published titles, and other relevant bibliographic information. The faculty will review the proposed outlets and indicate which, if any, it finds acceptable.

Students must pass a written preliminary examination in four areas: general linguistics, phonology, grammar, and historical linguistics. This examination is offered once each semester, in August and January. Candidates must register for it in advance; check with the departmental office for relevant deadlines.

The first time that students take the prelims, they must do all four areas. The grades from all areas are averaged to give the overall grade for the examination.

For the purpose of calculating scores, the ‘problem’ portions of the phonology, grammar and historical exams are considered to be separate sections. Thus, the entire preliminary examination normally consists of seven sections: general linguistics, historical linguistics (essay), historical linguistics (problem), grammar (essay), grammar (problem), phonology (essay), and phonology (problem). (On occasion, the general linguistics exam may also consist of two sections.)

Students who do not pass the exam may retake any or all sections, subject to the condition below. (Thus, it is possible to retake just the essay section of the grammar exam or just the problem section of the phonology exam, for example. Or the entire exam could be retaken.) After each examination, the best scores on each section (including scores from previous exams) are averaged to determine the overall score.

The following policy applies to all students who enter the PhD program after May 1998: Students who wish to be considered for admission to the PhD program or who are already in the PhD program must take the preliminary examination at the first opportunity after having completed the relevant courses. A student who does not receive an overall grade of ‘Pass’ on the first attempt will be allowed to retake all or any parts of the exam in each of the next two semesters. If s/he has still not received an overall grade of ‘Pass’ at the end of that period, s/he must petition the Graduate Chair for permission for each subsequent retake. The Graduate Chair will call for comments from the faculty before making a decision.

The time period for passing the exam will be extended for students on official Leave of Absence (as defined by the Graduate Division) provided that the leave is justified for independent reasons (e.g., medical problems, family crisis, etc.)

Students must also demonstrate competence in two languages other than their native language. One of the languages must be in the “research tool” category.

A “research-tool language” should be one of the major languages of the world in which there is ample published material on linguistic topics: Chinese, English, French, German, Japanese, Russian, or Spanish. Students should

demonstrate their ability to read linguistic materials in one of these languages. They will be expected to take the usual reading/translation test in the chosen language. (Foreign students may use English if it is not their native language, and they will be considered as having satisfied this requirement when the English Language Institute certifies them as exempt from taking any further ELI courses.)

If a student can demonstrate that another language would be an appropriate language as his or her research-tool, that language may be approved by the chair of the graduate field as a “research-tool language” for that student. For example, Dutch may be an appropriate “research tool language” for a student who is working with Dutch materials dealing with the languages of Indonesia.

The other language may be any language, including any of the designated research languages. It may also be American Sign Language or any other language for which a qualified examiner can be found in Hawai‘i. The additional language is required of doctoral candidates in linguistics to encourage some increased breadth of language background beyond that provided by the research-tool requirement and as such does not include the same reading/translation requirement. Accordingly, students may satisfy the second language requirement by demonstrating a certain degree of speaking proficiency and knowledge of the structure of the language. Passing a fourth semester foreign language course (e.g., Japanese 202) with a grade of B or better will be deemed sufficient to satisfy this requirement. Alternatively, students may take a placement test to demonstrate that they have the equivalent of four semesters of the language.

Students are admitted to candidacy after demonstrating competence in both languages and performing successfully on the comprehensive examination.

The comprehensive examination is both written and oral. Students are expected to demonstrate expertise in three areas of specialization chosen from among the following: phonological theory, syntactic theory, phonetics, semantics, morphology, language in its social and cultural context, pragmatics, psycholinguistics, neurolinguistics, discourse analysis, computational linguistics, language acquisition, language learning and teaching, language planning, multilingualism, pidgin and creole studies, translation, typology and universals, lexicography, or the linguistics of any of the following areal or genetic groupings: Austroasiatic, Austronesian, Chinese, English, Indo-European, Japanese, Korean, Sino-Tibetan, or Tai. Related disciplines may also be designated as areas of specialization. These particulars are determined when a student’s doctoral committee is formed, after the preliminary examination has been passed.

To gain approval of dissertation topics, students are expected to develop detailed written proposals and defend them successfully in oral examinations conducted by their committees. In addition to traditional dissertation topics of a theoretical, descriptive, or historical nature, the faculty is open to topics in applied linguistics, when it can be demonstrated that the project will add to the knowledge of language, broadly conceived. Research may include studies of language use in education, law, or other institutions of society; social and

cultural influences on language acquisition and use; bilingualism, multilingualism, foreign accent, and translation; the interrelations of language and literacy; etc. Although many such topics can also be treated within disciplines such as anthropology, psychology, literature, and pedagogy, when presented for the PhD in linguistics they are expected to have a linguistic perspective and to make a distinctive linguistic contribution. The decision as to whether such expectations are met is here, as elsewhere, made by the student's dissertation committee. Committees for applied topics will include members drawn from the faculties of closely related and cooperating fields of study such as Asian languages and literatures, English, English as a second language, and Languages and Literatures of Europe and the Americas. Students wishing to explore such areas are encouraged to include relevant courses beyond those required for the MA as electives early in their program.

Mathematics

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Web: www.math.hawaii.edu

Faculty

*C. Allday, PhD(Chair)—algebraic topology, transform group
*E. Bertram, PhD—group theory and combinatorics
*D. Bleecker, PhD—differential geometry
*R. Brown, PhD—algebra and number theory
*T. Craven, PhD—commutative algebra
*G. Csordas, PhD—complex function theory
*K. Dovermann, PhD—algebraic topology
*R. Freese, PhD—lattice theory, general algebra
*M. Gotay, PhD—mathematical physics, symplectic geometry
E. Guentner, PhD—geometrical functional analysis
*H. Hilden, PhD—geometric topology
*G. Hile, PhD—partial differential equations
*T. Hoover, PhD—operator theory
*W. Lampe, PhD—universal algebra
*R. Little, PhD—algebraic topology
*A. Mader, PhD—group theory
*D. Myers, PhD—mathematical logic
*J. Nation, PhD—lattice theory
*M. Ortel, PhD—complex function theory
*L. Ramsey, PhD—harmonic analysis
*K. Rogers, PhD—number theory
*D. Ross, PhD—logic, probability
J. Siu, MA—mathematics education
*W. Smith, PhD—analysis, function theory
*D. Stegenga, PhD—analysis
*J. Weiner, PhD—differential geometry

*G. Wilkens, PhD—differential geometry, control theory

*L. Wilson, PhD—singularity theory

Degrees Offered: BA in mathematics, BS in mathematics, MA in mathematics, PhD in mathematics

The Academic Program

The mathematics (MATH) program offers preparation in the full spectrum of mathematical sciences, including algebra, geometry, differential equations, real and complex analysis, logic, number theory, and probability and statistics, as well as various topics in applied mathematics. Mathematics majors begin with the study of calculus and linear algebra. After completion of these fundamental courses, students may choose to specialize. The department advises each prospective major on requirements and course options to meet his or her needs and interests. Departmental advisers are also available every day to all students.

Depending upon individual interest, students of mathematics may pursue careers in a variety of fields such as teaching, computer science, operations research, statistics, business, and economics. In addition, students who continue on to the graduate program may choose to become professors and/or research mathematicians. The faculty has the competence and resources required to provide the basic mathematical preparation required for any of these professions.

A goal of all non-survey mathematics courses is the development of precision of thought and expression. This receives special emphasis in the many writing-intensive courses the department offers.

Undergraduate Study

BA Degree

Requirements

Students must complete 21 credit hours in mathematics courses numbered above 300, including:

- Math 321
- 3 credit hours in a writing-intensive mathematics course
- 6 credit hours in a sustained two-course sequence approved by the department
- Only courses in which a student earns a grade of C or better will be counted toward fulfillment of major requirements
- A cumulative 2.0 GPA in all completed upper division mathematics courses is required
- All mathematics majors are required to see a mathematics adviser each spring semester prior to fall registration

BS Degree

Requirements

Students must complete 24 credit hours in mathematics courses numbered above 300 and 15 credit hours in additional upper division mathematics courses or appropriate non-introductory courses in the natural or information sciences, including:

- Math 321
- 6 credit hours in writing-intensive mathematics courses
- 6 credit hours in a sustained two-course sequence approved by the department
- Only courses in which a student earns a grade of C or better will be counted toward fulfillment of major requirements
- A cumulative 2.0 GPA in all completed upper division mathematics courses is required
- All mathematics majors are required to see a mathematics adviser each spring semester prior to fall registration

Students must also demonstrate the ability to program scientific problems on a computer.

Minor

Requirements

Students must complete MATH 243 plus 12 credit hours in mathematics courses numbered above 300, including:

- 3 credit hours in a writing-intensive mathematics course
- 6 credit hours in courses numbered above 400

Graduate Study

Prospective graduate students are expected to have adequate undergraduate preparation in linear algebra, advanced calculus, and abstract algebra. Applicants must submit to the department their scores for the GRE General Test; applicants for the graduate assistant positions are strongly encouraged to submit scores for the subject test in mathematics as well. The department requires a score of at least 650 on the quantitative section of the GRE General Test for admittance as a regular student. The department requires a general examination of all incoming graduate students for course placement purposes. This diagnostic examination consists of two parts, algebra and analysis, and is designed to evaluate the student's command of undergraduate mathematics in the areas of linear algebra, advanced calculus, and abstract algebra.

Master's Degree

Requirements

The department does not have a thesis option (Plan A) for the MA, and most students will select Plan B. Plan B requires 30 credit hours of course work. Each Master's candidate must form a two member committee and pass an oral examination on a topic chosen by the student and committee. An exceptional student may be admitted to Plan C at the discretion of the graduate chair.

Doctoral Degree

Requirements

For the PhD degree, the department requires that the student show proficiency in two of the following languages: French, German, Russian, or a computer language. Teaching experience is required of all PhD students. To be admitted to PhD candidacy, the student must satisfy the language

requirements and pass three written examinations: (a) linear algebra and abstract algebra; (b) real analysis and the basic facts of complex analysis and general topology; and (c) a third field chosen by the student with the approval of the graduate chair. All new students in the PhD program shall complete a minimum of five mathematics department courses numbered between 600 and 690, other than 611, 612, 621, 631, 632, 644, 645, 649. These five courses may be taken under the CR/NC option. Exceptions: Up to two 3-credit 649 (alpha) seminars (meeting three hours/week) may be substituted for (up to) two of these required five courses, with the written approval of the graduate chair. Also, with the written approval of the graduate chair, credit may be given for equivalent courses taken in another mathematics department or for graduate-level courses taken in another department that are recommended by the student's thesis adviser and directly related to the dissertation topic; such credit for graduate courses taken in another department is limited to a total of no more than two courses.

Microbiology

College of Natural Sciences

Snyder 207

2538 McCarthy Mall

Honolulu, HI 96822

Tel: (808) 956-8553

Fax: (808) 956-5339

Faculty

*P. Q. Patek, PhD (Chair)—cellular immunology

*M. Alam, PhD—microbial physiology and biotechnology

*R. D. Allen, PhD—ultrastructure and cell biology

*J. T. Douglas, PhD—medical microbiology and infectious diseases

*P. C. Loh, PhD—animal virology and animal cell culture

*P. Q. Patek, PhD—cellular immunology

*F. M. Robert, PhD—microbial ecology and bioremediation

Cooperating Graduate Faculty

D. Borthakur, PhD—molecular genetics of nitrogen fixation

S. P. Chang, PhD—immunology, molecular biology, molecular approaches to vaccine development

A. K. Fok, PhD—cell biology

R. S. Fujioka, PhD—environmental microbiology

Y. Lu, PhD—molecular virology

F. D. Miller, PhD—epidemiology

V. R. Nerurkar, PhD—infectious diseases

J. C. Radway, PhD—applied microbial physiology

E. G. Ruby, PhD—molecular microbial physiology

Degrees Offered: BA in microbiology, BS in microbiology, MS in microbiology, PhD in microbiology

The Academic Program

Microbiology (MICR) deals with microscopic forms of life and their activities. Bacteria, algae, fungi, protozoa, and viruses are included in this discipline. The field is diverse and concerns

* Graduate Faculty

the nature of microorganisms, as well as their interactions—both advantageous and adverse—with other organisms and with the environment. Entire academic disciplines and commercial enterprises are based on what microorganisms do. For example, the very forms that may cause infectious diseases and epidemics may also support industries that produce vaccines or antimicrobial agents. Microorganisms play an essential role in the cycling of the limited supply of nutrients available on Earth's surface by decomposing plant residues and animal remains and by being primary producers of food in the oceans. Many microorganisms or their products may be eaten, drunk, used as fuel, or carefully disposed of as undesirable. They may be used to clean up the environment or controlled only with great effort to prevent corrosive, obnoxious, or destructive activities that they may bring about. Microbiology also deals with the physiology, biochemistry, genetics, and molecular biology of microorganisms. Many of the advances in DNA technology are mediated through bacteria, yeasts, and viruses; much of what we know about metabolism in general comes from their study.

Advising

Students can contact the department's main office at (808) 956-8553 for information regarding advising services.

Undergraduate Study

BA Degree

Requirements

Students must complete the following:

- 18 credit hours in microbiology, including required courses:
 - MICR 351 and MICR 351L
 - Three courses from MICR 431, 451, 461, 463, 475, 485, and 490, plus two associated laboratories
- The following required related courses:
 - BIOL 171, 172, 275 plus labs
 - CHEM 161/161L and 162/162L; or CHEM 171/171L
 - CHEM 272/272L and 273
 - MATH 215 or MATH 241
 - PHYS 151/151L, 152/152L; or PHYS 170/170L, 272/272L
- 9 credits of approved major electives

BS Degree

Requirements

Students must complete the following:

- 23 credit hours in microbiology, including required courses:
 - MICR 351, MICR 351L, 431, 461, 475; and
 - One course from MICR 451, 463, 485, or 490, plus three associated lab courses

- The following required related courses:
 - BIOL 171, 172, 275 plus labs
 - BIOC 441, BIOL/PEPS 402 or BIOL/CMB 405
 - CHEM 161/161L and 162/162L, or CHEM 171/171L or 181/181L
 - CHEM 272/272L and 273
 - MATH 215 and 216 or MATH 241 and 242/242L
 - PHYS 151/151L, 152/152L; or PHYS 170/170L, 272/272L
- 6 credit hours of approved major electives

Major electives should be chosen with the assistance and approval of a department adviser to provide a well integrated and coherent program. Prospective majors should consult the microbiology advisers promptly, so as to design a curriculum that satisfies the major requirements.

Minor

Requirements

Students must complete 15 credits, including MICR 351 and microbiology courses at the 400 level.

All prerequisites for these courses must be met. Persons wishing to complete the minor and graduate in four years should have completed CHEM 272, if possible, before the middle of the junior year.

Graduate Study

The department offers programs leading to the MS and PhD in microbiology with areas of specialization in microbial ecology, biochemistry, physiology, genetics, and ultrastructure; metabolic regulation and the regulation of gene expression; medical microbiology; animal and environmental virology and viral pathobiology; and immunology, immunogenetics, and immunochemistry. In addition, an option is offered in cell biology that leads to the MS and PhD in microbiology. Research programs in interdisciplinary fields are possible.

Applicants for advanced degree programs in the department must supplement the forms and transcripts required by the Graduate Division with three letters of recommendation and the official scores from the GRE General Test and the subject test in biology. These supplementary items should be sent directly to the department.

Complete details on the graduate program in microbiology and the availability of financial aid to prospective students are outlined in a departmental brochure available on request from the department, Snyder 207, 2538 McCarthy Mall.

Courses for the graduate programs are to be selected from the list below and from other graduate offerings in related disciplines as directed by the student's adviser or advising committee. The following courses may be repeated: MICR 625, 632, 661, 671, 680, 681, 690, 699, 700, 795, and 800. However, repeated courses other than MICR 690, 699, 700, 795, and 800 may only be used for credit once per degree. MICR 690 is a required course.

Required courses for the cell biology emphasis (MS) are MICR 461, 641, 690, and 699, plus courses in biochemistry and biophysics.

Potential degree candidates are required to take a diagnostic exam (MS) or a qualifying exam (PhD). Course deficiencies shall be made up before admission to candidacy.

Master's Degree

Intended candidates for the MS degree should present a minimum undergraduate preparation in biological and physical sciences including biology, genetics, microbiology, organic chemistry, physics, and calculus. Deficiencies in some of these areas do not preclude admission. Qualified students with undergraduate majors in fields other than microbiology are welcome.

Requirements

The prospective MS candidate may select either Plan A (thesis) or Plan B (non-thesis).

Plan A Minimum Requirements - 30 credit hours

- 2 units of directed research (MICR 699);
- 1 credit of seminar (MICR 690);
- 6 credit hours of thesis (MICR 700);
- an additional 12 credit hours of coursework at the 600 level or higher; plus
- 9 credit hours at the 400 level or higher

Plan B Minimum Requirements - 30 credit hours

- 1 credit of seminar (MICR 690);
- 6 credit hours of directed research (MICR 699),
- an additional 17 credit hours of coursework at the 600 level or higher; plus
- 6 credit hours outside the major.

For more a more detailed explanation, refer to the departmental bulletin.

Doctoral Degree

The doctoral degree (PhD) is offered in microbiology in the various areas of interest represented by research programs of the department's graduate faculty. In addition, the doctorate may be obtained jointly through microbiology and the cell, molecular, and neurosciences (CMNS) program or the marine biology (graduate) program.

Intended candidates for the PhD degree are expected to possess the MS degree in microbiology or to be able to pass at least four sections of the MS comprehensive examination.

Requirements

The PhD candidate must demonstrate the ability to do original experimental research and to produce an acceptable dissertation. A comprehensive examination, written and oral, is required, and the dissertation must be successfully defended before the faculty. At least one year of experience in teaching in

a laboratory course is considered part of the training of the PhD candidate. The specific requirements for each of the joint degree programs are modified somewhat from those given above.

Music

College of Arts and Humanities
 Music 3
 2411 Dole Street
 Honolulu, HI 96822
 Tel: (808) 956-7756
 Fax: (808) 956-9657
 Web: www.hawaii.edu/uhtmmusic

Faculty

- *L. Wright, PhD (Chair)—musicology
- *T. Bingham, MA—music education
- *E. D. Bomberger, PhD—musicology
- *A. Harvey, DMA—music education
- *K. Kennedy, DMA—choral music
- *E. T. Kudo, DMA—composition
- *F. Lau, DMA—ethnomusicology
- *B. W. Lee, PhD—ethnomusicology
- *I. B. Lin, DM—strings performance
- *B. P. McLain, PhD—music education
- *H. Miyamura, MA—woodwind performance
- *R. Morgan, MM—piano performance
- *J. Moulin, PhD—ethnomusicology
- *J. Mount, MM—voice performance
- *G. Okamura, MA—music education
- *L. Paxton, MM—voice performance
- *R. D. Trimillos, PhD—ethnomusicology
- *D. Womack, DMA—composition
- *B. Yasui, DMA—composition

Degrees Offered: BA in music, BEd in elementary education (music), BEd in secondary education (music), BMus, MA in music, MMus, PhD in music

The Academic Program

The music (MUS) department offers the Bachelor of Arts in music, bachelor of music, master of arts in music, master of music, and doctor of philosophy in music. In conjunction with the College of Education, the department offers the bachelor of education in elementary education (music) and the bachelor of education in secondary education (music). Information about each of these programs may be found in the *Music Department Graduate Booklet* or *Music Department Undergraduate Bulletin*, available in the department office.

The department is housed in a complex of buildings, including studios, practice and rehearsal facilities, and the Mae Zenke Orvis Auditorium, noted for its fine acoustics. In addition to many offerings in Western classical, vocal, and instrumental music, the department specializes in non-Western music, notably the musics of Asia and the Pacific.

Accreditation

The bachelor's, master's, and PhD programs are fully accredited by the National Association of Schools of Music (NASM).

Advising

Students interested in majoring in music, minoring in music, or participating in various ensembles may obtain information at the department office and arrange to see a music adviser.

Undergraduate Study

Bachelor degree concentrations include performance and composition, music education, and general music studies.

For specific course requirements, see the *Music Department Undergraduate Bulletin*, available from the department office. All prospective majors and new and transfer students should consult the undergraduate chair when making plans to enter the University.

BA Degree**Requirements**

Major requirements include approximately 41 credit hours in various music courses. Bachelor of Arts majors may work with an adviser to emphasize general music, theory, Hawaiian music, musical theater, and musicology.

BMus Degree**Requirements**

BMus candidates must complete approximately 80 credit hours and major in composition or performance (guitar, piano, voice, and selected orchestral instruments).

BEd Degree

Prospective music education majors should see the chair of the music education committee in the Department of Music for information and requirements. This degree program is offered in elementary and secondary education in conjunction with the College of Education.

Minor**Requirements**

Students can pursue an interest in music while continuing their chosen major. The minor program requires a minimum of 15 credit hours in three of four areas in music: theory, performance, ethnomusicology, and history. For further information, contact the music department office.

Graduate Study**Master's Degree**

The department offers programs leading to the MA in music with concentrations in ethnomusicology, music education, musicology, and theory and to the MMus with concen-

trations in composition and performance (voice, piano, and selected instruments).

Admission Requirements

Applicants for admission to the master's degree program must have an undergraduate degree with a major in music or a bachelor's degree and evidence of an equivalent musical background; three letters of recommendation; and, for non-native speakers of English, a TOEFL score of 500 minimum for performance or 540 for other concentrations. Two copies of all transcripts should be sent with the application. In the following concentrations, these additional requirements must be met:

1. Ethnomusicology—Background in cultural anthropology is desirable and, depending on the thesis research, may be required.
2. Music Education—Minimum of one year of full-time music teaching experience in a public or private school.
3. Composition—Three original scores representative of various forms and media.
4. Performance—An audition of works representative of various musical styles. An applicant not residing in Hawai'i must submit an unedited tape recording comparable in scope and length to an in-person audition and, if admitted, will audition before the department admissions faculty before registering for the first semester of residency to ascertain appropriate placement in the curriculum sequence. A recent University of Hawai'i at Mānoa graduate may be admitted without a hearing if the BMus senior recital is considered to be of high enough quality by the majority of the department admissions faculty.
5. Musicology—Sample of academic writing proficiency (a 10-page term paper in English from an upper division music history course is preferred).
6. Theory—Sample of academic writing proficiency (e.g., undergraduate term paper).

An applicant must declare a specific concentration within the MA or MMus; admission, if granted, is for that concentration only. If a student later wishes to change to another concentration, the student must petition the graduate faculty in music for approval.

More detailed information on all degree programs is contained in the *Music Department Graduate Booklet*, available on request from the department office, 2411 Dole Street, Honolulu, HI 96822.

Prior to enrolling for the first semester of study, each classified graduate student will take a diagnostic examination in music history (part I) and theory (part II). Students in ethnomusicology and performance are also tested in their area of concentration (part III). The content of the diagnostic examination consists of material normally included in the work required for a bachelor's degree. The purpose of this examination is twofold: (a) to assess the student's background and determine if there are deficiencies that should be remedied and (b) to assist the adviser and the student in planning a program of study. Detailed information about the examination is available on request.

Before being admitted to candidacy for a degree, each graduate student must pass the department's general examination, which consists of three parts: music history, theory, and the student's area of concentration. Successful performance on specific parts of the diagnostic examination exempts the student from the equivalent parts of the general examination. Parts I and II of the general examination must be taken prior to enrolling for the second semester of study. All parts of the general examination must be passed before the student earns 18 credit hours toward the degree. Credits earned in excess of this limit will not be counted if they are earned before all three parts of the general examination are passed. When any part of the general examination is not passed, the student must take that part again the next time it is offered. If the examination is not taken, a failure will be reported; students failing the examination a second time will be dropped from the program. Any exceptions to these procedures must receive prior approval by petition to the graduate faculty.

When all portions of the general examination have been passed, the student will be advanced to candidacy.

Some concentrations require language competence:

1. Ethnomusicology—A reading or speaking knowledge of a foreign language relevant to the thesis research (or equivalent competence in linguistics).
2. Musicology—A reading knowledge of French or German.
3. Theory—A reading knowledge of French, German, or Latin.
4. Music Education—Language appropriate to the area of research or research statistics.

Degree Requirements

Plan A requires a minimum of 30 credit hours, 22 in course work and 8 of thesis, and is taken by candidates concentrating in ethnomusicology, music education, musicology, theory, and composition. (Candidates in music education may choose either Plan A or Plan B, described below.) An ethnomusicology thesis is usually based on fieldwork. Composition students must compose an original work in one of the larger forms, plus write a detailed essay on the background and problems involved or a detailed theoretical analysis of the work.

Plan B also requires a minimum of 30 credit hours but does not include a thesis. This plan is taken by candidates in performance and is an option for candidates in music education.

Plan B students in music education will be required to fulfill the following requirements:

1. A comprehensive three-hour examination, exhibiting strength in written expression and a grasp of the essentials of the broad field of music education; and
2. A project or paper about some specific aspect of music education whose size and scope will be determined by the student and the faculty member directing the project.

Under Plan A, the oral final examination is arranged by the student in consultation with the thesis committee, usually during the semester in which all course work has been completed and after the student has completed the thesis document. Copies of the document must be presented to the committee at least two weeks prior to the examination. At the

examination, the student's knowledge and understanding of the field of concentration are examined with emphasis on the content of the thesis.

Candidates concentrating in performance are required to give a public recital. Additionally, in the recital semester and before the recital date, the student will meet with the recital committee for a one-hour oral examination to discuss historical and analytical aspects of the works to be performed in the graduate recital.

Doctoral Program

The department offers programs leading to the PhD in music with concentrations in composition, music education, ethnomusicology, and musicology.

Admission Requirements

Applicants for admission to the PhD program must present a master's degree in music (in the area of emphasis) or equivalent, an excellent academic record (two copies of all college transcripts), three confidential letters of recommendation on forms provided by the music department, a sample of academic writing proficiency such as recent term papers, a GRE General Test score, and, for non-native speakers of English, a TOEFL score of 560 or better. Application forms are available at the music department or the Graduate Division. The completed forms should be submitted with two copies of all transcripts by February 1 for the following fall semester and by September 1 for the following spring semester.

In the following concentrations, these additional requirements must be met:

1. Composition—A master's degree in composition or the equivalent in terms of course work and original composition; a score of one large-scale work; scores of two shorter works; and a tape of at least one of the above.
2. Ethnomusicology—A major research paper in ethnomusicology as evidence of extensive background in musical traditions other than Western art music.
3. Musicology—A master's degree in musicology or a minimum of four graduate seminars in musicology, and a 7,500-word research paper in English on a subject in historical musicology.
4. Music Education—A minimum of two years full-time music teaching in a public or private school; three letters of recommendation on the applicant's teaching ability, at least two of which must be written by the applicant's job supervisors (principal or other supervisor); and one of the following: (a) a videotape of a teaching demonstration (or actual teaching), or (b) an in-person teaching demonstration.

An applicant must declare a concentration in one of the four areas previously listed. Admission, if granted, is for that concentration only. If a student later wishes to change to another concentration, the student must petition the graduate faculty in music for approval. Each student will have a principal adviser who must be a member of the music

department's graduate faculty. An application will be denied if it is determined that no principal adviser in the applicant's area of interest is available on the music department's graduate faculty.

Degree Requirements

This degree requires an emphasis on ethnomusicology courses for students who are not concentrating in the area of ethnomusicology. This emphasis ensures that all PhD graduates will be able to teach introductory courses in world music. Requirements for music PhD students also include MUS 659 Seminar in College Music Teaching, followed by supervised college teaching experiences.

The PhD student must spend three semesters in residence (full-time work or the equivalent in credit hours) at UH Mānoa and must complete the degree within seven years.

Language Requirements. Before advancing to candidacy, reading proficiency must be satisfactorily demonstrated as follows:

1. Ethnomusicology—One dissertation research language and one library research language.
2. Music Education—Language appropriate to the areas of research or research statistics.
3. Musicology—Two European languages: German and one other language, preferably French.

Diagnostic and Qualifying Exams. Prior to enrolling for the first semester of study, each PhD student will take diagnostic exams in music history and theory to determine whether or not the qualifying exams in those areas (or specified courses in lieu of the qualifying exams) are needed to clear pre-program deficiencies. Additionally, ethnomusicology majors take their area's diagnostic exam to determine whether or not specified ethnomusicology courses are needed to clear pre-program deficiencies. When courses are taken to clear pre-program deficiencies or in lieu of qualifying exams, they must be taken for grade during the first two semesters of study and passed with a grade of B or better, or the student will be dropped from the graduate program. Credits earned for these courses do not count towards degrees. For students taking the qualifying exams, only one failure is allowed. Furthermore, the exams (and any retest) must be taken when offered. A no show for any reason is considered a failure. All deficiencies must be cleared by the end of the first year of study. Deferral of any retest must receive prior approval by the graduate chair. The student petitions the graduate chair by memo, signed and dated, explaining the reason for the deferral request, no less than five weeks before the exam retest date. For deferred retests, all deficiencies must be cleared before the start of the second year of study.

The student's principal adviser, appointed by the graduate chair, will consider the test results in advising the student to begin the program.

Comprehensive Exam and Advancing to Candidacy. This exam is given to measure the student's readiness to begin significant research in the selected major area of research. It is given only after successful completion of course work, fulfillment of residency requirements, successful completion of all

language requirements, and notice from the advisory committee that the student is judged to be sufficiently prepared to pass this examination. This is a two-part exam consisting of a written portion and a two-hour oral portion, passed or failed as a whole. A student failing this exam may retake the exam once, but this must be done within one year. Passing this exam enables the student to begin the dissertation process and receive a certificate from the University indicating that all requirements of the doctorate except for the dissertation have been completed. Following the comprehensive exam, the formation of a five-member doctoral committee, and submission and approval of a dissertation proposal, the student is advanced to candidacy.

After this occurs, all that remains is fieldwork (for ethnomusicology majors only), writing of the dissertation, and the oral defense of the dissertation.

Final Oral Examination. Basically a defense of the dissertation, this exam is conducted by the five-member doctoral committee, made up of graduate faculty members appointed by the music graduate chair and approved by the Graduate Division dean. The chair of the student's advisory committee normally serves as the chair of the student's doctoral committee. At least one member must be from outside the music department, but music department members make up the majority. All committee members must be present at the exam. (Dissertation proposals must be approved by this committee.) This exam is subject to other regulations detailed in the "Graduate Education" section in this *Catalog*.

The date of the final oral exam is arranged by the student in consultation with the doctoral committee; usually, it is during the semester in which the student has completed the dissertation document. Copies of the document must be presented to the committee at least two weeks prior to the examination. At the examination, the student's knowledge and understanding of the field of concentration is examined based on the content of the dissertation.

Peace Studies

College of Social Sciences
Saunders Hall 717
2424 Maile Way
Honolulu, HI 96822
Tel: (808) 956-7427
MIP Fax: (808) 956-5708
PCR Fax: (808) 956-9121
E-mail: uhip@hawaii.edu
Web: www2.soc.hawaii.edu/peace

Faculty

R. McCarthy, PhD (Director)
B. Barnes, JD—conflict resolution
B. Hallett, PhD—peace studies

Cooperating Faculty

C. Blake, PhD—anthropology
R. Chadwick, PhD—political science

C. Crawford, ThD—religion
 G. Fontaine, PhD—communication
 M. Heberle, PhD—English
 K. Ikeda, PhD—sociology
 G. Kent, PhD—political science
 A. Marsella, PhD—psychology
 J. Morgan, PhD—geography
 K. Phillips, PhD—English
 I. Rohter, PhD—political science
 L. Ruby, PhD—art
 W. Sharkey, PhD—speech
 L. Sponsel, PhD—anthropology
 C. Stephenson, PhD—political science
 M. Tehranian, PhD—communications

Affiliate Faculty

I. Aoude, PhD—ethnic studies
 C. Araki, PhD—education
 J. Barkai, JD—law
 T. Brislin, PhD—journalism
 D. Chandler, PhD—sociology
 M. Jones, PhD—physics
 N. Kent, PhD—ethnic studies
 R. Lamb, PhD—religion
 K. Lowry, PhD—urban research and planning
 J. Lum, PhD—educational foundations
 F. Mackenzie, PhD—oceanography
 N. Milner, PhD—political science
 D. Neubauer, PhD—political science
 M. Tiles, PhD—philosophy
 J. Van Dyke, JD—law

Degree and Certificate Offered: BA in liberal studies (peace and conflict studies), Certificate in Peace Studies

The Academic Program

Peace and conflict education (PACE) studies examines the causes of war and other forms of violence, the nonviolent ways to resolve destructive conflicts and engage in peacemaking, and the conditions necessary for creating a positive peace. As an interdisciplinary field, PACE finds its center in the social sciences, but it also extends to the humanities and the natural and physical sciences. PACE students learn critical thinking related to issues of justice, conflict resolution, security and peace, and steps to effect these goals, including the making and evaluating of policies.

PACE is an individually designed interdisciplinary program that is coordinated by the Spark M. Matsunaga Institute for Peace. Students may either complete a BA degree with a major equivalent in peace and conflict studies through the Liberal Studies Program, or they may earn a peace certificate that is available to undergraduate and graduate students prior to their graduation from UH Mānoa. Both the certificate and major can be designed to accommodate the student's personal goals and interests.

Students taking these courses go on to careers in diplomacy (including the UN and its affiliates), Third World aid and

development (research, administration, and fieldwork), mediation services, public relations, defense planning, management operations, industrial relations, education (teaching and administration), welfare and public interest work, journalism, service industries, and, of course, the fields of peace and conflict research, peace education, and peace advocacy. The development of perspectives and skills in peace, justice, and conflict resolution are relevant in the general areas of private business, the arts, national and international nongovernmental organizations, and national, regional and international government bodies.

The heads of private and public bodies, including UH officials, are increasingly calling for people expert in the management of conflict. A rising backlog of court cases, the cost and delay of justice, crime in the streets, domestic violence, disorder in the schools, ongoing conflict in various workplace settings, and people generally unable to cope with the stress of modern living, all contribute to a pressing need for more peacemakers, mediators, and facilitators capable of resolving conflict with justice.

An appreciation of the diverse cultural perspectives that Asians and Pacific Islanders bring to the study of peace and conflict is featured throughout the PACE program. The island of O'ahu (meaning "the gathering place") nurtures a rich ethnic and cultural pluralism that provides a unique setting for the study and practice of peacemaking and the nonviolent resolution of conflict.

Undergraduate Study

Bachelor's Degree

The equivalent of an undergraduate major in peace and conflict resolution is available through the BA program of liberal studies. For information contact the Matsunaga Institute for Peace or the Liberal Studies Program. Interested students should refer to the "Liberal Studies" section within the Colleges of Arts and Sciences.

Major Requirements

- PACE 210 Survey Peace and Conflict Studies
- POLS 221 Problems of War and Peace
- PACE 345/ANTH 345 Aggression, War and Peace
- PACE 495 Practicum and Internship
- The remaining 24 credit hours, or eight courses, to meet the major's minimum requirement of 36 credit hours must be selected from either the peace studies or conflict resolution stream as long as at least one course is done from the other stream. For example, a student may elect to do seven conflict resolution courses but would have to do one of the peace studies courses. Or the student may elect to concentrate in the peace studies stream and take one conflict resolution course at a 7/1 ratio. The mix could also be 6/2, 5/3 or 4/4.

Peace Studies Stream

- PACE 373/POLS 373 Nonviolent Political Alternatives
- POLS 353/WS 353 Alternatives to Bureaucracy

- WS 304 Women, War and the Military
- ECON 454 Economics of Cooperation or ECON 466 Growth and Crisis in the Global Economy
- PACE 315 Personal Peace
- PACE 410 History of Peace Movements
- GEOG 336 Geography of Peace and War
- COM 459 Topic of Communication and Peace
- BIOL 310 Environmental Issues
- PACE 412 Gandhi, King, and Nonviolence
- ANTH 423 Social and Cultural Change
- PACE 399 Directed Reading
- PACE 485 Topics in Peace and Conflict Resolution
- PACE 496 Internship*

Conflict Resolution Stream

- PACE 247 Survey of Conflict Management
- PACE 340 Negotiation
- PACE 447 Mediation Skills: UH Basic
- PACE 460 Facilitation and Group Process*
- PACE 477 Culture and Conflict Resolution
- PACE 478 International Law and Conflict
- SP 455 Conflict Resolution
- COM 340 Intercultural Communication
- POLS 360 Public Law and Judicial Behavior I
- SOC 433 Analysis in Law and Social Change
- POLS 325E International Organizations
- FAMR 350 Leadership and Group Process
- SOC 451 Analysis in Marriage and the Family
- PACE 399 Directed Reading
- PACE 485 Topics in Peace and Conflict Resolution
- PACE 496 Internship*
- A student may not apply towards the major more than 9 credit hours from any combination of PACE 399, PACE 495, and PACE 496.
- A 2.5 GPA must be maintained in the major course work.

Certificate in Peace Studies

To receive a Certificate in Peace Studies, students must take PACE 210, PACE 495, and 9 credit hours from any of the remaining above courses except PACE 496. Courses must be distributed between those emphasizing conflict resolution and those emphasizing social justice or conflict prevention. At least one course should come from a discipline other than PACE. Maintenance of an overall GPA of 2.5 is required in prerequisite and certificate courses.

Philosophy

College of Arts and Humanities
Sakamaki D-301
2530 Dole Street
Honolulu, HI 96822
Tel: (808) 956-8649
Fax: (808) 956-9228

E-mail: philo@hawaii.edu
Web: www2.hawaii.edu/phil

Faculty

- *E. Deutsch, PhD (Chair)—comparative philosophy, Indian philosophy, metaphysics, aesthetics
- *T. Albertini, PhD—Renaissance and early modern philosophy, history of Roman law, Semitic languages
- *R. T. Ames, PhD—Taoist philosophy, Confucian philosophy, ancient Chinese political philosophy, comparative philosophy
- *R. Bontekoe, PhD—hermeneutics, epistemology, philosophy of law
- *A. Chakrabarti, PhD—Indian philosophy, philosophy of language, philosophy of mind
- *C. Y. Cheng, PhD—philosophy of language and logic, American philosophy, classical Chinese philosophy, Neo-Confucian philosophy
- *V. Dalmiya, PhD—epistemology, feminist philosophy
- T. Jackson, PhD—specialist, director of philosophy in the schools; logic, comparative philosophy, philosophy for children
- *K. Kipnis, PhD—philosophy of law, social and political philosophy, ethics
- *S. Odin, PhD—Japanese philosophy, comparative philosophy, American philosophy
- *G. R. Parkes, PhD—comparative philosophy (continental European, Chinese, and Japanese), environmental philosophies, philosophies of culture
- *R. C. Roberts, PhD—social and political philosophy
- *J. E. Tiles, PhD—ancient philosophy, American philosophy, philosophical logic, philosophy of science
- *M. E. Tiles, PhD—history and philosophy of mathematics, contemporary French philosophy of science, science and technology

Cooperating Graduate Faculty

R. A. Amundson, PhD—philosophy of science
P. T. Manicas, PhD—political, social philosophy

Degrees Offered: BA in philosophy, MA in philosophy, PhD in philosophy

The Academic Program

Philosophy (PHIL) is an open inquiry that involves the disciplined examination of our most comprehensive goals, standards, and criteria. For example: how should we conduct ourselves in our relations with one another? (ethics); what standards should we use to assess our institutions? (social and political theory); how may we achieve knowledge and understanding of the world around us? (epistemology, philosophy of science); what are the most general structures of thought and reality? (philosophy of logic and language, metaphysics); and what place does art have, or what place should it have, in human life? (aesthetics). In pursuing these questions, philosophy is often led to confront issues about the ultimate nature of reality and value or to consider possible limitations on our ability to answer or even to ask such

questions. Philosophy proceeds with its task in part through contributing to ongoing discussions and debates within disciplines and traditions and also by cross-disciplinary and cross-cultural comparisons.

Students majoring in philosophy work to develop for themselves a comprehensive view of the aspirations and achievements of human culture and in the process are encouraged to acquire the skills of careful reading and interpretation of texts, of writing that conveys clearly their understanding of some issue, and of responding critically to ideas that other people advance. The Department of Philosophy's faculty has expertise in an unusually diverse range of philosophic traditions. The faculty includes specialists in Chinese, Japanese, Indian, Buddhist, and Islamic thought, as well as in many of the important Western traditions. The department as a whole has long been recognized internationally for its comparative work between philosophic traditions.

Undergraduate Study

Bachelor's Degree

Requirements

Students must complete 30 credit hours of philosophy courses, including required courses:

- PHIL 110
- PHIL 449
- Two courses from PHIL 211, 212, 213, or 414 (Alpha)
- One course from PHIL 300 to 318
- One course from PHIL 330 to 380
- Four additional courses above the 100 level (electives)

Minor

Requirements

Students must complete 15 credit hours of philosophy above the 100 level. A minor will have any one of the following themes: Asian philosophy; religion and metaphysics; ethics and law; science, technology and values; and humanities and the arts.

For details of which courses fall under these themes, students should consult the department undergraduate adviser.

Graduate Study

The department offers graduate training leading to the MA and PhD degrees. Students with BA degrees may apply to the MA program. Students are accepted directly into the PhD program only if they have already received the MA degree or the equivalent from an accredited institution and have met any other departmental requirements.

Specific requirements for all graduate degrees are detailed in a brochure available from the department upon request.

Whatever their field of specialization, graduate students in philosophy must acquire a thorough knowledge of the history and problems of Western philosophy. On the basis of this

foundation, students may further specialize in one of three areas of study: Western philosophy, Asian philosophy, or comparative philosophy.

Although the Western philosophical tradition remains the fundamental frame of reference for the department, the opportunity provided for specialization in the area of Asian philosophy is unique in that the University of Hawai'i is the only institution of higher learning in the United States with a regular program leading to the PhD degree with areas of specialization in Indian, Buddhist, Chinese, Japanese, and comparative philosophy. The area of comparative philosophy is the most demanding; at the PhD level its requirements include proficiency in both the Western and Asian fields. The candidate is expected to gain a mastery of some specific topic that can be approached through the contexts of two or more philosophic traditions.

All graduate students shall develop their course of study in consultation with the chair of the graduate program.

The MA and PhD in Asian philosophy are recognized Western Interstate Commission for Higher Education (WICHE) regional graduate programs. Residents of Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, Washington, and Wyoming are eligible, on admission, to enroll at Hawai'i-resident tuition rates.

Master's Degree

The MA program places primary emphasis upon course work.

Admission Requirements

Students seeking admission must have a BA degree, including the equivalent of 30 credit hours in philosophy. Students who lack this preparation must make up deficiencies either before or during graduate study. In the latter case, students will be admitted only conditionally, pending removal of the deficiencies. Deficiencies may also be designated in cases where a student's background does not include a sufficient number and range of courses in Western philosophy. The GRE General Test is required of all program applicants to whom it is accessible.

Degree Requirements

To be eligible for conferral of the MA degree, a student must maintain a minimum GPA of 3.3 while completing at least 30 credit hours of course work, at least 18 of which must be in courses numbered 600 and above. In addition, students submit two or three papers for a culminating exam, which includes an oral component. Also required for the MA degree are four semesters (or the demonstrated equivalent) of at least one philosophically significant language other than English: typically classical Greek, Latin, French, German, classical Chinese, Japanese, Sanskrit, or Pali.

Doctoral Degree

The doctoral program consists of two stages. The first stage is that leading to admission to candidacy; the second, to the awarding of the degree. Normally the first involves at least two

years of course work beyond the MA in preparation for departmental and language examinations. The second stage involves writing a dissertation and passing an oral examination in its defense. Students must attain certification for PhD candidacy—that is, fulfill all the requirements for the PhD except for the writing and oral defense of the dissertation—within four years of admission to the PhD program.

Admission Requirements

Students seeking admission must hold an MA degree or the equivalent in philosophy and have earned a minimum GPA of 3.3 in courses taken for the MA. Students may be required to make up deficiencies upon entry into the PhD program (see requirements for MA degree above). The GRE General Test is required of all program applicants to whom it is accessible.

Degree Requirements

To be eligible for conferral of the doctor of philosophy degree, a student must maintain a minimum GPA of 3.3 while completing at least 30 credit hours of course work beyond the requirements for the MA. A minimum of 18 of these credit hours must be taken at or above the 600 level. Students are required to demonstrate competence in each of three general areas: history of philosophy, meta-physics, epistemology, logic, and philosophy of science; ethics, aesthetics, social and political philosophy, and philosophy of law. Course listings made available each semester will indicate the general area or areas within which each course fits. Students are required to pass two examinations in an area related to the subject matter of their prospective dissertation, to complete an original dissertation, and to pass a final oral dissertation defense. In addition, students shall demonstrate proficiency in at least one (and where deemed necessary two) philosophically significant language(s) other than English: typically classical Greek, Latin, French, German, classical Chinese, Japanese, Sanskrit or Pali. Language proficiency examinations will be conducted through the Graduate Division and the department of the University responsible for teaching that language.

Physics

College of Natural Sciences
Watanabe 416
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Tel: (808) 956-7087
Fax: (808) 956-7107
E-mail: physics@hawaii.edu
Web: www.phys.hawaii.edu/

Faculty

- *J. Gaines, PhD (Chair)—condensed matter, experiment
- *T. Browder, PhD—elementary particles, experiment
- *P. Crooker, PhD—condensed matter, experiment
- *A. Feldman, PhD—physics education
- *F. Harris, PhD—elementary particles, experiment
- *C. Hayes, PhD—condensed matter, experiment

- *M. D. Jones, PhD—elementary particles, experiment
- *P. K. Lam, PhD—condensed matter, theory
- *J. G. Learned, PhD—particle astrophysics
- *J. M. J. Madey, PhD—free electron laser physics
- *S. Olsen, PhD—elementary particles, experiment
- *S. Pakvasa, PhD—elementary particles, theory
- *M. W. Peters, PhD—elementary particles, experiment
- *K. Sattler, PhD—condensed matter, experiment
- *E. B. Szarmes, PhD—free electron laser physics
- *X. R. Tata, PhD—elementary particles, theory
- *S. F. Tuan, PhD—elementary particles, theory
- *C. Vause III, PhD—condensed matter, theory
- *H. Yamamoto, PhD—elementary particles, experiment

Affiliate Graduate Faculty

- C. Fadley, PhD—condensed matter, experiment
- W. Laidlaw, PhD—condensed matter, theory
- S. Ohnuma, PhD—elementary particles, experiment
- W. Simmons, PhD—elementary particles, theory

Degrees Offered: BA in physics, BS in physics, MS in physics, PhD in physics

The Academic Program

Physics (PHYS) is the study of matter and energy and how they interact at the most basic levels. Areas include mechanics, optics and lasers, thermodynamics, electricity, magnetism, nuclear phenomena, condensed matter, and elementary particles. Physics is widely regarded as the most basic of all the sciences. The University of Hawai'i at Mānoa offers both the bachelor of arts and bachelor of science degrees in physics. The faculty members teaching the courses are at the forefront of research in physics both in experiment and theory. In the field of elementary particles, some faculty members are doing experiments in Japan to detect neutrino oscillations and studying high-energy gamma rays coming from the stars. Others are involved in experiments at the Beijing (China) accelerator and the KEK accelerator in Japan. In condensed-matter physics, they investigate novel materials, study electrical noise in composites, probe the exotic phases of liquid crystals, and use a scanning tunneling microscope to take pictures of individual atoms. A new research effort in free electron laser (FEL) physics has begun, capable of working at the forefront of medical research, chemistry, material science, or basic physics. Often, the undergraduate physics majors work on these projects along with graduate students and the faculty.

Undergraduate Study

BA Degree

Requirements

- Students must complete 40 credit hours, including:
 - PHYS 170/170L, 272/272L, 274/274L, 310, 350, 400, 430, 450, 480, and 480L
 - One course from PHYS 440, 481, or 490

- Two courses from PHYS 305, 475, or 481L
- CHEM 171/171L or CHEM 181/181L. (CHEM 161/161L and CHEM 162/162L may be substituted with consent from physics adviser).
- MATH 241, 242, 243, 244, and 311. (MATH 251, 252, 253, may be substituted for MATH 241, 242, 243, 244. MATH 215, 216, may be substituted for MATH 241, 242, with consent from physics adviser.)

Upon approval of a physics department adviser and chair, the PHYS 170 through 272L requirements may be satisfied by PHYS 151 through 152L.

BS Degree

Requirements

Students must complete 43 credit hours, including:

- PHYS 170/170L, 272/272L, 274/274L, 310, 311, 350, 400, 430, 450, 480, and 480L
- One course from PHYS 440, 481, or 490
- Two courses from PHYS 305, 475, or 481L
- CHEM 171/171L or 181/181L (CHEM 161/161L and 162/162L may be substituted with consent from Physics adviser).
- MATH 241, 242, 243, 244, and 311 (MATH 251, 252, 253, may be substituted for MATH 241, 242, 243, 244. MATH 215, 216, may be substituted for MATH 241, 242, with consent from physics adviser.)

Upon approval of a physics department adviser and chair, the PHYS 170 through 272L requirements may be satisfied by PHYS 151 through 152L; and requirements for PHYS 450, 480L, 481 (or 440 or 490), and 481L may be modified so as to accommodate special emphasis or interdisciplinary programs for which the major in physics is appropriate.

Minor

Requirements

- PHYS 151 and 152 (plus labs) or PHYS 170 and 272 (plus labs)
- PHYS 274 (lab not necessary)
- 15 additional upper division credit hours, including PHYS 310, 350, and 480
- Grade of C or better in the above courses

Upon recommendation of a physics department adviser and chair, requirements for PHYS 310, 350, and 480 may be modified if an equivalent course is taken in another department.

Graduate Study

This program offers opportunities for study and research leading to the MS and PhD degrees in physics. The staff and facilities are especially aimed toward experimental and theoretical work in elementary particles, electronic structure of solids, liquid crystals, composite materials, low-temperature physics, scanning tunneling microscopy and spectroscopy, and surface science.

Intended candidates for the MS or PhD in physics must present a minimum of 35 undergraduate credit hours in physics, including atomic and nuclear physics, electromagnetism, mechanics, quantum mechanics, and thermodynamics. Courses in general chemistry and differential equations are also required. Official scores of the GRE General Test and the subject test in physics must be submitted prior to admission.

At least one year of experience as a teaching assistant is required of all MS or PhD candidates. All graduate students are required to attend the weekly departmental seminar.

Master's Degree

Students wishing to terminate their formal education with the MS degree generally select Plan A (thesis) so as to gain some research experience, as well as formal class work. These students are prepared to enter teaching positions at the community college level or industrial and civil service positions at the junior scientist and engineer level.

Students planning advanced graduate work generally complete the Plan B (non-thesis) or Plan C (examination) requirements for the MS degree. At this point most of their formal class work has been completed and further work consists mainly of seminars, directed research, and the dissertation.

Requirements

For the MS Plan A, students must complete 30 credit hours of course work, including (a) a minimum of 18 credit hours of physics courses numbered 600 to 798, including PHYS 610, 650, 670, and 690; (b) minimum of 6 credit hours of thesis; and (c) approved electives, which may be selected from PHYS 699 for a maximum of 2 credit hours and courses in mathematics, chemistry, meteorology, engineering, and philosophy. Other courses can be included on a case-by-case basis at the discretion of the department chair. A final oral examination covers the thesis and related areas and completes the Plan A requirements.

For the MS Plan B, students must complete 30 credit hours of course work, including (a) a minimum of 18 credit hours of physics courses numbered 600 to 798, including PHYS 610, 650, 670, and 690; and (b) approved electives, as in Plan A. A written qualifying examination completes the Plan B requirements.

For the MS Plan C, there is no credit hour requirement but a minimum residency requirement must be satisfied. MS Plan C is intended for students who had completed equivalent course requirements at another institution. Admission to Plan C requires the approval of the physics graduate program advisory committee. A written qualifying examination and a final oral examination complete the requirements for Plan C.

Doctoral Degree

The PhD degree is essentially a research degree. Students complete an original and significant piece of research and are at the forefront of one area of physics. Students are expected to enter the academic world in a teaching and research capacity or industrial and government research laboratories as senior scientists.

Requirements

To be admitted to the PhD program, students must perform satisfactorily on a written qualifying examination followed by an advancement to candidacy oral examination. A student is allowed two attempts to pass the written qualifying examinations within the student's first six semesters as a regular classified graduate student. The student's first attempt must be within the student's first four semesters as a regular classified graduate student. Students who fail twice cannot continue in the graduate program.

In addition to the courses required for the MS degree, students are responsible for the material covered in PHYS 651 and 671. A scholarly dissertation must be written, and a final oral examination in defense of the dissertation completes the requirements for the PhD.

Political Science

College of Social Sciences
Saunders Hall 640
2424 Maile Way
Honolulu, HI 96822
Tel: (808) 956-8357
Fax: (808) 956-6877
E-mail: polisci@hawaii.edu
Web: www2.soc.hawaii.edu/pols/

Faculty

- *S. Krishna, PhD (Chair)—comparative politics, international political economy, South Asia
- *I. S. Rohter, PhD (Undergraduate Chair)—political ecology, Hawai'i politics, green politics
- *J. Goldberg-Hiller, PhD (Graduate Chair)—American politics, judicial politics, public policy
- *B. Aquino, PhD—Southeast Asian and Philippine politics, women and politics
- *R. Chadwick, PhD—international relations, global modeling, methodology
- *J. A. Dator, PhD—political futures, media, Asian politics
- *K. Ferguson, PhD—feminist theory, political theory, organizational theory
- *M. Henningsen, PhD—political theory, European politics, genocide/Holocaust
- *G. Kent, PhD—international relations, development, food and nutrition, children, pedagogy
- *Y. Kuroda, PhD—comparative politics, Japan/West Asia political socialization
- *N. Milner, PhD—law and politics, public policy, conflict studies
- *D. E. Neubauer, PhD—public policy, political economy, health politics
- *L. Nitz, PhD—political economy, public policy, methodology
- *M. J. Shapiro, PhD—political theory, media, politics of culture
- N. Silva, PhD—Hawaiian politics, indigenous politics
- *N. Soguk, PhD—international relations, international organizations, migration, human rights, Middle East
- *C. M. Stephenson, PhD—international organization, security, environment, peace studies

* Graduate Faculty

- *D. S. Suh, PhD—comparative politics, comparative communism, Korean politics
- *J. Wilson, PhD—political philosophy, American politics
- *K. Zhou, PhD—comparative politics, Chinese politics, women and development

Affiliate Graduate Faculty

- K. O. Kane, PhD—philosophy and theory, pedagogy, film and media studies, women's studies
- O. Lee, PhD—Chinese foreign policy, U.S.-China relations
- C. Morrison, PhD—Southeast Asian international relations
- S. Pooley, PhD—fishery economics

Degrees Offered: BA in political science, MA in political science, PhD in political science

The Academic Program

Political science (POLS) examines politics not only in government and among nations but also in private organizations, businesses, universities, families, language, and daily life. Various methods are used to do this, ranging from the interpretive and historical to the quantitative and statistical.

Political science graduates enter numerous professions: journalism, foreign service, social services, government, law, law enforcement, teaching, civil service, business, librarianship, and research. Undergraduate majors have done all of these and more. So have the department's graduate students, many of whom come from abroad and return to their home countries to become leaders in their fields. The Department of Political Science provides a sound undergraduate education that helps prepare people to think critically and constructively about the world and to be active, concerned citizens in whatever walk of life they choose. Its internship program permits undergraduates to earn academic credit while working in community or governmental institutions and processes.

At the graduate level, the department stands out in the fields of international relations, political theory, comparative studies, Asian politics, futures studies, and policy analysis. The department is an open, informal place where students, staff, and faculty alike are encouraged to participate in departmental affairs and governance. For further information, call (808) 956-8357 or write to the department.

Advising

Students may write to, or make appointments to see, either the graduate chair or the undergraduate chair, who will discuss the options available and assign students, if necessary, to a faculty member who specializes in a field of study.

Undergraduate Study

Bachelor's Degree

Requirements

- Students must complete 27 credit hours, including:
 - a prerequisite introductory course at the 100 or 200 level

- 9 credit hours from courses distributed as follows: POLS 335; either POLS 305 or POLS 315; and either POLS 375 or POLS 385
- POLS 390 (Methodology)
- 9 credit hours from other 300 level courses, including 3x5 courses
- 3-6 credit hours from 400 level courses

Minor

Requirements

Students must complete 15 credit hours from the 300 level or above, including one course from POLS 305, POLS 315, POLS 335, POLS 375 or POLS 385.

Students should choose one of the 100 or 200 level political science courses as part of their General Education Core in social sciences, since a 100 or 200 level course is prerequisite for 300 level courses.

Graduate Study

The department has three different graduate degree programs: master's degree Plan A, for which a master's thesis is required; master's degree Plan B, for which a culminating experience is required; and the doctor of philosophy (PhD) program. The department offers specializations in alternative futures, Asian and Pacific politics, comparative politics, international relations, political theory, and public policy.

A completed application includes a statement of purpose from the applicant, three letters of recommendation, and transcripts. A paper or some other work that indicates the applicant's writing and analytical abilities is required. Further information regarding the requirements for all three programs is available in a brochure. Write to the graduate secretary for the brochure as well as application information and forms.

The application deadline is February 1 for admission in the fall semester. No spring semester admissions are taken.

Graduates in political science have entered careers in teaching, research, and service in non-governmental organizations and various levels of government.

Master's Degree

The department offers MA Plan A (thesis) and Plan B (culminating experience) degrees that can be tailored to a student's interests and needs. The MA program invites applicants who are prepared to think critically and constructively about political phenomena. All MA students are required to take three of the following courses regardless of program (Plan A or Plan B): POLS 610, 620, 630, 640, 650, 660, 670, and 680.

Doctoral Degree

The department's PhD program encourages students to pursue specialized interests as well as to broaden their understanding of political phenomena. The department looks for students who are prepared to construct a successful course of study based on their individual interests, in conjunction with

appropriate advising and course work. We encourage applicants who approach political questions in a critical and creative manner and who combine work from different specializations and disciplines to pursue their own particular projects.

Honors and Awards

Undergraduate

Thomas Hamilton Memorial Scholarship—\$150 for a student with outstanding scholarship and all-around performance who has completed at least two courses in political theory.

Philip E. Jacob Award—\$500 for the outstanding graduating senior in political science.

Carl Knobloch Prize Fund—\$100 for a student with an excellent academic record who also has an outstanding record of community and/or University service.

Richard Kosaki Student Assistance Fund—\$250, first prize; \$150, second prize; \$100, third prize, for excellence in research, based on papers written as part of political science course work.

Graduate

Norman Meller Award—\$1,500 for fall semester to a graduate student with an outstanding academic record.

Werner Levi Award—\$1,500 for spring semester to a graduate student for meritorious academic achievement.

Harry J. Friedman Memorial Scholarship—for outstanding work in comparative politics.

Population Studies

College of Social Sciences
Saunders Hall 405
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Tel: (808) 956-7551
Fax: (808) 956-7738
E-mail: popstudy@hawaii.edu

Faculty

- *G. Fuller, PhD (Director)—geography
- *M. Chapman, PhD—geography
- *C. M. Douglass, PhD—urban and regional planning
- *N. Erkin, PhD—anthropology
- *Y. J. Lee, PhD—sociology
- *A. Mason, PhD—economics
- *S. Millman, PhD—sociology
- *G. Russo, PhD—economics
- *C. Stephenson, PhD—political science

Affiliate Graduate Faculty

L. J. Cho, PhD—sociology and economics
 M. Choe, PhD—public health
 G. Feeney, PhD—population studies
 A. Onaka, PhD—population studies
 P. Pirie, PhD—population studies
 R. Retherford, PhD—sociology
 P. Xenos, PhD—sociology

Certificate Offered: Certificate in Population Studies

The Academic Program

Population Studies (PPST) is an interdisciplinary graduate certificate program whose faculty come from University of Hawai'i departments in the College of Social Sciences and the Department of Public Health, from the Program on Population, East-West Center, and from the Department of Health, State of Hawai'i. The Population Studies Program serves both independent graduate study and degree candidates in other University units who wish to understand population processes and to develop special competence in applying the concepts and tools of demography and of their discipline to the study of human populations. The program focuses on the links between population processes and their variable contexts (historical, environmental, cultural, social, economic, and political) in the contemporary world, especially Asia and the Pacific, as well as on the concepts and tools of demographic analysis.

Population Studies consists of a core of basic information and five themes or key issues in population inquiry: demographic methods, health and development, population and environment, reproduction and human resources, and social mobility and spatial dynamics. Each of these is conceived as an overlapping circle to emphasize the exchange of information and ideas about human populations, based on courses and seminars drawn from population studies and the social, health, and human sciences. Each of the five thematic clusters in population has a faculty leader, responsible for facilitating its intellectual integrity and routine operation.

Certificate in Population Studies

Requirements

The interdisciplinary graduate Certificate in Population Studies consists of 16 credits of course work, earned with a grade of more than B- in any course, and either a comprehensive examination or a research paper. Specific requirements are as follows:

- A core of four courses (10 credits), including Introduction to Human Population (PPST 650), Methods of Demographic Analysis (PPST 691), Faculty Seminar Series (PPST 649), and the Interdisciplinary Seminar in Population Studies (PPST 750).
- Two courses (6 credits), numbered 600 or above, selected from any of the five thematic clusters in population (demographic methods, health and development, population and environment, reproduction and human resources,

and social mobility and spatial dynamics). On petition, the program director may accept 600-level courses or above that are not listed within any of the five thematic clusters but have significant population content. Courses taken for credit may be applied to both a graduate degree and the interdisciplinary certificate.

- Either a research paper of publishable quality on a population topic or a comprehensive examination in the interdisciplinary study of human populations. Students may choose to enroll for 3 credits of Directed Reading and Research (PPST 699) when undertaking their research paper.

Each year, the program director appoints a committee of three faculty members to both administer the comprehensive examination and assess completed research papers. Four of six questions must be answered in the comprehensive examination, which will be written and followed by an oral discussion. It will be broad in scope and assume basic knowledge of the concepts, substance, and techniques of population. Questions will be concerned with the integration of material, plausible argument, and reflective statement. Research papers must be of publishable quality, and a student choosing this option will have a faculty adviser who is not a member of the assessment committee.

Specializations

Demographic Methods. Provides additional training in the concepts and techniques of demographic analysis. Many Asia/Pacific countries do not have accurate and timely systems of vital registration or have limited or imperfect data on population characteristics. Specialized training allows students to estimate and assess more correctly demographic parameters using these types of data. Courses cover field methods for collecting valid and reliable information about population, as well as survival models, analysis of categorical data, and other state-of-the-art statistical techniques for data analysis. Students taking courses within this cluster should prepare themselves through broad coverage of social statistics.

Health and Development. Explores the physiological, cultural, and social impacts of international development that introduces biomedicine, impacts food producing technology, and affects the political economy of health and health care. Courses in this specialization address physiological and social factors affecting health through the life cycle; reproduction and health; cultural diversity and health (gender, class, ethnicity; epidemiology of infectious and chronic diseases) including malaria, HIV/AIDS, cardiovascular disease; and the economics of health and health care.

Population and Environment. Considers the relationship of population to the quality of the natural environment and its ability to sustain life. Major themes include the debate over sustainable development and the impact of population growth on land and sea resources, pollution and climate, together with relationships between population and culture, consumption

and distribution of resources, and human conflict. Specific issues include use and quality of energy, water and land, deforestation and desertification, agricultural and industrial practices, and urbanization. The cluster focuses on issues of the commons, particularly governance, including the role of international governmental and nongovernmental organizations and social movements.

Reproduction and Human Resources. Examines the dynamics of producing human resources and their interactions with economic, social, and cultural factors. Analyses focus on both the quantity and quality of human resources, their causes and consequences. Topic areas include marriage and family, human fertility, reproductive health, child survival, and the interaction of investment in human capital with economic development. Study of the organization, implementation, and evaluation of family planning programs also forms part of this interdisciplinary cluster.

Social Mobility and Spatial Dynamics. Focuses attention on social mobility in society and over space. It covers mobility both *in situ* and over space within and among social formations. It includes such topics as social stratification and inequality, labor markets and systems, and the spatial dynamics of migration and social change associated with urbanization, rural-urban relations, and regional development. These dimensions of population can be viewed at all social and spatial scales, from household and neighborhood to the urban, regional, national, and international level. Each topic is intrinsically multidimensional and lends itself to interdisciplinary perspectives. Courses are assembled to allow for such perspectives, while keeping consistent attention to spatial processes and patterns of population.

Psychology

College of Social Sciences
Gartley 110
2430 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8414
Fax: (808) 956-4700

Faculty

- *K. A. Minke, PhD (Chair)—human learning, paradigmatic behaviorism, statistics and methodology
- *D. D. Blaine, PhD—quantitative methods, individual differences in learning and cognition
- *R. J. Blanchard, PhD—behavioral neuroscience, aggression, emotion, fear and anxiety
- *J. G. Carlson, PhD—stress psychophysiology, health psychology, clinical
- *B. Chorpita, PhD—clinical childhood anxiety disorders
- K. Claypoole, PhD—adult mental illness
- *P. Couvillon, PhD—behavioral neuroscience
- A. Crisanti, PhD—adult mental illness

- *R. A. Dubanoski, PhD—developmental, environmental toxins/sensitivities (on leave—Dean of College of Social Sciences)
- J. Hall, PhD—adult mental illness
- *E. Hatfield, PhD—social, emotions, social-psychophysiology
- *S. N. Haynes, PhD—clinical, medical, psychopathology, assessment
- *E. M. Heiby, PhD—clinical depression, compliance assessment, integrated behavioral theory
- *L. M. Herman, PhD—animal behavior/cognition; whales, dolphins
- L. A. James, PhD—social-personality, library skills, psycholinguistics
- *V. Kameoka, PhD—culture and mental health, quantitative methods and measurements, research
- *A. J. Marsella, PhD—clinical, psychopathology, cross-cultural
- A. Maynard, PhD—developmental
- *C. R. O'Donnell, PhD—community, crime, social ecology
- *R. L. Randall, PhD—statistics
- *S. I. Shapiro, PhD—psychology of knowledge and wisdom, Asian psychology, transpersonal psychology
- *C. H. Sophian, PhD—developmental, cognitive development in children
- *L. Takahashi, PhD—behavioral neuroscience
- *K. M. Vitousek, PhD—clinical, cognitive behavioral approaches, eating disorders
- *A. Wylie, PhD—adult mental illness

Cooperating Graduate Faculty

- R. W. Brislin, PhD—social-personality
- B. D. DeBaryshe, PhD—social development, parent-child relations, stress and resilience
- P. W. Dowrick, PhD—video research
- C. Gotay, PhD—gerontology, cancer research
- E. Hishinuma—health, cross-cultural
- V. A. Kameoka, PhD—clinical
- M. Martini, PhD—developmental
- J. Mobley, PhD—animal cognition
- P. E. Nachtigall, PhD—marine mammal behavior
- A. M. Peters, PhD—psycholinguistics
- K. Tokuno, PhD—developmental, teaching, learning, and cognition

Affiliate Graduate Faculty

- J. S. Annon, PhD—clinical
- H. S. Bracha, MD—schizophrenia
- E. Kubany, PhD—clinical
- A. Pack, PhD—marine mammal behavior
- W. T. Tsushima, PhD—neuropsychology

Degrees and Certificate Offered: BA in psychology, MA in psychology, PhD in psychology, Certificate in Clinical Psychology (Respecialization)

The Academic Program

Psychology (PSY) can be defined as the science of mind and behavior. Some psychology majors are preparing to enter graduate school, where they will be trained to become profes-

sional psychologists. Others use psychology as a pre-professional major for other fields, such as law or medicine. The majority of psychology majors, however, are using psychology as a general liberal arts major. Psychology is qualified as a discipline for this purpose. An understanding of the spectrum of psychological knowledge, methods, and concepts facilitates and enhances productivity in virtually every area of human endeavor. This understanding also promotes interpersonal skills and sensitivities, as well as critical thinking skills. Collectively, these understandings foster a respect for others, which is a core element of the curriculum of the psychology department.

The University of Hawai'i at Mānoa is fortunate in having a psychology department composed of an unusually large number of internationally recognized figures in the field. Not only do students get to learn from these scholars in the classroom, but many receive direct training in cutting-edge research and the application of psychological knowledge. Areas of concentration include behavioral neuroscience, clinical studies (an APA accredited program and a member of the Academy of Psychological Clinical Science), community and culture, developmental psychology, experimental psychopathology, health psychology, marine mammal behavior and biology, marine mammal sensory systems, social-personality, and teaching, learning, and cognition.

Undergraduate Study

Bachelor's Degree

Requirements

Students must complete 36 credit hours, including:

- 15 credits at the 300 level or above
- One course in statistics (PSY 210 or SOCS 225)
- One course in methodology (PSY 212 or 311)
- One course from three of these four sets:
 - PSY 220, 322, 324, 325
 - PSY 230
 - PSY 240
 - PSY 250 or 260
- 3 credit hours in the advanced writing intensive (WI) seminar series (PSY 4X9), excluding PSY 499)

A minimum GPA of 2.5 in psychology must be maintained for graduation. PSY 100 is prerequisite to all other courses except PSY 170 and may be counted toward the major or the social science core requirement, but not both. No more than a combined total of 15 credits of practicum, teaching, and directed research may be counted for the major; no more than 9 credit hours in PSY 499 may be counted. Only 3 credit hours in PSY 499 can be used to fulfill the requirement of 15 credit hours at the 300 or above level. Nevertheless, students intending to do graduate work are encouraged to enroll in PSY 499 and in PSY 408 or 478.

New majors should consult the chair of undergraduate studies as soon as possible for advising. Transfer students must earn at least 15 psychology credit hours at the Mānoa campus.

Graduate Study

The graduate program in psychology is designed to provide students with a strong background in theory, research methodology, and psychological issues. Currently, there are 10 concentrations in which students can receive specialized training: behavioral neuroscience, clinical studies (an APA accredited Program), community and culture, developmental psychology, experimental psychopathology, health psychology, marine mammal behavior and biology, marine mammal sensory systems, social-personality, and teaching, learning, and cognition. Specific details concerning each of the concentrations, their requirements, and faculty research interests may be obtained in one of four ways: (a) by writing to the Department of Psychology, University of Hawai'i, 2430 Campus Road, Gartley Hall, Honolulu, HI 96822, (b) by faxing your request to (808) 956-4700, (c) by sending an e-mail communication to E. M. Heiby, Chair of Graduate Studies (heiby@hawaii.edu), or (d) by accessing the department's Web site (<http://www2.soc.hawaii.edu/psy>).

Applications are considered only for the fall semester. Applicants should possess a bachelor's degree, have a minimum of 24 credit hours of undergraduate work in psychology (including courses in basic psychology such as research methodology, statistics, and learning, abnormal, social, developmental, personality, cognition, and physiological psychology), a cumulative grade point average of at least 3.0, strong letters of recommendation from professors, competitive general and psychology GRE scores (past applicants admitted as graduate students in the department tend to score at or above the 600 level on the various sub-domains of the GRE), and preferably one to two years of research experience. An application packet and detailed information relevant to the application process can be obtained from either the department webpage or the Graduate Chair using the mailing, fax, or e-mail addresses listed above. Completed applications must be received by the Graduate Division no later than January 1 each year, with the exception of GRE scores (which can arrive during the month of January).

Master's Degree

The master's degree program includes a thesis and at least 32 credit hours of courses specified by the department and specific area of concentration. Detailed descriptions of specific requirements for each area of concentration are contained in the application brochure and department web page. The department does not offer a terminal master's degree program in psychology. Only students interested in pursuing a PhD degree are considered for admission. Students with a BA degree are admitted to the master's program and, upon successful completion, petition for entry into the doctoral program. Consult the application brochure for specific details concerning requirements and procedures for degree-seeking candidates.

Doctoral Degree

Students must complete their master's degree (from UH or another accredited institution of higher learning) prior to entering the doctoral program in psychology at the University

of Hawai'i. Specific course work and other relevant departmental and concentration specific requirements are described in detail in the application brochure. Student must pass comprehensive examinations before proceeding to the dissertation.

Additional information concerning changes in the standards, specialization, other requirements, performance standards, and financial assistance is described in the application brochure and is available from the department (see above addresses to communicate your request).

Public Administration

College of Social Sciences
Saunders Hall 631
2424 Maile Way
Honolulu, HI 96822
Tel: (808) 956-8260
(808) 956-3687
Fax: (808) 956-9571
Web: www2.soc.hawaii.edu/pubal/

Faculty

*R. Pratt, PhD (Director)—political science
*C. Grandy, PhD—economics
V. Johnston, PhD—political science

Cooperating Graduate Faculty

T. Brislin—School of Communication
J. Dator—Department of Political Science
L. Despain—Department of English
D. Foley—Urban and Regional Planning
D. Neubauer—Department of Political Science

Adjunct Faculty

J. Guben, JD

Degree and Certificate Offered: MPA, Certificate in Public Administration

The Academic Program

The public administration (PUBA) program at the University of Hawai'i is designed to enhance leadership in public service in Hawai'i and the Pacific Region. Located in the College of Social Sciences, it offers a 30-credit master's degree and a 15-credit certificate. The program's format emphasizes interdisciplinary learning, collaborative teaching, and the development of close relationships between participants. It creates an environment in which many of the complex issues facing those with public responsibilities are addressed while also giving participants specific skills useful to their work.

Financial support for the degree and the certificate is available through the Herman S. Doi Fellowship and the Pacific Island Health Administration Scholarship. For further information, contact the program office in Saunders Hall 631 or call (808) 956-8260 or (808) 956-3687. Applicants may also apply to the East-West Center.

Graduate Study

Master's Degree

The master's degree consists of a core year, an individuated concentration, a practicum experience, and a capstone. The core year and capstone must be taken first and last in the program, respectively. Once the program begins in the fall, new admissions are not made until the following year.

The core year is an integrated, collaboratively taught curriculum offered in a format that balances lecture and discussion sessions. The curriculum is highly interdisciplinary and integrates a series of perspectives and skills important to effective work in public service. These include communications, the political context of public institutions, economic processes, public ethics, budget and policy processes, administrative law, bureaucratic structure and organizational change, and the role of personal and organizational culture.

The individuated concentration is intended to balance the common work of the core year. It allows each student to design a program of study built around a theme of special personal and professional interest. The concentration is satisfied by completion of 9 credit hours in course work, directed reading, or directed research. Themes are created by the student working in conjunction with a faculty adviser. Anyone electing the thesis (Plan A) option may substitute thesis work for concentration credits with approval of the faculty adviser.

The practicum is designed to place individuals in a setting where they may compare organizational structure and processes, study leadership styles, understand community dynamics, gain an international perspective, or develop specific skills. The length and specific nature of the practicum varies according to the student's experience in public organizations. In some cases placement in one organization may be modified to become work on a project that takes place across several organizations. Students are encouraged to undertake a practicum that will have the greatest personal and professional benefits.

The capstone consists of a 1-credit planning seminar during the semester preceding that in which graduation will occur and the concluding 3-credit seminar itself. The focus of the capstone is on group analysis of a public issue of importance in Hawai'i and the Pacific region.

The program welcomes a diversity of professional and educational backgrounds and sees these as contributing to the learning environment. The course work is compatible with the schedules of people working full-time and can be completed in two to three years.

Requirements

MPA candidates must complete 14 credit hours of core requirements, 9 credit hours of individual concentration, 3 credit hours of practicum, and 4 credit hours of capstone. The student must earn at least a grade of "B" in both capstone courses. The thesis option may be selected to replace some or all of the concentration credits.

Certificate in Public Administration

The certificate is designed for people with experience in public service work, or who may not wish to obtain a degree.

Those enrolled in the certificate program participate in the core year, at the end of which they create a professional development seminar series. The seminar allows a deeper focus on issues of special interest. There is also the option of arranging a practicum as an additional learning experience, something encouraged by the program.

Requirements

The program is composed of 15 credit hours, 14 of which are taken in the core year and 1 in the professional development seminar series.

Religion

College of Arts and Humanities
Sakamaki A-311
2530 Dole Street
Honolulu, HI 96822
Tel: (808) 956-8299
Fax: (808) 956-9894
Web: www.hawaii.edu/religion/

Faculty

- *G. Tanabe, PhD (Chair)—Buddhism, Japanese religions
- *H. J. Baroni, PhD—Japanese and East Asian religions
- *J. P. Charlot, DTh—Polynesian/Hawaiian religions
- *S. C. Crawford, ThD—Asian and Christian ethics, Indian religion
- *R. Lamb, PhD—methodology, South Asian religions
- *L. A. Siegel, PhD—Indian religions

Cooperating Graduate Faculty

G. D. Panisnick, PhD—Western religions

Degrees and Certificate Offered: BA in religion, MA in religion, Graduate Certificate in Religion

The Academic Program

In keeping with the goals of the University of Hawai‘i, the Department of Religion takes advantage of the state’s strong social and cultural ties with Asia and the Pacific and seeks to enhance those ties. Within this extraordinary multicultural milieu, the Department of Religion serves as a link between the academic community and the many Asian and Pacific religious communities that flourish in Hawai‘i. Most of the major religious traditions—Theravada Buddhism, Confucianism, Taoism, Shinto, Hinduism as well as Hawaiian and Polynesian religions—make Hawai‘ian ideal site and context for a study of Asian and Pacific religious communities and activities.

The Department of Religion is dedicated to the cultivation of a humanistic understanding of a wide range of religious traditions, ritual practices, philosophical speculations, ethical imperatives, and institutional histories. Its investigative approach is interdisciplinary and intercultural.

Undergraduate Study

Bachelor’s Degree

Undergraduate education in religion includes survey courses in Western, Asian, and Pacific religions. There are also thematic courses dealing with such issues as sexuality and death, politics and ethics, and the relationship between religion and other disciplines, such as anthropology, political science, and sociology.

Requirements

Students must complete 27 credit hours at the 200 level and above, including at least 9 credit hours in 300- and 400-level courses. Required course: REL 300.

Minor

Requirements

Students must complete 15 credit hours at the 300 level and above. Required course: REL 300.

Graduate Study

Master’s Degree

The department has developed two graduate program plans leading to the MA degree: a thesis-based MA program (Plan A) and a non-thesis track (Plan B). Both Plans A and B are two-year programs. A one-year graduate certificate program is also available for those who wish to pursue graduate religious studies but do not wish to complete a degree program.

Admission Requirements

Applicants to the MA program in religion must hold a bachelor’s degree from an accredited U.S. college, university, or its equivalent from a recognized foreign institution of higher learning. Applicants should include in the Statement of Objectives an explanation of how their academic background has prepared them for study in the religion MA program.

Plan A

The thesis program provides students with an opportunity for graduate study in Asian or Polynesian religions. 30 credits are required.

Master’s Plan A Student Progress Forms.

PF I—Preliminary Conference: A report based on a preliminary conference with the graduate chair during the first semester, listing an adviser, proposed courses to fulfill the requirements, and the foreign language for the degree.

PF II—Admission to Candidacy: Candidacy may be granted after the first semester upon completing 6 graduate credits, plus REL 600, with a GPA of 3.0 or better (total 9 credits).

PF III—Master’s Plan A Committee: The thesis committee should consist of the committee chair and two other members, one of whom must be from another department.

PF IV—Approval of Thesis Topic: The thesis committee approves thesis topic prior to student registering for REL 700 for the next academic semester.

Instructions for thesis preparation are mailed to students by the Graduate Division and are also available at the Graduate Records Office.

PF VI—Final Examination: The thesis committee confirms the satisfactory completion of the oral examination.

PF VII—Judgment of Thesis: After all revisions have been incorporated and the thesis is in final form, the majority of the thesis committee, including the graduate chair, passes the student for the Master's Degree.

Progress Forms I to IV must be completed and submitted to Graduate Division before students can register for REL 700.

Required courses (12 credits).

- REL 600 History and Theory of the Study of Religion (3)
- REL 650 Seminar on World Religions (3)
- REL 700 Thesis Research (3, 3)

Area requirements (9 credits minimum). Students must take at least three 600-level courses in their area of specialization (Asian or Polynesian).

Electives. Electives consist of any Religion course (400 level and above), other than those that fulfill program and area requirements. Two complementary graduate courses (3 credits each) from other disciplines may be accepted at the discretion of the thesis adviser and graduate chair. No more than two 400-level courses may be used to satisfy this requirement.

Language. To achieve a mastery of language at the second-year level, students are required to complete two years of a language appropriate to their field of specialization (e.g., Sanskrit, Hindi, Chinese, Japanese, Hawaiian, Samoan, Tahitian, or another Asian or Polynesian language approved by the area adviser) with a minimum B grade in the fourth semester of class.

This language requirement will be waived for students demonstrating language proficiency by an equivalency exam. These exams will be set by the student's thesis adviser and assessed by two faculty readers (one from the Religion Department and one from the department in which the language is taught).

Language courses will not count towards the 30 credits required for a MA in religion.

Thesis (REL 700). A maximum of 3 credits per semester for a total of 6 credits of REL 700 over two semesters is required. Students must be admitted to candidacy (see PF II) and must complete 9 credits before they can register for REL 700.

Completion of an original thesis, demonstrating a mastery of advanced research, analytic, and discursive skills, is required of all students in Plan A.

Each candidate must form a committee of three members of the Graduate Faculty, one of whom is from outside the department. Faculty reserve the right not to serve on a thesis committee.

After submission of a completed thesis to the committee for its consideration, the candidate must be present for the final oral examination on the subject of the thesis. A candidate who fails may be re-examined once, provided it is done within one calendar year of the initial examination.

After a candidate has taken 6 credits of 700, the candidate must register for 1 credit of 700 in subsequent semesters and in the semester of graduation.

One bound copy of the approved thesis, including the signature page, shall go on file in the department office and must be submitted to the department office at the same time that the final thesis is deposited with the Graduate Division office.

Plan B

Non-thesis degree program provides students with an opportunity for graduate study in Asian or Polynesian religions. 30 credits are required.

1. Preliminary Conference with the graduate chair for the purpose of determining an adviser, proposed courses to fulfill the requirements, and the foreign language for the degree.
2. Candidacy for Plan B students requires a memo from the graduate chair indicating that all deficiencies have been removed and that 12 credits have been taken with a 3.0 GPA or better.
3. A portfolio with three research papers with a minimum of B grades from Religion 600-level courses is to be submitted to the graduate chair. One of these papers will be presented at a public forum during the student's final semester. The portfolio must be submitted to the graduate chair prior to the deadline for the Plan B final exam date.

Required courses (6 credits).

- REL 600 History and Theory of the Study of Religion (3)
- REL 650 Seminar on World Religions (3)

Area requirements (9 credits). Students must take at least three 600-level courses in Asian or Polynesian religions.

Electives (15 credits). Nine credits must be earned in 600-level courses. The remaining credits may include religion 400-level and above courses. Two complementary graduate courses from other disciplines may be accepted at the discretion of the graduate chair and the student's adviser.

Language. To achieve mastery of a language at the second-year level, students are required to complete two years of a language appropriate to their area of specialization (e.g., Sanskrit, Hindi, Chinese, Japanese, Hawaiian, Samoan, Tahitian, or another Asian or Polynesian language approved by the area adviser) with a minimum B grade in the fourth semester of class.

This language requirement will be waived for students demonstrating language proficiency by an equivalency exam. These exams will be set by the student's thesis adviser and assessed by two faculty readers (one from the religion department and one from the department in which the language is taught).

Language courses will not count toward the 30 credits required for an MA in religion.

Certificate of Study

Application requirements are the same as those for the MA degree program. This is a two-semester non-degree certificate program for students who want to pursue graduate study in religion but do not need or want a master's degree. Certificate students are ineligible for admission to the master's program. 15 graduate credits are required of which 6 credits may be in 400-level courses.

Certificate in Religion

Application requirements are the same as those for the MA degree program. This is a two-semester non-degree certificate program for students who want to pursue graduate study in religion but do not need or want a master's degree. Students who have completed the certificate are ineligible for admission to the master's program.

Fifteen (15) graduate credits are required of which a maximum of 6 credits may be in the 400-level courses.

Requirements (6 credits):

- REL 600 History and Theory of the Study of Religion (3)
- REL 650 Seminar on World Religions (3)

Electives (9 credits per option):

- Option 1: World Religions—one graduate-level course in each area:
 - East Asia: 661B, 661C, 661D
 - South Asia: 662B, 662D
 - Polynesia: 663B, 663C
- Option 2: Area—three graduate level courses in one area:
 - Asia: 661B, 661C, 661D, 662B, 662D
 - Polynesia (repeatable courses): 663B, 663C

Russian Studies

College of Languages, Linguistics and Literature
Moore 458
1890 East-West Road
Honolulu, HI 96822
Tel: (808) 956-4167

Certificate Offered: Certificate in Russian Studies

To receive a Certificate in Russian Studies a student must complete certain requirements in addition to a regular major. These are advanced reading and conversation courses in Russian, equivalent to at least the third-year level, and 9 credit hours of work, exclusive of courses taken as part of the major,

chosen from an approved list of courses. For more information contact Professor James E. Brown, Department of Languages and Literatures of Europe and the Americas, 458 Moore Hall, (808) 956-4167.

Second Language Acquisition

College of Languages, Linguistics and Literature
Department of Second Language Studies
Moore 570
1890 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8610
Fax: (808) 956-2802
Web: www.hawaii.edu/sls

Faculty

- *C. Chaudron, PhD (Chair)—psycholinguistics, discourse analysis, second language reading and writing, classroom research, and research methods
- *D. Ashworth, PhD—Japanese, second language acquisition and pedagogy, dialectology and sociolinguistics
- *F. Bail, PhD—human learning and development, instructional formats
- *A. Bayer, PhD—language and literacy in education
- *J. Bilmes, PhD—discourse analysis, Thai sociolinguistics and pragmatics, conversational analysis
- *R. Bley-Vroman, PhD—second language analysis, interlanguage syntax, formal models of second language acquisition
- *J. D. Brown, PhD—second language testing, research methods, curriculum design
- *H. Cook, PhD—Japanese sociolinguistics, discourse analysis, language socialization and pragmatics
- *G. Crookes, PhD—classroom teaching, classroom-centered research, materials and syllabus design, discourse analysis, methodology of science
- *K. Davis, PhD—qualitative research, language policy and planning, literacy, bilingual education
- *R. Day, PhD—second language pedagogy, learning and use, classroom research, discourse analysis, teacher training, pedagogical grammar
- *C. Dougherty, PhD—second-language acquisition, classroom research, computer-assisted language learning, focus on form, language technology, applied psycholinguistics
- *D. Eades, PhD—ethnography of communication, interactional sociolinguistics, non-standard language varieties, especially in education, language, and law
- *M. Forman, PhD—ethnographic linguistics, Philippine studies
- *T. Hudson, PhD—language testing, reading, methods and materials, ESP, research methods
- *K. Kanno, PhD—Japanese second language acquisition, pedagogical grammar, language analysis
- *G. Kasper, PhD—second language curriculum, discourse analysis, interlanguage pragmatics, qualitative second language research methods

- *Y. C. Li, PhD—Chinese syntax and semantics, second language learning and testing
- *M. Long, PhD—second-language learning, classroom research, second language research methods, methodology, materials
- *R. Moody, PhD—Portuguese and Spanish, second language learning, applied linguistics
- *W. O’Grady, PhD—syntax, language acquisition, Korean
- *A. Peters, PhD—child first- and second-language acquisition, language socialization, biological foundations of language
- *T. Ramos, PhD—Philippine linguistics, second language learning and teaching, child language acquisition, multilingualism, sociolinguistics
- *K. Rehg, PhD—phonology, bilingual education, Micronesian linguistics
- *H. Roitblat, PhD—cognition, comparative cognition
- *R. Schmidt, PhD—second language learning, sociolinguistics and ESL, second language phonology, Arabic, Portuguese
- B. Schwartz, PhD—linguistic theory and SL acquisition and analysis, Universal Grammar, child second language acquisition
- J. Siegel, PhD—language variation and second language pedagogy, pidgin, creole and dialect studies
- *K. Wolfe-Quintero, PhD—interlanguage analysis, writing pedagogy
- *S. Zhang, PhD—research methodology, design and statistics, computer applications, Chinese-English translation and interpretation

Degree Offered: PhD in second language acquisition

Academic Program

The PhD program in second language acquisition (SLA) is administered by the Department of Second Language Studies. The graduate faculty of the program is interdisciplinary—drawn not only from the SLS department but also from faculty in the Departments of East Asian Languages and Literatures, Educational Psychology, Hawaiian and Indo-Pacific Languages and Literatures, Languages and Literatures of Europe and the Americas, Linguistics, and Psychology. The SLA PhD is a WICHE approved program. The University also offers an MA in ESL (see the “Second Language Studies” section within the Colleges of Arts and Sciences for more information).

The courses in the program are organized into four areas of specialization:

1. Second Language Analysis—Structural analysis of learners’ language development; comparison of native and nonnative languages; second-language varieties; differences arising from social and geographical contexts; phonological, grammatical, and discursal properties; typological factors; putative universals.
2. Second Language Learning—Studies of the biological, psychological, social, and cultural factors in the language-learning process; the role of universals; interlanguages; the processes of comprehension and production.

3. Second Language Use—Studies of the social functions of second and foreign languages; pidgins, creoles, and dialect variation; roles of social and geographical contexts; pragmatics; discourse analysis; cross-cultural and inter-ethnic communication; sociopolitical factors.
4. Second Language Pedagogy—Research into language-learner needs (including immigrant needs); formulation of needs-based curriculum objectives and syllabi; computer-aided instruction; program administration; evaluation and language assessment.

Graduate Study

Doctoral Degree

The basic requirement for admission into the PhD program is the completion of an MA in ESL, applied linguistics, or second- or foreign-language education. Applicants with graduate degrees in such related disciplines as anthropology, education, English, modern languages, linguistics, and psychology are also welcome. In addition to the admission requirements of the Graduate Division, the SLA PhD program requires (a) letters of recommendation (three of which should be from academic sources); (b) copies of an MA thesis, publications, or other research; (c) a statement of research interests; (d) a brief description of relevant professional experience and language skills; and (e) GRE General Test scores (for both native and nonnative speakers of English). Applicants whose native language is not English must score at least 600 on the Test of English as a Foreign Language (TOEFL).

Students are normally admitted for the fall semester, but spring admission is possible in special cases. Candidates are encouraged to apply early. There are various sources of financial aid. The program strives to provide financial support for the best qualified doctoral students throughout their course of studies by means of research and teaching assistantships. Write to the Graduate Chair of the SLS department for additional information.

Requirements

Students work closely with their advisers and doctoral committees in defining their individualized programs. In order to establish a common core of expertise among students, specific courses are designated according to the background of each student. The basic preparation expected as part of their MA training is at least one graduate-level course in each of the four areas of specialization comparable to the courses indicated as such below. Beyond basic preparation, each doctoral student’s program must include a minimum of two graduate-level courses in each of three of the subfields of specialization and a minimum of two graduate-level courses in research methods. At least two courses must be at the 700 level.

Doctoral candidates must pass a comprehensive examination before the dissertation and a final oral examination defending the dissertation.

Students must also demonstrate competence in two languages other than their native language. The languages chosen should be relevant to their program or professional plans. This requirement may be satisfied by course work or examination. Reading knowledge is required for one language. This part of the requirement must be satisfied before advancement to candidacy. For the second language, either reading competence or oral proficiency will fulfill the requirement, which must be satisfied before the comprehensive examination is taken. A specified level of computer literacy may also satisfy the second language requirement. Where the doctoral committee considers it appropriate for specific programs, additional language requirements may be imposed.

The following is a partial listing of courses available in each of the four subfields of second language acquisition. These are listed to indicate the range of offerings at the University of Hawai'i at Mānoa and to guide students and their doctoral committees in designing plans of study. The courses listed do not constitute a closed list; other courses may be approved by students' doctoral committees. In addition, the majority of the 600- and 700-level courses listed have prerequisites, which students may be required to take in the appropriate departments.

Second Language Analysis

- SLS 640 English Syntax (3) (basic preparation)
- SLS 642 Comparative Grammar and Second Language Acquisition (3)
- SLS 680N Second Language Analysis (3)
- CHN 641 Contrastive Analysis of Mandarin and English (3)
- CHN 642 Contrastive Analysis of Mandarin and English (3)
- CHN 750C Research Seminar in Chinese Language: Structure (3)
- ENG 745 Seminar in English Language (3)
- JPN 634 Advanced Japanese Syntax and Semantics (3)
- JPN 650C Topics in Japanese Linguistics: Japanese/English Contrastive Analysis (3)
- LING 650 Advanced Linguistic Analysis (3)
- LING 651 Advanced Linguistic Analysis (3)
- LLEA 681 (Alpha) Topics in Language (3)

Second Language Learning

- SLS 650 Second Language Acquisition (3) (basic preparation)
- SLS 673 Applied Psycholinguistics and SLA (3)
- SLS 680E Second Language Learning (3)
- SLS 750 Seminar in Second Language Acquisition (3)
- EDEP 768C Seminar in Educational Psychology: Learning (3)
- LING 616 Biological Foundations of Language (3)
- LING 670 Developmental Linguistics (3)
- LING 750Q Seminar: Language Acquisition (3)
- PSY 726 Seminar in Cognitive Science (3)

Second Language Use

- SLS 660 Sociolinguistics and Second Languages (3) (basic preparation)
- SLS 680U Second Language Use (3)
- SLS 760 Seminar in Second Language Use (3)
- CHN 750E Research Seminar in Chinese Language: Sociolinguistics (3)
- JPN 633 Japanese Sociolinguistics (3)
- LING 635 Language Variation (3)
- LING 750S Seminar: Sociolinguistics (3)

Second Language Pedagogy

- SLS 613 Second Language Listening and Speaking (3)
- SLS 614 Second Language Writing (3)
- SLS 620 Second Language Reading (3)
- SLS 630 Second Language Program Development (3)
- SLS 671 Research in Language Testing (3)
- SLS 680P Second Language Pedagogy (3)
- SLS 710 Teaching English as a Second Language (3) (basic preparation)
- SLS 730 Seminar in Second Language Pedagogy (3)
- CHN 750B Research Seminar in Chinese Language: Teaching Methods (3)
- EALL 601 Method of Teaching East Asian Languages (3)
- EDEP 768G Seminar in Educational Psychology: Educational Evaluation (3)
- ENG 680 Theory and Practice of Teaching Composition (3)
- ENG 740 Seminar in Composition Studies (3)
- JPN 650P Topics in Japanese Linguistics: Pedagogy (3)
- TECS 631 Content Area: Language and Learning (3)
- TECS 641 (Alpha) Seminar in Foreign Language (3)
- TECS 667 (Alpha) Seminar in Curriculum (3)

Research Methods

- SLS 670 Second Language Research Methods (3)
- SLS 672 Second Language Classroom Research (3)
- SLS 675 Second Language Interpretive Qualitative Research (3)
- SLS 678 Microanalysis in Second Language Research (3)
- SLS 680R Second Language Research Methodology (3)
- SLS 775 Seminar in Second Language Qualitative Research: Methods (3)
- EALL 603 (Alpha) Bibliographical and Research Methods (East Asian Languages and Literatures) (3)
- EDEP 602 Computer Analysis of Data (3)
- EDEP 604 Multiple Regression in Behavioral Research (3)
- EDEP 768H Seminar in Educational Psychology: Research Methodology (3)
- LLEA 630 Seminar in Research Methods (European Languages) (V)
- LING 630 Field Methods (3)

Second Language Studies

College of Languages, Linguistics and Literature
 Moore 570
 1890 East-West Road
 Honolulu, HI 96822
 Tel: (808) 956-8610
 Fax: (808) 956-2802
 Web: www.hawaii.edu/sls

Faculty

- *R. Bley-Vroman, PhD (Chair)—English syntax, second-language analysis, formal models of language acquisition
- *C. Chaudron, PhD (Graduate Chair)—classroom-centered research, discourse analysis, psycholinguistics, research methods, second-language acquisition
- *J. D. Brown, PhD—language testing, research methods, curriculum design
- *G. Crookes, PhD—classroom teaching, classroom-centered research, materials and syllabus design, discourse analysis, methodology of science
- *K. Davis, PhD—qualitative research methods, language policy and planning, literacy, bilingual education
- *R. Day, PhD—teacher education, teaching of reading and listening/speaking, vocabulary, global issues and language teaching
- *C. Doughty, PhD—second-language acquisition, classroom research, computer-assisted language learning, focus on form, language technology, applied psycholinguistics
- *D. Eades, PhD—qualitative sociolinguistics, Aboriginal English and non-standard varieties of English, language and the law
- R. Gibson, PhD—second language learning and teaching, classroom research, teacher training, bilingual education, Pacific languages and literacy, program administration
- *T. Hudson, PhD—language testing, reading, methods and materials, English for specific purposes, research methods
- *G. Kasper, PhD—second-language discourse analysis, pragmatics, learning strategies, qualitative research methods
- *M. H. Long, PhD—second-language acquisition, ESL methodology, research methods, English for specific purposes, materials, classroom-centered research
- *R. Schmidt, PhD—sociolinguistics, psycholinguistics, second-language acquisition
- *B. Schwartz, PhD—linguistic theory and SL acquisition and analysis, Universal Grammar, child second language acquisition
- *J. Siegel, PhD—language variation and second language pedagogy, pidgin, creole and dialect studies
- *K. Wolfe-Quintero, PhD—second-language analysis and acquisition, comparative grammar, pedagogic grammar, writing

Cooperating Graduate Faculty

- D. Ashworth, PhD—adult second-language acquisition, language-teaching methodology, computer-assisted language instruction
- M. Forman, PhD—sociolinguistics, pidgins and creoles, children's speech
- A. Peters, PhD—child language acquisition, language socialization
- K. Rehg, PhD—second-language phonology
- H. Roitblat, PhD—cognition, comparative cognition

* Graduate Faculty

Degrees Offered: BA in liberal studies (English as a second language), MA in English as a second language, Advanced Graduate Certificate in Second Language Studies, PhD in second language acquisition (interdisciplinary)

The Academic Program

Formerly called the Department of English as a Second Language, the faculty and course work in the Department of Second Language Studies (SLS) have evolved toward a wider view of the study of second- and foreign-language learning and teaching in general. The department's programs train students for professional careers in second-/foreign-language education, which includes teaching, teacher training, materials preparation, curriculum/syllabus design, language assessment, and research. Through course work and independent research, students acquire a broad knowledge base and familiarity with the conduct of research, as well as a sense of professionalism in second-language studies.

Employment opportunities in this field have been expanding rapidly, both nationally and internationally, in all types of educational and occupational institutions (e.g., elementary, secondary, and tertiary levels; publishing; test development for international agencies; language-training programs for businesses).

The department, whose MA program dates back to 1961, is frequently referred to as the best such program in the world. It includes a wide range of general and specialized courses. It has the largest faculty with specialization in second-language studies of any institution in the world. Its faculty members are well respected nationally and internationally through their involvement in scholarly research and publishing projects, including editorship of books or editorial advisory status on major journals, as well as extensive authorship of journal articles and books. The department enjoys advanced technical support facilities and excellent library resources. It attracts top-quality students and maintains a variety of services and activities that stimulate a high level of student satisfaction and collaboration, including post-graduation employment advice and assistance.

Affiliations

The department is affiliated with (institutional member of) the American Association for Applied Linguistics and the Teachers of English to Speakers of Other Languages. SLS faculty members (J. D. Brown, C. Chaudron, and R. Schmidt) have served on the executive boards of these organizations. The department faculty are also actively involved in the organizing boards of the Second Language Research Forum and the Pacific Second Language Research Forum.

Undergraduate Study

Bachelor's Degree

The equivalent of an undergraduate major in ESL is available in the BA program in liberal studies. For information regarding this degree, contact the SLS chair or the department's liberal studies adviser.

Graduate Study

The department offers the MA degree in English as a second language and the Advanced Graduate Certificate in Second Language Studies. The University offers the PhD degree in second language acquisition, an interdisciplinary program administered by the SLS department. See the “Second Language Acquisition” section within the Colleges of Arts and Sciences, for a description of the PhD program.

Master’s Degree

The main goal of the MA program is to serve the needs of prospective and practicing teachers, administrators, and researchers in the area of teaching English to speakers of other languages. Attention is given to the areas of second- and foreign-language acquisition, applied psycholinguistics, second-language use, second-language classroom research, bilingual education, curriculum development, and teacher education.

The program emphasizes theory as well as practice. In addition to the courses dealing with approaches to language teaching, materials, and testing, core courses are concerned with the linguistic, psychological, and sociological aspects of language. These latter courses, which are primarily theoretical, are designed to provide an essential foundation on which the more practically oriented ones can build. The emphasis on theory in certain core courses should be kept in mind by potential applicants.

The MA in ESL does not result in a teaching credential. Contact the College of Education for more information regarding State of Hawai‘i teacher certification.

Entry into the MA program is possible in the fall semester only. The GRE General Test is required of all native English speakers. Scores should be sent to the department. Students whose native language is not English are required to have a minimum TOEFL score of 600, 620 preferred.

Two to three letters of recommendation are also required; forms are available from the department.

Applicants must submit a statement of purpose, outlining their objectives in graduate study and reasons for applying. This maximum five-page essay should focus on their experiences and training in languages, language learning, and/or language teaching, and how these relate to their long-term goals as professionals in the field of second-language learning and teaching.

Students admitted conditionally are placed on academic probation for their first semester. Students admitted as regular students whose cumulative GPA fails to meet the minimum requirements after completing at least 12 credit hours or two semesters of course work will be placed on academic probation in the following semester for the duration of the semester.

All students in the MA program, whether Plan A, Plan B, or Plan C, are expected to have undergone second- or foreign-language learning (two years of college study or equivalent). Students who have not had such experience before entering the program are required to take at least a semester of language study, which does not count toward the 39-credit-hour MA requirement.

Plan A (Thesis) Requirements

- Eight core courses (24 credits): SLS 441, 490, 600, 640, 650, 660, 690, 710
- One graduate seminar: SLS 730, 750, 760, or 775
- Two electives (6 credits) approved by the adviser
- SLS 700 Thesis (6 credits)

Plan B (Non-thesis) Requirements

- Eight core courses (24 credits): SLS 441, 490, 600, 640, 650, 660, 690, 710
- One graduate seminar: SLS 730, 750, 760, or 775
- Four electives (12 credits) approved by the adviser
- Submission of an acceptable scholarly paper

Plan C Requirements

Plan C is a special program individually planned for each student. It is intended for established language scholars who wish to pursue additional studies and receive academic credit. Typically, Plan C scholars already have an MA or PhD degree in a foreign language, applied linguistics, or a closely related field.

Plan C students are exempt from the specific core requirements of the other plans. Plan C students take a qualifying examination (written) and a final examination (written and oral). A Plan C scholarly paper is required. In addition, Plan C students must meet the Graduate Division residence requirements of two semesters of full-time work or a period of enrollment that is equivalent in credits.

Admissibility to Plan C is determined by the department’s admissions committee or within the first semester after arrival. At that time a committee is established to recommend courses and supervise the student’s course plan. Scholars accepted for Plan C generally have the following qualifications:

1. No less than five years of full-time experience working in the field of second- or foreign language education;
2. At least two years of administrative, teacher-training, or materials-development responsibility; and
3. An outstanding academic record and a high performance on the GRE.

Additional information concerning the program and its requirements is contained in the SLS program brochure. The topics covered include financial aid, transfer of credit, and requirements such as the scholarly paper. Prospective applicants are urged to obtain this brochure from the graduate chair. Applications for graduate assistantships and tuition waivers are also available.

Advanced Graduate Certificate

The Advanced Graduate Certificate in Second Language Studies provides advanced training to those who already have graduate degrees (master’s, doctorate) in applied linguistics, foreign languages, ESL, or related fields. The program is specifically aimed at those who wish to re-specialize or to update their training to include recent developments in the field. Graduate students enrolled in other programs at the

University of Hawai'i are also permitted to apply for the certificate while they concurrently are completing another graduate degree.

The course of study typically lasts about two semesters and includes 15 credits (five courses) and a research paper (scholarly paper) to be produced during the program. Up to 9 credits of course work may be transferred from a prior program. Students who complete the certificate in SLS will have obtained current knowledge and skills in second language studies, including a knowledge base in second language analysis, learning, pedagogy, and use, in utilization of research findings and application of research methods.

Applicants must have completed an MA or PhD degree in an appropriate field, or they must be a continuing student in an MA or PhD program in an appropriate field at the University of Hawai'i, by the time they begin study for the Certificate. Other application procedures are similar to those for the MA in ESL; contact the Graduate Chair for specific information and guidelines on application.

As a culminating activity in the program, students are required to submit a paper which demonstrates the student's ability to conduct independent scholarly research of high quality. This paper must be **new** research (i.e. different from prior MA level work) conducted under supervision of the program's faculty.

The graduate faculty of second language acquisition is in charge of the program; see the listing under "Second Language Acquisition."

Doctoral Degree

See the "Second Language Acquisition" section within the Colleges of Arts and Sciences, for information regarding the interdisciplinary PhD in second language acquisition.

English Language Institute

College of Languages, Linguistics and Literature
Moore 570
1890 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8479
Fax: (808) 956-2802
E-mail: uhmeli@hawaii.edu
Web: www.hawaii.edu/eli

The English Language Institute (ELI) is located in the Department of Second Language Studies. The ELI's primary purpose is to provide English instruction for international and immigrant students, or others, whose native language is not English so as to facilitate their academic studies at the University. The ELI program is only for students who have been admitted to the University.

All international and immigrant students admitted to the University are referred to the ELI to determine if they must take the ELI placement test before registering for University

courses. If a student does not fulfill this obligation, the ELI will place a hold on the student's registration. The ELI placement test is generally offered three times at the beginning of each semester. Information about the testing dates and times can be found in the current *Schedule of Classes*, and students must sign up in person at Moore 570 prior to the testing date.

ELI Exemptions

Students are exempt from taking the ELI placement test under the following conditions: (a) the student is a native speaker of English; (b) the student has received a score of 600 or better on the paper-based TOEFL, or a score of 250 or better on the computer-based TOEFL; (c) the student has received a score of 460 or better on the verbal section of the GRE; (d) the student has received a score of 460 or better on the verbal section of the SAT if taken before April 1995 or a score of 540 or better if taken in April 1995 or thereafter; (e) the student has an AA degree from a community college within the University of Hawai'i system; (f) the student has obtained the equivalent of 60 transferable semester credits with a GPA of 2.0 or better from a regionally accredited college or university in the United States or from a university whose academic standing is recognized by the University of Hawai'i and where English is the primary language of instruction; or (g) the student has completed six years of full-time schooling with English as the medium of instruction at a middle school, high school, college, or university in Australia, Canada (except Quebec), Ireland, New Zealand, the United Kingdom, or the United States. Documentation of all six years is required.

These exemption criteria apply at the time students are admitted to the University. An exemption on the basis of one of these criteria may be automatically granted by the University, or it may be granted by the ELI office if the student can provide the appropriate documentation, including official transcripts or test results.

Assignment to ELI Courses

All other international or immigrant students who have been admitted to the University must take the ELI placement test before they can register for courses. Placement into ELI courses or exemption from ELI courses will be based on the test results. Students pursuing online degrees should contact the ELI Assistant Director for further information. All ELI courses must be completed within the first year of study at the University. Students who do not complete ELI coursework as planned may not be allowed to graduate.

Relationship to Other Course Work

ELI courses are equivalent to 3-credit courses when considering a student's course load. Students placed into ELI courses need to reduce the number of additional credit courses they can take and should expect to make slower progress in their regular University studies. This is an especially important factor in some graduate programs and should be considered carefully by students whose time or financial support is limited.

Hawai'i English Language Program

College of Languages, Linguistics and Literature
Makai Campus 13-1
1395 Lower Campus Road
Honolulu, HI 96822
Tel: (808) 956-6636
Fax: (808) 956-5100
E-mail: eslhelp@hawaii.edu
Web: www.hawaii.edu/eslhelp

The Hawai'i English Language Program (HELP), administered by the Department of SLS, is a noncredit, comprehensive, intensive ESL program for students who wish to improve their English language proficiency (speaking, listening, reading, and writing) for academic, business, or professional pursuits. Most students in the program are preparing to enter an American college or university, although many are studying English for other reasons. HELP also offers an intensive TOEFL (Test of English as a Foreign Language) preparation course to students who require that examination for college/university entrance. Admission to HELP is open to individuals aged 18 or older who have completed high school or its equivalent. There are four 10-week sessions each year beginning in January, April, July, and October. For an application packet and information, call or write to HELP.

Sociology

College of Social Sciences
Saunders Hall 247
2424 Maile Way
Honolulu, HI 96822
Tel: (808) 956-7693
Fax: (808) 956-3707
E-mail: socdept@hawaii.edu
Web: www2.soc.hawaii.edu/soc

Faculty

- *E. L. Wegner, PhD (Chair)—medical sociology, social psychology, aging/social gerontology
- R. A. Baldoz, PhD—race and ethnic relations, work and labor markets, political economy
- *H. R. Barringer, PhD—race and ethnic relations, comparative sociology (Korea), quantitative methodology
- S. K. Chai, PhD—social theory, economic development, comparative sociology (Asia)
- *D. B. Chandler, PhD—law and society, conflict analysis and resolution, family
- *C. M. Endo, PhD—social stratification and mobility, social research methodology
- *K. Ikeda, PhD—race and ethnic relations, evaluation research, social policy and social change
- K. Irwin, PhD—criminology, deviance and social control, qualitative methodology

- *D. T. Johnson, PhD—criminal justice, comparative sociology (Japan), law and society
- *H. Koo, PhD—comparative sociology (Korea), social stratification, development
- *Y. J. Lee, PhD—quantitative methodology, demography, gender stratification, aging and health
- *P. T. Manicas, PhD—social theory, race and ethnic relations, political economy
- *A. B. Robillard, PhD—ethnomethodology, medical sociology, comparative (Pacific Islands), disability
- *L. O. Ruch, PhD—medical sociology, mental health, sex and gender, formal organizations
- *P. G. Steinhoff, PhD—collective behavior/social movements, comparative sociology (Japan), political sociology
- *D. W. Swift, PhD—science and technology, sociology of the arts, popular culture
- E. L. Wegner, PhD—medical sociology, social psychology, aging/social gerontology
- *M. G. Weinstein, PhD—qualitative methodology, community, sociology of knowledge
- D. W. Wood, PhD—medical sociology, evaluation research, quantitative methodology, substance abuse treatment
- G. Yang, PhD—collective behavior/social movements, cultural sociology, social theory
- *S. Yeh, PhD—urban sociology, population studies, family

Cooperating Graduate Faculty

- L. B. Arthur, PhD—social psychology, fashion design and society
- M. Chesney-Lind, PhD—criminology, gender and women's issues
- J. Chinen, PhD—women and work, race, class and gender, race and ethnic relations
- M. Delucchi—sociology of education

Affiliate Graduate Faculty

- J. Gartrell, PhD—evaluation research, substance abuse treatment, quantitative methodology
- C. T. Hayashida, PhD—gerontology, medical sociology, health services and policy
- J. Leon, PhD—family, survey research, evaluation research, race and ethnic relations
- V. K. Mishra, PhD—demography, environmental sociology, population and health, comparative (Asia)
- R. D. Retherford, PhD—population, social change (Asia)
- P. S. Xenos, PhD—demography, family relations and youth, sexuality, comparative (Asia)

Adjunct Faculty

- P. Adler, PhD—conflict management, community studies
- J. Dannenberg, JD—law and society
- J. Manis, PhD—social psychology, social problems

Degrees Offered: BA in sociology, MA in sociology, PhD in sociology

The Academic Program

Sociology (SOC) is the study of how society organizes itself and how various groups interact with each other and the consequences of these processes. Sociology's subject matter includes marriage and family patterns, race and ethnic relations, demography, social change, class structure, formal organizations including bureaucracies, value systems, conflict, deviant behavior, and the people and institutions of other societies.

Sociology uses a range of research techniques for studying social phenomena that can be applied to many areas, whether one is interested in the incidence of crime, client satisfaction, policy evaluations, or demographic trends. In addition to preparing people as professional sociologists in academic settings, sociology is an excellent background for careers in law, social work, public health, urban planning, public administration, and other fields. The graduate program provides students with a foundation in basic theory and methods of research. In addition, faculty and advanced graduate students are involved in several broad areas of sociological interest: the comparative sociology of Asia; population studies; the study of crime, law, deviance, and human services in the United States; aging and medical sociology; and race and ethnic relations.

Undergraduate Study

Bachelor's Degree

Requirements

Students must complete a prerequisite introductory sociology course and 30 credit hours of upper division courses, including:

- 9 credit hours at the 400 level
- SOC 300 and 321
- One course from SOC 475, 476, 478, or SOCS 225 (Note: SOCS 225 is a lower division course and cannot be counted toward required upper division credit hours)

Consult the department for graduate and career opportunities.

Minor

Requirements

Students must complete a prerequisite introductory-level sociology course and 15 credit hours, including:

- SOC 300
- One 400-level course
- Three other upper division sociology courses

All courses must be passed with a grade of C or better.

Graduate Study

Two programs of graduate study in sociology are offered: a PhD program, intended to provide a professional basis for research and university teaching, and an MA program,

designed to offer a general sociology curriculum and specialized areas of study relevant to career lines other than university scholarship. Applicants for graduate study in the department must specify which program they wish to enter. Letters of recommendation and GRE General Test scores are required of all applicants; scores for the GRE subject test in sociology are not required but are recommended. A sample of written work is also required of applicants to the PhD program. An undergraduate major in sociology is not required for admission, but some sociology background is recommended. Makeup course work may be required in some cases. Applications will be accepted for either fall term or spring term admission. The application deadline for admission is February 1 for the fall semester and September 1 for the spring semester. The department also provides a more detailed statement of its graduate degree programs and procedures. Persons interested in applying should request a copy of *A Program of Graduate Study* from the department.

Master's Degree

The department offers the MA Plan A (thesis) and MA Plan B (non-thesis).

Plan A (Thesis) Requirements

The general MA curriculum in sociology (Plan A) should prepare the student for possible positions in government and private industry, especially in research activities. In addition, preparatory training is provided to those who aspire to a doctoral degree, but the general MA candidate cannot assume that satisfactory completion of this curriculum will automatically lead to placement in the department's PhD program.

The Plan A program aims to provide the student with a firm foundation in sociological theory, methods of social research (including statistics), and the application of theory and methods to various areas of study.

A minimum of 24 credit hours of course work is required for this program, with an additional 6 credit hours for thesis (SOC 700). All candidates are required to take at least one course each in the areas of sociological theory, research methodology, and social statistics. A minimum of 12 credit hours must be taken in a subfield that reflects the student's special interests. All courses credited toward the 30-credit hour minimum required for the MA degree must be passed with a grade of B or better. At least 12 credit hours of the 30 must be at the 600 level or higher (exclusive of the 6 credit hours for thesis).

The first semester's work is planned in consultation with the graduate chair or an interim adviser appointed by the graduate chair. During the first semester, under the guidance of the graduate chair or the interim adviser, the student prepares a statement outlining a study plan that reflects his or her special interests and meets the credit requirements of the program. Also, the graduate chair or the interim adviser assists in forming the student's three-member thesis committee. One member of the thesis committee may, but need not, be from outside the

department. The thesis committee approves the thesis topic, supervises thesis work, conducts the final oral examination in defense of the thesis, and certifies the completion of the thesis, after which the student is certified as having completed the MA degree program in sociology.

Plan B (Non-thesis) Requirements

Plan B (non-thesis) is offered only in the specialized area of population studies. The population studies program is designed to provide practical training in demographic techniques and to teach the student facts and theories of population studies. Details regarding this area may be obtained from the sociology department.

Doctoral Degree

This is an academic-oriented program. It is designed to provide the student with a firm foundation in sociological theory, methods, and research so the student is prepared to engage in professional research and university teaching.

The course requirement for the PhD program is 33 credits (eleven courses), comprised of (1) five core courses in theory and methods, (2) five substantive courses at the 600 level or above, and (3) one course of SOC 699. The student can complete this 33-credit requirement in either Phase I or Phase II of the PhD program. All courses must be passed with a grade of B or above, and the student must maintain a B average (3.0 GPA) for continued registration.

The first phase of the PhD program provides basic training in theory, methods, and research. The requirement in this phase is to complete the five core courses in theory and methods, and it is recommended that courses at the 400 level or above and one course of SOC 699 be taken. In addition, the student submits a tutorial paper and another term paper. At the end of this phase of work, the student goes through a qualifying review. After passing this qualifying review, the student is allowed to proceed to complete the second phase of the PhD program.

This second phase provides advanced training in areas of concentration and dissertation research. The course requirement in this phase is—if the student has not completed it in Phase I—to take 15 credits (five courses) of substantive courses at the 600 level or above. In addition, the student is required to write and present a research paper of the format and quality publishable in a professional journal, take written and oral comprehensive examinations on two selected areas of concentration, write a dissertation proposal, finish a PhD dissertation, and orally defend the PhD dissertation.

Requirements for Phase I

- 30 credits of course work, including:
 - Five core courses (15 credits) in theory and methods
 - Four other social science courses (12 credits) at the 400 level or above, excluding SOC 699
 - One course of SOC 699 (3 credits)

In the second or third semester, the student takes a directed reading course for the purpose of preparing a tutorial paper.

One Tutorial Paper and One Term Paper. By the beginning of the second semester, the student should meet with the temporary faculty advisers to plan his or her guidance committee. The three-member guidance committee may be comprised entirely of graduate faculty in the Department of Sociology or, if desired, two from inside the department and one from outside.

In the second or third semester, the student will take a directed reading course (SOC 699) to prepare a tutorial paper to be submitted for qualifying review. The guidance committee should include the faculty member with whom the student takes SOC 699.

In the fourth semester, the student selects one of the best term papers he or she has written while doing course work, makes revisions, and submits it along with the tutorial paper he or she has prepared through SOC 699 to the guidance committee for evaluation.

The guidance committee then evaluates the student's performance to determine whether the student should be granted an MA degree. The guidance committee makes this decision on the basis of (1) fulfillment of the 30-credit requirement, which includes 18 credits of courses at the 600 level or above by the fourth semester; and (2) the quality of the two papers submitted. After the guidance committee makes the decision to grant the MA degree, the student may request the graduate chair to certify completion of the MA degree en route (Plan B). Students who already hold an MA in sociology from the University of Hawai'i or another institution may not exercise this option.

Qualifying Review. If the student wishes to proceed to Phase II of the PhD program, the student should request the chair and members of the guidance committee to write a letter of evaluation to the qualifying review committee no later than the sixth week of the fourth semester. The chair of the student's guidance committee may submit a petition to the graduate chair for extension beyond the fourth semester to take the qualifying review.

Each semester, a department-wide qualifying review committee is formed by the sixth week of the semester. This committee evaluates students wanting to continue in the PhD program based on the following information: (1) the student's grades, especially from the required core courses; (2) the two papers submitted by the student; and (3) letters of evaluation from the chair and members of the guidance committee.

The qualifying review committee makes the following evaluation on the student: Honors, Pass, Fail.

When the student who receives a "Pass" or above will be allowed to proceed to fulfill the PhD requirements in Phase II. Should the student receive a "Fail," it will be reported to the Graduate Division.

The student who failed may request a second qualifying review. Dismissal from the PhD program is final if the student receives a second "Fail" from the qualifying review committee.

The PhD Committee. After the student has passed the qualifying review, the graduate chair should immediately assist the student in selecting the chair of his or her PhD committee. The PhD committee chair will assist in forming a five-person PhD committee, including at least one member, but no more than two members, from outside the department.

Requirements for Phase II

In order to prepare the student for advanced training in areas of concentration and serious dissertation research, a total of five substantive courses (15 credits) at the 600 or 700 level (excluding SOC 699) are required for the PhD program. A substantive course is defined as any course not specifically classified as theory or methods. The student may have already taken some substantive courses in Phase I. However, if the student has not fulfilled this five substantive course requirement prior to the qualifying review, he or she must fulfill it before submitting the dissertation proposal.

The Research Paper. The PhD committee will aid the student in developing a research paper that meets the standards and the format implied by the term “publishable journal article.” This research paper can be an extension of an earlier paper used for the qualifying review at the end of the MA Program en route.

Upon approval of the research paper, the student must arrange for presentation of the research paper (in any public academic forum). The presentation gives the student the experience of intellectual exchange in a professional setting. Public presentation of the research paper must be fulfilled before submitting the dissertation proposal.

Comprehensive Examination. Upon approval of the research paper, the student takes the comprehensive examination from the PhD committee. It is composed of two parts: written and oral.

The written comprehensive examination will cover two broadly defined substantive areas, as determined by the student and the PhD committee. The student develops a bibliography for each area, which may serve as a basis for preparing the substantive areas.

The PhD committee makes up three to five questions from the two selected areas of concentration. The student picks up the questions from the graduate secretary on a Monday morning. The student must return the answers to the graduate secretary by the following Monday at noon.

The PhD committee evaluates the written examination and then proceeds to hold a closed oral examination to determine whether or not the student is prepared to undertake dissertation research.

On the basis of the written and oral examinations, the PhD committee renders a decision on the student’s overall performance on the comprehensive examination. The decision will be either “Honors,” “Pass,” “Conditional Pass,” or “Fail.”

Should the student fail the comprehensive examination, the failure must be reported to the Graduate Division. The student may take the comprehensive examination a second time after consultation with the graduate chair. Dismissal from the program is automatic if the student fails the retake examination.

Prospectus and Dissertation. After successful completion of the comprehensive examination, the student is admitted to PhD candidacy and proceeds to the dissertation prospectus.

By now, the candidate should have developed some ideas about research interests, data, and methods. The prospectus is prepared with the help of the student’s PhD committee. The completed prospectus is then evaluated by the student’s PhD committee. The committee makes the final decision on the acceptability of the prospectus.

The dissertation itself should represent an original contribution to the field of sociology in the form of a monograph or a major journal article.

Dissertation Defense. Examination procedures for the dissertation defense are described in the *Graduate Bulletin*. Departmental options are as follows:

- recommend approval as is or with minor revisions, in which case the candidate files a copy according to Graduate Division requirements;
- recommend major revisions or rewriting, in which case a second dissertation defense will be scheduled; or
- recommend that the PhD not be awarded.

The original copy of the dissertation must be submitted to the Graduate Division. In addition, the department requires a copy for its files.

Speech

College of Arts and Humanities
George 326
2560 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8202
Fax: (808) 956-3947
Web: www.hawaii.edu/speech

Faculty

- *R. K. Aune, PhD (Chair)—message and information processing, encoding and decoding in relational communication and social influence, research methods
- *K. S. Aune, PhD—relational management, emotion
- *R. E. Cambra, PhD—interpersonal and instructional strategies, negotiation, intercultural
- *A. S. E. Hubbard, PhD—nonverbal communication, conflict and relational management, research methods
- *M. S. Kim, PhD—intercultural/international communication, persuasion and social influence
- *R. S. Klinge, PhD—persuasion and social influence, health communication
- C. Kulp, PhD—interpersonal communication, close relationships
- H. Lee, PhD—health and political communication, campaigns
- M. Mazur, PhD—interpersonal and computer mediated communication
- *W. F. Sharkey, PhD—family communication, interpersonal and social relations

Cooperating Graduate Faculty

R. Brislin, PhD—cross-cultural communication
 J. H. Bentley, PhD—critical methods
 J. G. Carlson, PhD—behavioral medicine
 T. Hilgers, PhD—discourse evaluation, language production,
 comparison of written and oral communication

Degrees Offered: BA in speech, MA in speech

The Academic Program

The Department of Speech (SP) has as its primary objectives the development of knowledge in and instruction concerning the process of speech communication. This involves three fundamental areas of emphasis. The first area is human message processing, which involves understanding the function and structure of the various codes, verbal and nonverbal, used to form messages in speech communication, as well as examining the encoding and decoding processes involved in speech communication. The second is relational communication, which focuses on factors that influence growth, maintenance, and termination of relationships. The third is social influence, dealing with the processing of beliefs, attitudes, and behavioral modification, including gaining compliance, conflict resolution, persuasive campaigns, and propaganda.

Speech is predominantly a discipline of systematic, purposeful thinking and communicating. Students obtain a liberal education of considerable breadth and depth in regard to speech communication theory. Furthermore, they are afforded ample opportunity to develop their communicative skills by applying theory in such diverse activities as interviewing, group discussion, organizational communication, intercultural communication, public speaking, interpersonal communication, debate, and performance of literature. Indeed, the basic philosophy of this department—and it is stressed in every course and co-curricular program offered—is that there is no surer preparation for professional life and participation in society than an education that enhances the ability of the individual to maintain lifelong learning and the skills to communicate effectively.

Undergraduate Study**Bachelor's Degree****Requirements**

Students must complete 33 credit hours, including:

- SP 201, 251, 302, 381, 364
- SP 370 or SP 470

SP 201 and 302 should be taken no later than the semester after the major is declared. SP 151 and SP 200 do not count toward the 33-credit-hour minimum.

Minor**Requirements**

Students must complete 15 credit hours of speech, including:

- SP 381 and 364
- SP 370 or SP 470
- 6 credit hours of non-introductory elective courses

Graduate Study**Master's Degree**

The Department of Speech offers an innovative MA program emphasizing the central processes and functions of human communication. To that end, course work, seminars, and student research develop a cross-situational understanding of theory and research in the three areas central to the discipline: message processing, relational communication, and social influence.

All applicants for the MA program in speech must supplement the application and transcripts required by the Graduate Division with three letters of recommendation (preferably from professors with whom the applicant has worked), a one-page statement of goals, and the GRE General Test scores. These supplementary items should be sent directly to the department.

Intended candidates for the MA should have a strong undergraduate preparation in speech or a closely allied discipline. Students who lack this preparation must make up deficiencies either before or during graduate study. In the latter case, the student will be admitted conditionally, pending removal of the deficiencies.

Further details on the program and the faculty, as well as any changes in course offerings, may be requested from the department.

Requirements

The department offers both Plan A (thesis) and Plan B (non-thesis) programs. Plan A requires a minimum of 30 credit hours of graduate work, at least 24 of which must be in speech courses numbered 600 and above, including 6 credit hours of SP 700 Thesis Research. Plan B requires a minimum of 30 credit hours of graduate work, at least 24 of which must be in speech courses numbered 600 and above. Speech courses numbered 400 to 499 and courses from allied disciplines may be counted toward the degree only with prior consent of the graduate chair. SP 601 and 602 are required for both Plan A and Plan B programs.

For graduation, each candidate must present an acceptable thesis (applied research report for Plan B) and must pass a final oral examination based on the thesis for Plan A or on course work and the research report for Plan B.

Theatre and Dance

College of Arts and Humanities
Kennedy Theatre 115
1770 East-West Road
Honolulu, HI 96822
Tel: (808) 956-7677
Fax: (808) 956-4234
Web: www.hawaii.edu/theatre

Faculty

- *W. D. Carroll, PhD (Chair)—playwriting, directing, theory
- *P. Gaither Adams, MFA—modern dance, choreography
- *M. Boyd, MFA—technical theater
- *G. Cannon, AB—acting, directing, TV/film
- *J. Dodd, MFA—scene design
- *S. Finney, MA—costume design
- *E. Fisher, MA—modern techniques, dance history, choreography
- *P. Hunt, EdD—dance and theater for children
- *T. Hunt, PhD—theater for children, puppetry, creative drama
- *J. Iezzi, PhD—Asian theater
- *T. Knapp, Dipl—acting, directing
- *G. Lizenbery, BFA—modern dance, kinesiology
- *R. Long, PhD—Asian theater, acting
- *L. O'Malley, PhD—theater history, dramatic literature
- *K. Pauka, PhD—Asian theater
- *M. Wessendorf, PhD—dramatic literature, theory
- *E. Wichmann-Walczak, PhD—Asian theater
- *J. Van Zile, MA—dance ethnology, notation

Affiliate Graduate Faculty

- M. Cristofori, MA, MBA—theory and dance history
- H. Glass, MA—improvisation, choreography
- P. Leong, MA—Asian theater, movement
- M. Wong, MA—modern dance, choreography

Degrees Offered: BA in dance, BA in theatre, BFA in dance theatre, MA in dance, MA in theatre, MFA in dance, MFA in theatre, PhD in theatre

The Academic Program

The Department of Theatre (THEA) and Dance (DNCE) is comprised of two separate but related disciplines.

Theater includes the study of dramatic literature and theory; acting and directing; stage, costume, and lighting design; stagecraft; playwriting; and Asian and youth theater. Imaginative and creative individuals interested in the disciplined, practical application of classroom theory are suitable candidates as theater majors. Teaching and professional stage, film, and television work are typical professions of theater majors, but the analytical and practical skills, discipline and

self-confidence, creativity, problem solving, and ability to work toward common production goals are applicable to all professions. The theater major will benefit from a comprehensive curriculum that includes the world's most noted Asian theater program and a nationally respected youth theater program.

Dance is the art of human motion. It encompasses the study of human movement as it relates to the physical sciences, music, theater performance and production, history, cultural context, education, visual design, and human expression. Dance majors find careers in the areas of performance, choreography, teaching, arts administration and production, therapy, history and criticism, and research. The University's dance program offers comprehensive theory courses and a wide variety of dance techniques and styles. The program is considered unique with its offerings in dance ethnology and Asian and Pacific dance.

Affiliations

The department's Asian theater program is affiliated with the Association for Asian Performance.

The dance program is affiliated with the American College Dance Festival Association and the Council of Dance Administrators.

Advising

After being admitted as majors in the theater program, undergraduates must consult each semester with the theater undergraduate adviser. Newly admitted theater graduate students should consult each semester with the director of graduate studies in theater for initial advising. After one year of study, a graduate student is expected to select from the graduate faculty a permanent adviser well-versed in the area of the student's concentration.

In dance, undergraduate majors must consult with the dance undergraduate adviser every semester. Graduate students should consult with the director of graduate studies in dance.

Undergraduate Study

Bachelor's Degree

BA in Theatre

- Students must complete 42 credit hours, including:
 - THEA 240, 311, 312, 411, and 412
 - Two courses in Asian theater (one in theory/history/literature, one in performance)
 - One course each in acting, voice/movement, directing, design, and youth theater
 - 6 credits of theater workshop
 - Recommended additional courses: ART 101, DNCE 150 or 255, MUS 106 or 107, and PHIL 200

BA in Dance

Students must complete 40 credit hours: 29 credits of required courses and 11 of elective courses. Elective credit hours are determined in consultation with an adviser and based on the student's desired focus within dance, such as children's dance, choreography, dance ethnology, or dance science.

Requirements.

- DNCE 151, 255, 260, 360 or 361, 370 or 490, 452 or 453
- THEA 200
- 12 credits of dance technique at the 200 level or above, including:
 - 3 credits in ballet
 - 3 credits in modern dance
 - 3 credits from *two different* Asian/Pacific dance forms
- 11 credits of electives to be selected from:
 - DNCE 250, 360, 361, 362, 370, 371, 372, 452, 453, 459, 470, 471, 480, 490, 499, 660, 693
 - THEA 200

BA Dance students are required to participate in at least one (1) University dance production per year.

Graduation requirements include the submission of a portfolio of student work eight (8) weeks into the student's final semester; and an exit interview.

BFA in Dance Theatre

This program is designed for students who wish to pursue professional careers as dancers, teachers, and/or choreographers. Admission to the program is by audition held annually. Interested students should notify the Department of Theatre and Dance as early as possible, since the BFA requires 60 credit hours in dance, including advanced-level dance technique courses, plus 2 credit hours in theater practicum.

Requirements.

Students must complete 62 credit hours, including:

- DNCE 151, 250, 360, 361, 362, 370, 371, 372, 452, 453
- 1 credit hour of DNCE 495
- 6 credit hours of DNCE 321
- 6 credit hours of DNCE 331
- 3 credit hours of DNCE 470 or 480
- 2 credit hours in two different Asian or Pacific dance performance courses
- 6 credit hours of ballet technique at the 300 level or higher (DNCE 321 or 421) or 6 credit hours of modern dance technique at the 300 level or higher (DNCE 331 or 431)
- 6 credit hours of DNCE 421 or 431
- 2 credit hours of THEA 200

Recommended courses.

- DNCE 255, 490, 660, 693
- THEA 101, 221

BFA Dance students are required to participate in at least two (2) University dance productions per year.

Graduation requirements include the submission of a portfolio of student work eight (8) weeks into the student's final semester; and an exit interview.

Minor in Dance

Requirements. Students must complete 15 credit hours numbered 200-level and above, including:

- 9 credit hours in courses numbered 300 or above
- Maximum of 9 credit hours from dance technique courses

Minor in Theatre

Requirements. Students must complete 15 credit hours in courses numbered 200 or above, including 9 credit hours in courses numbered 300 or above. Participation in two departmental productions is required. Theatre minors should consult with the undergraduate theatre adviser.

Graduate Study

Most graduates, especially those with PhD degrees, pursue teaching careers, but there are many career opportunities in community theaters, dance companies, radio, television, films, and professional theaters.

The degrees in Asian theater are recognized Western Interstate Commission for Higher Education (WICHE) regional graduate programs. Residents of Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, Washington, and Wyoming are eligible, upon admission, to enroll at Hawai'i-resident tuition rates.

Master's Degrees**Master's Degrees in Theatre**

Master's degrees in theatre offered are the MA Plan A (thesis) and Plan B (non-thesis) and the MFA Plan B (creative/performance). For the MA Plan A, the candidate does research in theater history, theory, or dramatic literature; the thesis may be in Asian, Western, or youth theater. For the MA Plan B, a generalist degree, the candidate takes additional advanced course work in lieu of writing a thesis. The MFA Plan B emphasizes creative or performance work in six concentrations: acting, directing, design, and playwriting (each of these four may include Western, Asian, and youth theater work), Asian performance, and youth theater.

Applicants must present an adequate undergraduate background and submit three letters of recommendation, as well as official scores from the GRE General Test. The department expects that all incoming graduate students will have taken at least two courses in dramatic literature and one course in each of the following four areas: acting, directing, design or technical theater, and theater history. If such courses have not been taken, they will be made up as undergraduate

deficiencies while in residence for the master's program and will not count toward the credit accumulation for the master's degree. The TOEFL minimum score for foreign students is 600. Applicants for the MA Plan A degree are also expected to submit a major paper; those seeking the MFA degree should present appropriate supplementary materials such as slides, photographs, video, or play scripts.

Application deadline for the fall semester is **February 1 (January 15 for foreign applicants)**. Spring semester application deadline is **September 1 (August 1 for foreign applicants)**. Upon the successful completion of 12 graduate credit hours within the department, the elimination of any undergraduate deficiencies, and (for MFA students) the presentation of an acceptable qualifying creative project, the student may be admitted to candidacy.

Students pursuing an MA in theatre develop, with an adviser, a program appropriate for their interests (minimum of 39 credit hours). The program must include 3 credit hours in each of the following areas: research methods (THEA 600); Asian theater theory/history; Western theater theory/history; youth theater, creative drama, creative movement, or Western puppetry; Asian or Western acting or directing; design/technical theater; and graduate theater workshop (THEA 690), in which students receive 1 or 2 credit hours (depending upon extent of involvement) for working on a single Kennedy Theatre production. A minimum of 18 credit hours must be in courses numbered 600 to 798 (excluding 700); a minimum of 6 credit hours must be in Asian theater (excluding 690); credit for 699 may not exceed 9 credit hours. In addition, MA Plan A students must complete 6 credit hours of THEA 700 Thesis Research. For both MA degrees, students will take a three-hour written comprehensive examination followed by an oral examination. MA Plan A students will have an additional oral comprehensive on the written thesis.

MFA students in all concentrations will take a minimum of 60 credit hours comprised of 12 credit hours of foundation courses (3 credits in research and 9 in history and/or theory); 39 credit hours of concentration courses, including enrollment in THEA 690 Graduate Theater Workshop, in which students receive 1 or 2 credit hours (depending upon extent of involvement) for working on a single Kennedy Theatre production, and a culminating project for which the student will enroll in 6 credit hours of THEA 695 Creative Project; and 9 credit hours of electives. Of the total 60 credit hours, 30 must be at the 600 level or above. There is no written comprehensive examination for the MFA degree. However, the culminating project will include a written component that goes beyond the descriptive record of the project; the thesis committee, in conjunction with the candidate, will decide the nature, extent, and scope of the written component in each case. Additionally, each student will be given an oral examination on the culminating project.

To receive a list of specific recommended courses for meeting MA and MFA requirements, contact the departmental director of graduate studies. Students will select their elective

courses (MA Plan A, 12 credits; MA Plan B, 18 credits; or MFA Plan B, 9 credits) in consultation with their advisers to reflect their special interests. Students with sufficient undergraduate preparation may take approved related graduate courses in other departments for credit toward their degree.

In consultation with an adviser, each MFA student develops a program appropriate for his or her interests within the specific requirements of one of the following concentrations:

Acting. For the concentration in acting, students must complete 3 credits in research; 9 credits in history and/or theory (minimum 3 credits in Asian and 3 credits in Western); 6 credits in voice; 6 credits in movement and/or dance; 12 credits in acting (minimum 3 credits in Asian and 3 credits in Western); 3 credits in additional creative/performance courses in above areas or in directing, design/technical theater, or playwriting; 6 credits of THEA 690 Graduate Theater Workshop (a minimum of 4 credits in acting and 1 credit in technical theater; 1 credit may be in design, directing, playwriting, etc.); a minimum of 2 credits in faculty-directed and 2 credits in student-directed shows); and 6 credits of THEA 695 Creative Project.

Design. For the concentration in design, students must complete 3 credits in research; 9 credits in history and/or theory, Asian and/or Western (minimum one 3-credit seminar); 3 credits in costume design or construction (400 level or above); 3 credits in lighting design (400 level or above); 3 credits in set design (400 level or above); 3 credits of THEA 657 Topics in Theater Design; 9 credits in additional design courses (costume, lighting, or set, 400 level or above); 6 credits in creative/performance courses (in at least two areas including acting, directing, dance, playwriting, puppetry, or theater management); 6 credits of THEA 690 Graduate Theater Workshop (minimum 4 credits in design; 2 credits may include acting, directing, playwriting, stage managing, etc.; minimum 2 credits in faculty-directed and 2 credits in student-directed shows); minimum 3 credits in Asian theater (excluding THEA 690); and 6 credits of THEA 695 Creative Project.

Directing. For the concentration in directing, students must complete 3 credits in research; 9 credits in history and/or theory (minimum 3 credits in Asian and 3 credits in Western, 3 credits of which must be in theory); 3 credits in script analysis; 12 credits in graduate-level directing (minimum 3 credits in Asian and 3 credits in Western); 6 credits in design/technical theater (in two areas— theater design, costume, lighting, or set); 6 credits in creative/performance courses (in at least two areas—acting, choreography, dance, movement, music, playwriting, puppetry, or voice); 6 credits of THEA 690 Graduate Theater Workshop (minimum 4 credits in directing including assistant directing and dramaturgy; 2 credits may include acting, design, playwriting, stage managing, etc.; minimum 2 credits in faculty-directed and 2 credits in student-directed shows); and 6 credits of THEA 695 Creative Project.

Playwriting. For the concentration in playwriting, students must complete 3 credits in research; 9 credits in history and/or theory (including 3 credits in Asian and 3 credits in Western, both at 600 level or above); 9 credits in playwriting (excluding THEA 318); 3 credits in script analysis; 3 credits in contemporary dramatic literature or theater history; 6 credits in design/technical theater (including 3 credits in lighting design); 3 credits in acting or directing (Asian or Western); 3 credits in movement, dance, or music (Asian or Western); 3 credits in puppetry or youth theater; 3 credits of THEA 690 Graduate Theater Workshop in dramaturgy; electives may include an additional 3 credits of THEA 690 (in acting, design, directing, playwriting, stage managing, etc.); and 6 credits of THEA 695 Creative Project.

Asian Performance. For the concentration in Asian performance, students must complete 3 credits in research; 9 credits in Asian theater history/theory; 9 credits in Asian acting; 6 credits in Asian/multicultural directing; 3 credits in Asian/Pacific music and dance (minimum 1 credit in music and 1 credit in dance); 3 credits in design/technical theater or playwriting; 6 credits of additional creative/performance courses in above areas or courses at the graduate level in Western acting or directing; 6 credits of THEA 690 Graduate Theater Workshop (minimum 4 credits in Asian performance—acting, directing, or puppetry; 2 credits may include other courses in acting, design, directing, playwriting, stage managing, etc.; minimum 2 credits in faculty-directed and 2 credits in student-directed shows); and 6 credits of THEA 695 Creative Project.

Youth Theater. For the concentration in youth theater, students must complete 3 credits in research; 9 credits in Asian and/or Western history and/or theory; 3 credits in creative drama; 3 credits in youth theater; 3 credits in puppetry; 3 credits of THEA 779 Seminar in Theater/Dance for Children; 21 credits in creative drama, creative movement, design, directing, playwriting, puppetry, and/or youth theater, including 1 to 6 credits of THEA 690 Graduate Theater Workshop in acting, design, directing, playwriting, stage managing, etc.; minimum 3 credits in Asian theater (excluding THEA 690); and 6 credits of THEA 695 Creative Project.

Master's Degrees in Dance

The department's graduate offerings in dance include the MA Plan A (two options), the MA Plan B (two options), and the MFA Plan A. For admission to the master's in dance program the GRE is not required; for foreign students the minimum TOEFL score is 540. The MA Plan A requires a written thesis. In Plan B, a generalist degree, the candidate takes additional course work in lieu of a thesis. The MFA Plan A requires a creative performance thesis with accompanying written documentation. Intended dance candidates for all degrees must present an adequate undergraduate background in dance or a related field and submit three letters of recommendation. MFA candidates in dance must also submit a video (VHS format) of their choreography and performance. MA and MFA candidates must submit a sample of written work, such as a major paper. The application deadline for the fall semester is **February 1 (January 15 for foreign applicants)**.

Spring semester application deadline is **September 1 (August 1 for foreign applicants)**. Upon the successful completion of 12 graduate credit hours within the department, the elimination of any undergraduate deficiencies, and (for MFA students) the presentation of an acceptable example of creative work (the qualifying dance) the student may be admitted to candidacy.

The MA Plan A emphasizes research in dance ethnology or other general areas. The MA Plan A, Option I (dance ethnology emphasis) requires a minimum of 36 credit hours, including DNCE 651, 652, 653, 661, 654 or 655, and 700 (6 credit hours); 3 credit hours in 400-level Asian or Pacific performance courses; related area electives (6 credit hours); dance electives (3 credit hours); and general electives (3 credit hours). All electives must relate to thesis research. Candidates must pass a reading or speaking proficiency exam in a foreign language relevant to their area of thesis research or must satisfactorily complete four semesters of a language relevant to their area of thesis research.

MA Plan A, Option II (general) requires a minimum of 36 credit hours, including DNCE 651, 652, and 700 (6 credit hours); 9 credit hours from DNCE 321, 331, 421 or 431; 600-level dance theory electives (6 credit hours); general electives (6 credit hours); and 3 credit hours in two different Asian or Pacific dance forms.

MA Plan B, Option I (dance education emphasis) requires a minimum of 36 credit hours, including DNCE 651, 652, 691, 693, and 659 or 699; 9 credit hours from 321, 331, 421, 431; 3 credit hours in 300- to 400-level Asian or Pacific dance courses; and 9 credit hours of electives (3 credits at the 600 level).

MA Plan B, Option II (general) requires a minimum of 36 credit hours, including DNCE 651, 652, and 659 or 699; 9 credit hours from 321, 331, 421, 431; 3 credit hours from 300- to 400-level Asian or Pacific dance courses; 6 credit hours of 600-level dance theory electives; 3 credit hours of 600-level electives outside of the dance area; and 6 credit hours of general electives.

The MFA Plan A emphasizes performance and choreography. The MFA Plan A requires a minimum of 60 credit hours, including DNCE 421 or 431 (18 credit hours); DNCE 651, 652, 660, 661, 671, and 672 (4 credit hours); DNCE 679 (2 credit hours), 691, and 700 (6 credit hours); 2 credit hours in two different Asian or Pacific dance forms; 3 credit hours in 600-level dance electives; 6 credit hours in non-dance electives; and 1 credit hour in a general elective. MFA candidates must participate in two dance productions a year.

The nature of the required performance in productions should be determined in consultation with the student's adviser.

MFA Plan A and MA Plan B require written comprehensive examinations and an oral defense of the examination. MA Plan A and MFA Plan A require an oral defense of the thesis.

Doctoral Degree

The Doctor of Philosophy degree given for scholarship in theater history, theory, or criticism, not creative or artistic work, is offered in three areas: (a) Western theater, (b) Asian theater, and (c) comparative Asian-Western theater. The PhD degree is

not conferred for the acquisition of academic credits. It is granted only to candidates who demonstrate outstanding ability to do imaginative research and who present the results in a cogent dissertation.

A candidate for the degree is required to successfully complete three semesters of full-time residence, required courses (detailed below), other courses as deemed necessary by the student's doctoral committee, examination in the research language(s) used in the student's dissertation research, a written and oral comprehensive examination and an oral defense of the student's dissertation. The minimum residence requirement is three semesters of full-time work or the equivalent in credits at the University. At the end of the second semester in residence, the graduate faculty will provide the candidate with an assessment of her or his progress to date.

Required courses in the Western area are THEA 600, plus three other 600- to 700-level courses from a departmental list of approved courses; required courses in the Asian area are THEA 464, 465, and 466, as well as THEA 660 if the candidate's dissertation requires field research. The curriculum of the comparative Asian-Western theater area is determined by the student's doctoral committee. A high level of accomplishment in the foreign language or languages appropriate to the proposed area of research is required and will be determined by examination.

Proficiency in teaching, whether lecturing before large classes or teaching smaller classes and leading discussions, is considered part of the training of all PhD candidates, who should demonstrate this proficiency by giving several such lectures or by serving as teaching assistants.

Written comprehensive examinations and two hours of oral comprehensive examinations are required of all candidates before admission to candidacy. These are given after a student has completed the language requirement and before embarking on the dissertation. Written comprehensive exams shall consist of nine questions, one or more of which will specifically address the candidate's major area of research and one or more of which may be of a special nature at the discretion of the candidate's committee. The comprehensive includes questions on both Asian and Western drama and theater; further guidelines are available from the graduate adviser. The questions on the written portion are posed by the theater and dance graduate faculty and members of the student's committee. The doctoral committee consists of at least five graduate faculty, of whom a majority are from the Department of Theatre and Dance and at least one from another department.

Applicants for admission to the program must submit a detailed statement of the dissertation research they propose, three letters from those acquainted with their academic work, a sample of their research (such as a seminar paper or a master's thesis), and official GRE General Test scores. The application deadline for admission in the fall semester is **February 1 (January 15 for foreign applicants)**. Spring semester application deadline is **September 1 (August 1 for foreign applicants)**. Requirements include a broad background in the humanities, a master's degree in theatre or its equivalent, and competence in dramatic production.

Candidates for the PhD who do not complete all requirements within seven years after admission into the doctoral program may be readmitted to candidacy only on the approval of the department's doctoral faculty and the Graduate Division.

Urban and Regional Planning

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Faculty

- *K. E. Kim, PhD (Chair)—planning theory, planning methods, infrastructure planning, and alternative tourism planning
- *M. Douglass, PhD—regional and rural development planning, urbanization and national development, international and local development on Pacific rim and in Asia
- *P. Flachsbart, PhD—planning methods and models, environmental planning, energy, land use planning, and urban transportation planning
- D. Foley, PhD—strategies of citizen participation, collaboration, nonprofit planning and management, community building, and community-based planning
- *R. Kwok, PhD—urbanization in China, East Asian development, spatial planning and urban design, development and regional economics
- *G. K. Lowry, PhD—alternative dispute resolution, coastal management, planning theory, and community-level planning
- *L. Minerbi, Dott Arch, MUP—comparative urbanism, settlement planning, environmental planning, urban design, community development, planning with indigenous people, and Pacific Island planning
- *K. Umemoto, PhD—community planning, planning theory, social theory, social policy, community economic development, and race in ethnic relations

Cooperating Graduate Faculty

- D. L. Callies, JD—land use management and control, intergovernmental relations
- M. Chapman, PhD—population studies
- L. Cox, PhD—agricultural and resource economics
- A. B. Etherington, MA—housing, community services in developing countries of Southeast Asia
- M. Hamnett, PhD—anthropology
- *M. C. Jarman, PhD—environmental law, ocean law, legal writing
- N. Lewis, PhD—geography of health and disease, marine resource utilization and management, and women in development
- J. M. McCutcheon, PhD—social, cultural, and urban history
- M. McDonald, PhD—agricultural change, social theory, political geography, Japan

- D. Neubauer, PhD—political analysis, appraisal of health care delivery systems and policy discourse, alternative economic development, and political economy in Hawai‘i
- L. H. Nitz, PhD—public policy and political economics
- C. Papacostas, PhD—transportation engineering and design
- S. Rab, PhD—architecture history and theory
- *K. Suryanata, PhD—political ecology, agriculture, rural development in Asia, environment and development, community-based resource management
- M. Tehranian, PhD—communications planning
- W. Wood, PhD—international public health planning
- S. Yeh, PhD—housing, urban sociology, development planning
- W. H. R. Yeh, MArch—architectural and urban design

Affiliate Graduate Faculty

- J. Fox, PhD—land use, forest resources and management, geographical information systems and spatial information technology, South and Southeast Asia
- M. Valencia, PhD—regional planning in Asia

Degree and Certificates Offered: MURP, Certificate in Planning Studies, Professional Certificate in Urban and Regional Planning

The Academic Program

Urban and regional planning (PLAN) is a dynamic field, that is still evolving. It emerged out of the convergence of two concerns: (1) the provision of urban infrastructure and (2) the initiation of social reform. While the underlying focus on community well-being continues, urban and regional planning today has broadened to include the development, implementation, and evaluation of a wide range of policies. Specifically, urban and regional planners, in both developing and developed countries, are concerned with the following:

1. The use of land in the city, in the suburbs, and in rural areas, particularly with the transition from one use to another;
2. The adverse impacts of human activities on the environment and the possible mitigation of those impacts;
3. The design of the city and the surrounding region so as to facilitate activities in which people need and want to engage;
4. The organization of settlement systems and the location of human activities in urban and regional space;
5. Identification of social needs and the design and provision of services and facilities to meet those needs;
6. The distribution of resources and of benefits and costs among people;
7. The anticipation of change and its impact on how people do and can live;
8. Participation of citizens in planning processes that affect their future; and
9. The way that choices are made, decisions implemented, and actions evaluated, and the means by which those processes can be improved in urban and regional areas.

The Department of Urban and Regional Planning takes a multidisciplinary approach to planning education, recognizing in particular the important contributions to planning that can be made by the social and natural sciences and by the architectural,

public health, social work, and civil engineering professions; emphasizes extensive community involvement; engages in research that focuses on application of planning methodologies and implementation of planning endeavors; recognizes the close relationship between urban and regional planning and politics; acknowledges the difficulty of resolving the value differences that lie at the heart of most planning problems; and appreciates both the importance and the elusiveness of critical concepts, such as “the public interest,” to urban and regional planning.

UH Master of Urban and Regional Planning (MURP) graduates, of whom there are about 250, hold planning and related positions in a variety of public agencies, academic institutions, nonprofit organizations, and private firms in Hawai‘i, on the continental United States, and in the Asia Pacific region.

Accreditation

The department is accredited by the Planning Accreditation Board.

Graduate Study

The department offers a multidisciplinary approach to planning education. Students are provided with an opportunity to develop an individualized but integrated course of study drawing on this department and other departments and professional schools in the University. Faculty and students engage in both funded and non-funded research and community service. The graduate curriculum focuses on theory, methodology, and practice in the following areas: community planning and social policy, environmental planning, urban and regional planning in Asia and the Pacific, and land use and infrastructure planning. Planning in the developing countries of Asia is emphasized.

For further information regarding the master’s degree or certificate programs, students should write to the department.

Master’s Degree

Students enter the MURP program from a variety of fields, usually the social sciences, architecture, engineering, public health, social work, and, increasingly, the natural sciences, but also from such diverse fields as philosophy, human development, and history. Students coming into the program are required to have an adequate background in descriptive and inferential statistics or to acquire this background prior to enrollment in PLAN 601 and 605.

Native speakers of English are required to take the GRE General Test. Others will be expected to have achieved adequate preparation in English as evaluated by the TOEFL. Each applicant should provide two letters of reference, preferably from individuals acquainted with the applicant academically or professionally. In addition, applicants must complete a self-assessment form and an express information form (available from the department). An interview with a member of the faculty, if feasible, is highly recommended. The deadline for application for admission is March 1 for the fall semester and September 1 for the spring semester.

Standards for a graduate with a MURP degree include the following:

1. Knowledge of the structure and the growth and transformation processes of human settlements;
2. Knowledge of planning theory, history, and ethics, including an understanding of the social and political nature of planning;
3. Knowledge of general methods and models appropriate to urban and regional planning, including methods appropriate to a chosen area of concentration;
4. Knowledge of planning information systems and computer applications in planning;
5. Ability to structure and evaluate alternative plans and strategies for resolving or mitigating planning problems;
6. Ability to communicate, especially in written and oral form; and
7. Ability to plan with, rather than for, clients.

MURP graduates hold a variety of planning and related positions in public agencies, nonprofit organizations, and private firms. In Hawai'i these include the state Department of Business, Economic Development and Tourism; the Department of Health; the Land Use Commission; the Legislative auditor; the Department of Hawaiian Home Lands; the House Majority Research Office; the Hawai'i Community Development Authority; the Housing Finance and Development Corporation; the Department of Public Safety; the Department of Land and Natural Resources; the U.S. Department of Housing and Urban Development; the Honolulu City and County Departments of General Planning; Land Utilization, Housing and Community Development, and Parks and Recreation; the Office of the Managing Director; the Office of Council Services; the Planning Departments of the counties of Hawai'i, Kaua'i, and Maui; the Neighborhood Justice Center; banks and trust companies; consulting firms; development corporations; real estate firms; university research and extension organizations; and community colleges.

On the continental United States, graduates are city and county planners, program analysts in federal agencies (e.g., Office of Coastal Resource Management and Office of Management and Budget), and planning consultants. Other graduates include a planner for a nonprofit housing corporation, a lawyer-planner, and a law professor. Overseas positions include planners with regional planning, housing redevelopment and environmental agencies, the United Nations, and private development and consulting firms, as well as faculty in university programs. Several MURP graduates are pursuing doctoral degrees in planning, geography, political science, and economics, while others are seeking law degrees.

Requirements

The MURP degree is a two-year professional program that requires a minimum of 42 credit hours. It is designed to equip students to fill professional planning and policy analysis roles in public agencies, private firms, and community groups, particularly in Hawai'i, Asia, and the Pacific Basin. All students complete the core sequence (planning theory, planning methods, spatial planning theory, economic analysis for urban

and regional planning, and planning models, a 6-credit-hour practicum, and three of the following courses: PLAN 610, 620, 630, and 640). The remainder of the academic program, including a second methodology course, is individually designed with concentration in a specialized area of the student's own choosing (with the consent of his or her adviser), provided adequate academic resources are available in the department and at the University. Grades of B or better are required in PLAN 600, 601, 602, 603, and 605, and an average of B or better must be earned in all courses counted toward the MURP degree. MURP students receiving a grade lower than a B will be allowed one additional opportunity to achieve a B or better in each core course.

Both Plan A (thesis) and Plan B (non-thesis) programs are available. All students are required to pass a final, which includes a successful defense of the thesis on the selected area of concentration, and to meet the program standards for graduation.

Professional Certificate in Urban and Regional Planning

The Professional Certificate in Urban and Regional Planning is designed for practicing planners eligible for graduate admission who are not able to attend school for the two years required to earn a MURP degree.

Professional certificate candidates specialize in one of the following four fields: community planning and social policy, environmental planning, land use and infrastructure planning, or urban and regional planning in Asia and the Pacific.

Professional certificate candidates are required to earn 18 credit hours including PLAN 600; 602 or 603; and 601 or 605. Each candidate selects a field of interest in which he or she takes three courses including PLAN 610, 620, 630, or 640. The specific courses are selected in consultation with the candidate's faculty adviser.

Applicants for the professional certificate program should apply to the Graduate Division as special non-degree students. Two letters of reference should be sent to the department from people who are familiar with the applicant's academic or professional record. Applicants must have earned a BA, BS, or a professional degree; have maintained a minimum GPA of 3.0 in the four semesters prior to admission; and have had at least three years of professional practice prior to admission.

Certificate in Planning Studies

The Certificate in Planning Studies allows students pursuing a master's or doctoral degree in another area to become acquainted with planning skills and activities. Students enrolled in graduate programs in architecture, economics, engineering, geography, political science, public health, social work, and sociology are among those eligible. Students are encouraged to use the certificate program to increase their competence in planning as it relates to their major area of study.

Certificate students are required to take five courses offered by the department and complete the requirements for a master's degree in their area of study. The required courses are PLAN 600, 601 or 605, and 751. The remaining two courses

are to be selected from among the following courses by the certificate student in consultation with the faculty member responsible for directing the planning studies certificate program: PLAN 601 or 605 (whichever was not taken as a required method course); 602 or 603; and one of 610, 620, 630, or 640, or one elective course.

Successful completion of the program leads to a graduate degree in the student's chosen field and a Certificate in Planning Studies. Consideration for admission to the certificate program requires filing of an application form available from the department.

Women's Studies

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Faculty

- *T. Arámbula Greenfield, EdD (Director)—science, gender, education
- S. Charusheela, PhD—feminist political economy, gender and development
- *M. Chesney-Lind, PhD—criminology, sociology of gender
- *R. Dawson, PhD—women and literature
- *K. Ferguson, PhD—feminist theory, political theory
- S. Hippensteele, PhD—psychology, law, civil rights
- *M. Koikari, PhD—sociology, Asia-Pacific studies

Affiliate Faculty

- N. Altizer—English
- B. Andaya—Asian Studies
- B. Aquino—political science
- L. Arthur—human resources
- A. Auman—journalism
- C. Bacchilega—English
- C. Browne—social work
- V. Dalmiya—philosophy
- L. Despain—English
- A. Feeser—art
- R. Fong—social work
- C. Franklin—English
- M. Ghosh—librarian
- M. Hara—English
- R. Hsu—English
- T. Hunt—anthropology
- C. Jarman—law
- K. Kane—Center for Teaching Excellence
- V. Kanuha—social work
- B. Keever—journalism
- N. Lewis—East-West Center
- L. Lyons—English
- S. Macleod—Study Abroad Program

- K. Phillips—English
- K. Reynolds—Japanese
- L. Ruch—sociology
- C. Sinavaiana—English
- A. Sloat—nursing
- M. Stark—anthropology
- K. Takara—ethnic studies
- H. Trask—Hawaiian studies
- K. Umemoto—urban and regional planning
- V. Wayne—English
- C. Yano—anthropology
- A. Yap—academic adviser
- M. Yue—Chinese literature
- K. Zhou—political science

Degree and Certificates Offered: BA in Women's Studies (through Liberal Studies), Undergraduate Certificate in Women's Studies, Graduate Certificate in Advanced Women's Studies

The Academic Program

The Women's Studies program offers an interdisciplinary approach to the study of women and gender issues. The purpose of the program is to provide a rigorous and integrated academic experience for students interested in feminist research and teaching, giving them a coherent program of study in contemporary scholarship in feminist and gender studies. With a faculty trained in a variety of fields of study, the program investigates the role of gender as it intersects with race, class, and other vectors of power in shaping history, psychology, anthropology, economics, sociology, political science, philosophy, literature, language, art, drama, education, law, medicine, and biology.

Women and men from all colleges at the Mānoa campus take women's studies courses because of their intellectual vigor, their political insight, and their interdisciplinary ties to other fields of study. Many courses are cross-listed with other departments. Women's studies is a uniquely powerful avenue of self-understanding, as well as a means of connecting research on women and gender to other academic interests. Those who understand the workings of gender in personal lives and social orders can better pursue a variety of careers and life goals. Women's studies offers a unique opportunity to study similarities and differences—racial, economic, ethnic, sexual, regional, and global—among women here and around the world, past, present, and future.

Undergraduate Study

Bachelor's Degree

Women's studies offers a flexible, self-designed major through the Liberal Studies program. Students work in close consultation with faculty to design and develop the academic experience that best fits their interests, goals, and needs. The aim of the self-designed major is to promote a coherent

program of study in contemporary interdisciplinary scholarship in feminist and gender studies, while allowing students to pursue either a specialized course or a general course of study. Since a key purpose of the major is to provide an integrated academic experience for students interested in feminist scholarship and gender issues, while offering flexibility and freedom in planning the degree, the major has a carefully designed structure to ensure that the planned program is academically sound.

Requirements

To obtain a major in women's studies, students must:

- Write a detailed and acceptable proposal explaining their plans, with adequate faculty counseling. Depending on their interests, students can propose a self-designed major that either has a *special concentration* within the field of women's studies, or has a more *general focus* on the broad field of women's studies.
- Ensure that the proposal satisfies the liberal studies guidelines for self-designed majors.
- Include Feminist Theory (WS 439/POLS 339), and one course on gender, race, and ethnicity in transnational perspective (list of courses available from program).

Students who opt for a broad women's studies major can take a maximum of three (3) general elective courses outside women's studies as part of their major, as long as they are chosen to strengthen the overall purpose for course design along liberal studies guidelines. Students who opt for a special sub-focus within a women's studies major can take a maximum of five (5) general elective courses outside women's studies, as long as they are chosen to strengthen overall purpose for course design along liberal studies guidelines. For administrative purposes, any cross-listed course will be counted as a women's studies course regardless of the departmental designation under which students register for the course.

Advising

Students who plan to pursue the major through the liberal studies program meet with the liberal studies program adviser. Interested students should refer to the "Liberal Studies" section within the Colleges of Arts and Sciences, or consult with the Liberal Studies program, Krauss 116, (808)956-7297. In addition, students should meet with the women's studies undergraduate program adviser (currently Dr. S. "Charu" Charusheela) for help in choosing classes, defining their area of interest, creating and developing proposals, and finding the faculty adviser most suited to their areas of interest.

The Undergraduate Certificate

The certificate in women's studies is designed to encourage all undergraduates to acquire a more thorough background in contemporary interdisciplinary scholarship in feminist and gender studies, and to incorporate feminist perspectives and issues into their major fields of specialization. Through this interdisciplinary option, students from various majors can study the specific achievements of women, examine the many factors that determine the status of women across cultures and

through time, and analyze theories and assumptions about women that particularly relate to their majors.

The certificate's practical value includes the enhancement of knowledge that develop students' abilities to think critically and constructively about their world and their lives. Further, it offers a credential that is applicable to a wide range of careers including medicine, law, business, education, counseling, and social work. The certificate can also provide the groundwork for advanced study of feminism and the graduate level application of feminist theories.

All registered students in good academic standing who are working towards a baccalaureate degree other than women's studies at UHM may apply for a women's studies certificate.

Requirements

- Students must complete 15 credits in women's studies with a grade of "C" or better.
- The 15 credits must include the following two requirements: Feminist Theory (WS 439/POLS 339), and at least one course in gender, race, and ethnicity in transnational perspectives (list of courses available from the program).
- At least 9 credits must be at the 300 level or higher.

Students can count courses taken toward their major or toward core requirements for their certificate in women's studies. For administrative purposes, any cross-listed course will be counted as a women's studies course regardless of the departmental designation under which students register for the course.

Graduate Study

Women's studies offers a Graduate Certificate in Advanced Women's Studies (AdWS Certificate). This certificate program provides a rigorous, integrated and relevant educational experience for students whose education and career objectives will be enhanced through creative and scholarly feminist analysis of women's lives and visions. The program guides students to: examine the factors that affect the status of women across cultures and through time; analyze theories and assumptions about women in various disciplines; contribute to the reformulation of social knowledge; explore institutionalizing social change that highlights and supports the achievements of women locally and internationally; and understand the usefulness of gender as an analytical tool in many fields.

Graduate studies leading to the AdWS Certificate are focused in four broad areas under the general rubric of gender studies.

- Feminist methods of inquiry and theoretical analysis. Students will explore sex/gender as an analytical category asking what this category means, what purposes are served by the prevailing binary notions of gender, and how gender is constituted in past, current, and future social, biological, cultural, and economic contexts.
- Feminist knowledge. Students will learn about the pervasive impact of gender relations on thoughts, actions, and prevailing constructions of reality. They also will become

acquainted with an array of feminist theories and arguments about such issues as political action, reproduction, and sexual orientation.

- Sex/gender and social-political categories of power and privilege. Students will examine the interaction of sex/gender with race/ethnicity, class, sexuality, and other primary vectors of power and privilege as relevant to nearly all domains of human experience. They will have opportunities to explore the dynamics of these interactions with emphasis on the evolving multicultural milieu of Hawai'i and the Asia/Pacific region.
- Sources of sex/gender differences. Students will examine both the empirical and philosophical debates concerning sameness and difference as these relate to the topic of gender. Sources of gender/sex differences as well as the significance of these also will be considered.

Recipients of the AdWS Certificate must be classified graduate students, and normally will be pursuing graduate degrees in other academic departments. The AdWS Certificate will help students learn to apply feminist methodologies, analysis and problem-solving to their other academic fields, and to integrate the rigors of the scholarship on gender into their chosen professions as a means of enhancing their professional lives and opportunities for advancement.

A brochure listing research interests and publications of the members of the women's studies graduate faculty, as well as describing admissions and program requirements, is available on request from the program; this information also is available on the World Wide Web (www2.soc.hawaii.edu). The following sections summarize the admissions and program requirements, but the program brochure should be consulted for complete details.

Admissions

Students are admitted to the AdWS Certificate program only in the fall semester. Applicants to the AdWS Certificate Program must be classified graduate students at the University of Hawai'i. Candidates are required to submit their current and complete transcripts, three letters of recommendation, and the names of and full contact information for three additional references. Applicants also must submit a 4-5 page essay outlining their personal and professional goals as they relate to the AdWS Certificate program, and identifying potential research and/or community involvement projects they may wish to pursue as part of their AdWS Certificate work.

Requirements

The AdWS Certificate program consists of a minimum of 18 credits, at least 12 of which must be at the 600 level or higher. Eight of these credits must come from the following four women's studies courses: WS 610 (1 cr), Faculty Seminar Series; WS 613 (3 cr), Feminist Research and Methods of Inquiry; WS 615 (3 cr), Interdisciplinary Feminist Theory; WS 650 (2 cr), Research in Feminist Studies: Capstone Experience.

Remaining credits will be drawn from a list of courses approved by the women's studies graduate adviser. All students will work with a specific adviser to develop an AdWS

Certificate curriculum based on their academic majors that best supports their academic and professional goals and objectives. Up to 6 credits towards the certificate may be taken in the student's home department provided that department's curriculum includes courses approved by women's studies.

Each student enrolled in the AdWS Certificate program will design, develop, and complete a research and/or community involvement project to culminate in a publishable-quality work or comparable product, and a professional quality seminar presentation given in the student's final semester of the program.

Zoology

College of Natural Sciences
Edmondson 152
2538 McCarthy Mall
Honolulu, HI 96822
Tel: (808) 956-8617 / (808) 956-7315
Fax: (808) 956-9812
E-mail: shigano@hawaii.edu
Web: www2.hawaii.edu/~zoology

Faculty

- S. Conant, PhD(chair)—ornithology, ecology, behavior, conservation biology
- J. H. Bailey-Brock, PhD—invertebrate zoology, reef ecology, Polychaetes
- *C. Birkeland, PhD—coral reef biology, fisheries
- I. M. Cooke, PhD—cellular neurophysiology, neurosecretion
- H. G. de Couet, PhD—molecular genetics and cytoskeleton
- L. A. Freed, PhD—evolutionary and behavioral ecology, ornithology, conservation biology
- E. G. Grau, PhD—comparative endocrinology, environmental physiology
- D. W. Greenfield, PhD—ichthyology, systematics, community ecology
- M. G. Hadfield, PhD—reproduction and development of invertebrates
- R. A. Kinzie III, PhD—coral reef biology, marine ecology, limnology
- J. D. Parrish, PhD—community ecology, fishery biology
- S. Robinow, PhD—molecular biology and development
- J. S. Stimson, PhD—population ecology, marine ecology
- A. D. Taylor, PhD—population, theoretical, and insect ecology
- *T. Tricas, PhD—marine animal behavior
- *A. Wikramanayake, PhD—developmental biology
- C. Womersley, PhD—environmental physiology, biochemical adaptation, parasitology

Cooperating Graduate Faculty

- W. W. L. Au, PhD—marine bioacoustics and echolocation
- R. E. Brock, PhD—inshore fishery resources, anchialine ponds
- R. Cowie, PhD—evolutionary biology, biogeography, ecological genetics, snails, termites
- D. Duffy, PhD—conservation biology, sea birds

- D. K. Hartline, PhD—quantitative neurophysiology and simulation of simple networks
- K. N. Holland, PhD—physiology, behavior, ecology of aquatic organisms
- T. D. Humphreys, PhD—cellular, molecular, biochemical, developmental biology in marine organisms
- P. J. Jokiel, PhD—coral reef biology, biogeography and ecology
- K. Y. Kaneshiro, PhD—systematics, evolution, insect behavior
- M. J. McFall-Ngai, PhD—symbiotic association between animals and prokaryotes
- P. E. Nachtigal, PhD—behavior and sensory processes of marine mammals
- R. L. Radtke, PhD—fish population dynamics and calcification

Affiliate Graduate Faculty

- A. Allison, PhD—vertebrate zoology
- P. Banko, PhD—ecology, ornithology
- J. E. Randall, PhD—ichthyology
- R. Richmond, PhD—coral reef biology

Degrees Offered: BA in zoology, BS in zoology, MS in zoology, PhD in zoology

The Academic Program

The zoology (ZOOL) department at the University of Hawai'i at Mānoa offers undergraduate programs leading to bachelor of science and bachelor of arts degrees and a zoology minor, and graduate programs that offer master of science and PhD degrees. Of particular note is the department's emphasis on tropical marine biology and evolutionary biology. There are few places in the United States where these emphases can be pursued more productively or in a more practical setting. Students can acquire a broad background for a career in marine biology. The BS degree is particularly suited for students preparing for graduate training in zoology and related fields and for those seeking immediate employment in zoology-related research and application markets. It provides the broadest scientific background at the undergraduate level. Students preparing for pre-professional programs (premedical, pre-dental, pre-physical therapy, pre-veterinary medical) should consider the BA in zoology degree. It provides greater flexibility in pursuing the broad liberal arts education encouraged by professional schools. The courses applied toward the zoology major may then be selected with those programs in mind.

Undergraduate Study

Prospective majors should consult a departmental adviser.

BA Degree

Requirements

- BIOL 172/172L
- BIOL 265/265L
- BIOL 275/275L
- CHEM 161/161L and 162/162L (or CHEM 171/171L)

- CHEM 272/272L and 273
- BIOC 441 or CMB 405 or ENBI 402 (biochemistry lab not required)
- MATH 215 or 241, or equivalent college-level calculus

Students must take an additional 20 credit hours, including:

- ZOOL 490
- Three laboratory courses from the following areas:
 - Developmental (ZOOL 330/330L or 420/420L)
 - Physiology (ZOOL 430/430L, 431, 432/432L, BIOL 406/406L or 407/407L)
 - Ecology and Behavior (ZOOL 306/ 306L, 439/439L, or 470/470L)
 - Genetics (BIOL 375/375L)
 - Morphology and Taxonomy (ZOOL 320/320L, 340/340L, 416/416L, 465/465L, or 475/475L; ENTO 363, 461, or 462)

Zoology courses at the 200 level carry no major credit. MATH 216 or 242 and a year of college physics are strongly recommended for students planning graduate study.

BS Degree

Requirements

Students must complete 78 to 82 credit hours, including:

- BIOL 172/172L
- BIOL 265/265L
- BIOL 275/275L
- BIOL 375/375L
- CHEM 161/161L and 162/162L
- CHEM 272/272L and 273
- BIOC 441 or CMB 405 or ENBI 402 (labs not required)
- PHYS 151/151L, 152/152L; or PHYS 170/170L, 272/272L
- MATH 215 and 216, or 241 and 242
- ZOOL 320/320L, or 475/475L, or ENTO 363
- ZOOL 430/430L
- ZOOL 490
- ZOOL 499 (4 credit hours)

Also required are 9 credits of zoology electives (300 level or above in ZOOL or approved BIOL courses), 6 credits in science electives (300 level or above in approved courses in natural sciences), and one semester experience as an undergraduate teaching intern in an approved instructional laboratory.

Minor

Requirements

- BIOL 265/265L or 275/275L
- (Students are advised that selecting only one of the bridging courses [BIOL 265, or 275] may preclude access to some upper division zoology courses.)

- At least 11 credit hours from the following courses, including one upper division lab course. Both BIOL 265/265L and 275/275L count toward the 11 credits but do NOT satisfy the requirement for an upper division lab course.
 - Developmental biology (ZOOL 330/330L or 420/420L)
 - Genetics (BIOL 375/375L)
 - Physiology (BIOL 406/406L, 407/407L; ZOOL 430/430L, 431, or 432/432L)
 - Ecology and behavior (ZOOL 306/306L, 439/439L, or 470/470L)
 - Morphology and taxonomy (ZOOL 320/320L, 340/340L, 416/416L, 465/465L, or 475/475L)

ZOOL courses numbered 300 and above and BIOL 490 can be applied toward the required 11 credit hours.

Graduate Study

The department offers programs of graduate study and research leading to the MS and PhD degrees. The major strengths of the graduate program in zoology are in the areas of animal behavior; cellular, molecular, and developmental biology; and evolution and ecology. Especially strong programs have developed in areas that utilize the resources of Hawai'i's unique island setting, including developmental biology, marine biology, and ecology, evolution and conservation biology. Much of the research in the department emphasizes the animals of Hawai'i: marine invertebrates, terrestrial arthropods, fishes, and birds.

Graduate students in zoology may join three interdisciplinary graduate specializations: the Cellular and Molecular Biology (CMB); the Ecology, Evolution, and Conservation Biology (EECB) Program; and the Marine Biology (MB) Program. The department also hosts the Hawai'i Cooperative Fishery Research Unit and has active affiliations with the Hawai'i Institute of Marine Biology, the Kewalo Marine Laboratory, the Békésy Laboratory of Neurobiology, and the Center for Conservation Research and Training.

Recipients of the MS degree usually teach, pursue careers in research or government service, or pursue further graduate training. Those with the PhD ordinarily seek teaching positions in colleges and universities or research careers in university, government, or private laboratories.

A brochure listing research interests and publications of the members of the zoology graduate faculty, as well as summarizing admissions and program requirements and opportunities for financial aid, is available on request from the department; a separate graduate student handbook describes the details of program requirements and procedures. This information also is available on the World Wide Web (www2.hawaii.edu/~zoology). The following sections summarize the admissions and program requirements, but the department brochure and handbook should be consulted for complete details.

Admissions

Students are admitted to the graduate program only in the fall semester; the application deadline is January 15. Applicants must submit a completed graduate application form; the official record of performance on the GRE General Test and Biology subject test; transcripts for all previous undergraduate and graduate studies; and letters of recommendation from three persons who can appraise the student's aptitude for graduate study. The requirement for the Biology subject test may be waived only under exceptional circumstances as judged by the graduate faculty. An applicant also must be sponsored by a member of the graduate faculty who has indicated his or her willingness to advise the student; the applicant should communicate with prospective faculty sponsors well in advance of the application deadline.

Intended candidates for the MS or PhD degrees in zoology are expected to present a minimum of 18 credit hours of undergraduate course work in zoology and/or biology and to have completed at least three semesters of chemistry (inorganic and organic), one year of physics, and at least one course each in calculus and botany. Deficiencies in undergraduate preparation must be rectified within the first year, without graduate credit. A course in biochemistry or molecular biology is required of all students, but it may be taken for graduate credit.

General Requirements

To ensure that students have broad competence in zoology, they must take a diagnostic examination at the start of their first semester. This examination seeks evidence of competence at the level of the undergraduate major (for MS students) or the master's degree (for PhD students) in the areas of subcellular-cellular, organismic, and supraorganismic zoology; students scoring at the 90th percentile or higher on any of these sections of the GRE biology test are exempted from the corresponding section of the diagnostic exam. Students who do not perform satisfactorily on the diagnostic examination will be required to take remedial course work, which must be completed within two years.

All entering students are required to take ZOOL 691C. All graduate students are required to take at least one graduate seminar or topics course each year.

Master's Degrees

Thesis (Plan A) and non-thesis (Plan B) programs leading to the MS degree in zoology are available. In addition to the thesis, Plan A requires a minimum of 24 credit hours of course work and 6 credit hours of ZOOL 700 (thesis). The 24 credit hours must include at least 12 credit hours of 600- or higher-level course work. The 24 credit hours may include up to 6 credit hours from related departments and up to 2 credit hours of ZOOL 699.

Plan B is a non-thesis program and requires a minimum of 30 credit hours in 400- through 700-level courses. The 30 credit hours must include at least 6 but not more than 16

credit hours from related departments (excluding courses cross-listed in zoology or applicable to the zoology BA degree) and at least 18 credit hours of 600- or higher-level course work. The 18 credit hours of graduate course work must include at least 2 but not more than 5 credit hours of ZOOL 699. A research paper based on original scientific work is required.

Doctoral Degree

Applicants to the PhD program ordinarily will have completed the master's degree, but exceptionally well-qualified applicants without the master's degree may be admitted directly into the PhD program. Students enrolled in the master's program also may apply for admission into the PhD program without completing the master's degree.

Requirements

Admission to candidacy requires evidence of reading ability in an approved foreign language; this requirement may be satisfied by completion of a language requirement equivalent to that for the bachelor's degree at the University of Hawai'i at Mānoa by appropriate certification by a UHM language department, by attaining a score of at least the 80th percentile

on the Educational Testing Service foreign language exam, or by completion of an acceptable foreign language requirement in completing a graduate degree at another accredited institution.

An oral comprehensive examination must be passed within one year of admission to candidacy; this examination will emphasize the student's research area but may cover any facet of zoology.

The research project culminating in the dissertation is the most important part of the PhD degree program. The dissertation is to be an original contribution based on independent research, carried out under the guidance of the adviser and dissertation committee. The completed dissertation is defended at a public final examination, conducted by the dissertation committee and including a public research seminar by the candidate.

Further Information

Further information about the graduate program in zoology, including full details of admissions and program requirements, may be obtained from the department or at www2.hawaii.edu/~zoology.

College of Business Administration



Administration

BusAd C-204
 2404 Maile Way
 Honolulu, HI 96822
 Tel: (808) 956-8377
 Fax: (808) 956-9640
 Web: cba.hawaii.edu

Dean: David McClain
 Associate Dean: James Wills
 Assistant Dean: Marsha Anderson

General Information

The College of Business Administration (CBA) prepares students for business leadership in Hawai‘i and the Pacific Basin. Students receive a solid foundation, both theoretical and practical, in the structures, functions, and objectives of business enterprise. The college provides the only degrees in business (BBA and MBA) in the state of Hawai‘i that are accredited by AACSB-International*. The primary emphases of CBA are international business and business applications of advanced technology.

The college offers both undergraduate and graduate degrees, including the bachelor of business administration (BBA), the master of business administration (MBA), the

master of accounting (MAcc), the executive MBA (EMBA), the Japan-focused MBA (JEMBA), the China-focused MBA (CHEMBA), the master of human resource management (MHRM), the PhD in international management and the PhD in communication and information sciences. Several professional development programs are also offered through CBA’s Asia Pacific Center for Executive Development.

Mission

The mission of the College of Business Administration is:

1. To educate students so that they will achieve their professional and personal goals and contribute effectively and ethically to society and their organizations;
2. To educate ourselves and others through research;
3. To serve the community through the college’s graduates and through its professional and civic activities;
4. To be relevant to Hawai‘i and international in its vision; and
5. To aspire to continuous improvement in all its activities.

The special role of CBA in the University is to serve as the center of advanced graduate and professional studies in business administration while emphasizing research and providing excellence in undergraduate programs.

Accreditation and Affiliations

CBA is accredited by AACSB-International¹ and is a member of the Graduate Management Admissions Council (GMAC).

Degrees

Bachelor’s Degrees: BBA with concentrations in accounting, finance, human resources management, international business (double major only), management, management information systems and marketing, as well as a flexible program. (A concentration negotiated with a faculty committee is available to superior classified students. Inquire at the CBA Office of Student Academic Services for details.)

Master’s Degrees: MAcc, MBA, Executive MBA, Japan-focused MBA, China-focused MBA, Vietnam MBA, MHRM

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* (AACSB): The Association to Advance Collegiate Schools of Business

Doctoral Degrees: PhD in international management, PhD in communication and information sciences

Advising

Academic Advisers at the CBA Office of Student Academic Services (OSAS) assist students with program planning and course selection, learning university policies and procedures, and fulfilling graduation requirements in a timely manner, explaining transfer credits and study abroad exchange information and other educational opportunities, resources and options. Students, while responsible for their own academic progress, should consult their advisers on a regular basis to monitor their academic status and progress toward degree completion.

Advising for undergraduate students is available in BusAd B101, phone (808) 956-8215, or e-mail: osasundergrad@cba.hawaii.edu; advising for graduate students is available in BusAd B201, phone (808) 956-8266, or e-mail: osasgrad@cba.hawaii.edu.

Undergraduate Programs

The College of Business Administration offers a professional, upper division program designed to give students a broad liberal arts background and a sound education in the essentials of business management. The BBA degree program, therefore, is comprised of three integral parts: (a) general education, (b) business fundamentals, and (c) a specialized major area of business. Students may select a major that complements their interests, aptitude, and career goals from such fields as accounting, finance, human resources management, international business, management, management information systems and marketing. A double major and/or minor are also options, as well as a flexible major program.

Admission Requirements

Students transfer into CBA upon the successful completion of the following admission requirements:

1. Minimum of 55 credit hours of college-level work (junior standing);
2. Minimum cumulative GPA of 2.5 in all courses attempted (combined UH Mānoa and transfer GPA from all other colleges attended) and a minimum cumulative GPA of 2.0 at UH Mānoa (if courses have been attempted at UH Mānoa). If 30 or more credits at UH Mānoa with a 2.5 cumulative GPA have been completed, the transfer GPA will not be used to determine admission.
3. Completion of the following pre-business courses with a combined GPA of at least 2.5, with no grade below C (pre-business courses may be repeated only if the grade earned is below a C): ENG 100, 101, 200, or ELI 100; SP 151 or 251; ACC 201 and 202; AREC 210, BUS 250 or MATH 203, 241 or 251; and ECON 130 and 131;
4. Minimum grade of C in ICS 101 and 101L (or equivalent); and
5. If three or more business courses (or equivalents) beyond the pre-business courses (e.g., business law, statistics, manage-

ment, etc.) have been attempted, a combined GPA of at least 2.5 is required in those courses.

Important: The social sciences in the General Education Core is met by completing ECON 130, ECON 131 and PSY 100 or SOC 100 (which is the prerequisite to BUS 315 in the business core).

Application Procedures

Students currently enrolled as classified students at UH Mānoa can contact the College of Business Administration, Office of Student Academic Services (OSAS), BusAd B101, for application materials.

Non-UH Mānoa students or unclassified students enrolled in Outreach College must submit the System Application Form to the Office of Admissions and Records, 2600 Campus Road, Room 001, Honolulu, HI 96822 (or visit the Web at www.hawaii.edu).

Application Deadlines

The application priority deadlines for CBA are November 1 for the spring semester and June 1 for the fall semester.

College Requirements

1. Completion of 124 non-repeated credit hours, including the General Education Core requirements (see the “Mānoa General Education Core and Graduation Requirements” section for more information) and the following College curriculum requirements:
 - a. Pre-business courses (see “Admission Requirements”);
 - b. Required business courses: BLAW 200, BUS 310, 311, 312, 313, 314, 315, 345;
 - c. Requirements for the major;
 - d. BUS 209 or ENG 209;
 - e. An upper division course in international business; and
 - f. 15 credits of elective courses (beyond the introductory level) which may include a minor.
2. GPA of 2.5 in:
 - a. All UH Mānoa registered credit hours,
 - b. All required business courses (and their equivalents) and upper division CBA courses, including the major completed at UH Mānoa, and
 - c. Major courses completed at UH Mānoa.
3. Residency requirements for BBA degree include both:
 - a. University residency requirement of 30 credit hours at UH Mānoa and
 - b. Minimum of eight upper division business courses (24 credit hours), including a minimum of three courses in the student’s major and BUS 345, after admission to CBA.

Students interested in applying to CBA should contact the Office of Student Academic Services for current information on admission and program requirements.

Major Requirements

See appropriate departments in this *Catalog* for specific major requirements leading to a BBA degree.

Academic Policies**Minimum Standards for GPA**

The minimum acceptable academic performance for CBA undergraduates at the University of Hawai'i at Mānoa is (a) cumulative GPA of 2.0, (b) GPA of 2.0 in the major, and (c) GPA of 2.0 in all required business courses and major courses combined.

Probation

Students are placed on probation in the CBA for any of the following reasons:

1. The student's cumulative GPA, GPA in major or GPA in required business courses and major falls below 2.0.
2. The student fails to complete BUS 310 and 311 in their first semester in CBA, and 313 within one year following admission to CBA.
3. Satisfactory progress toward graduation is not being made.

Students on probation will be required to meet with their academic adviser.

Double Major

Students may pursue a double major to enhance their educational spectrum and professional marketability. To qualify for a double major, students must have a minimum cumulative UHM GPA of 3.0 and a minimum UHM GPA of 3.0 in each of the two proposed majors. At the time of declaration, the student must have completed at least one course in each major. A double major shall consist of 27 or more credits which lead to a specialization in two fields of study. Courses must meet the requirements for a major in each of the fields, and may not be used to meet the non-introductory electives requirement. (Note: International Business is offered only as a double major.) After successfully completing the requirements, students may officially declare a double major in the Office of Student Academic Services.

Transfers

Students completing their first two years of work at a community college or at another four-year institution should take only those business courses offered at the freshman or sophomore level (e.g., introductory accounting, business law). Business courses taught at community colleges may not be used to satisfy upper division course requirements in CBA (e.g., business statistics). Junior-level and senior-level business courses are accepted only from colleges accredited by the AACSB.

Withdrawal Deadline

CBA strictly enforces a three-week withdrawal deadline for business classes. Please note that this deadline is not the same as that for non-business classes. In general, no exceptions regarding late drop requests will be made. Students should be

aware that some colleges, especially graduate and professional schools, do not look with favor on records spotted with grades of W. Similar attitudes are observed among some employers and scholarship grantors.

Dual/Concurrent Degrees

CBA students may choose to pursue a dual degree in either the College of Arts and Sciences or the School of Hawaiian, Asian, and Pacific Studies (SHAPS). The consideration of an additional field of study can increase knowledge, diversify perspectives, and enhance personal education as well as professional growth. Requirements for admission include a cumulative GPA of 3.25, a statement of support from the current adviser, and a statement of purpose from the applicant. Current CBA students considering a dual degree or students interested in admission to the CBA as a concurrent degree candidate should meet with an adviser in the CBA Office of Student Academic Services to discuss individual academic programs.

Second Baccalaureate Degree

The CBA welcomes students pursuing a second bachelor's degree. Priority for admission is given to students seeking their first undergraduate business degree; therefore, applicants who have already completed a bachelor's degree in business will be denied admission to the CBA. In addition to completing the application process (see College Requirements), second-degree students must also submit an official transcript from the host institution of the first baccalaureate degree. Upon review by the Office of Student Academic Services, accepted students must meet with the admissions counselor to be informed of remaining requirements. Fall applications must be received by November 1, and Spring applications are due no later than June 1. For more information, contact the Office of Student Academic Services (OSAS) in BusAd B101 or at 956-8215.

Minors

CBA students may choose a minor offered in another UHM college to complement their business program. A minor course of study consists of a minimum of 15 credit hours of non-introductory or upper division coursework that is completed with a grade of C or better. CBA students may use a minor to replace the upper division electives requirement.

Minor in Business Administration

Beginning Fall 2002, the CBA will offer a minor in Business Administration to non-business majors. This minor will provide students with a greater understanding of business in preparation for their entrance into the workforce. Applicants must meet the following requirements:

1. Classified undergraduate student not enrolled in the College of Business Administration
2. Junior standing (55 or more college-level credits)
3. 2.5 cumulative GPA
4. Completion of the following courses with a C or better:
 - a) ICS 101 (or equivalent)
 - b) ECON 120 or 130 or 131
 - c) ACC 201

- d) Calculus (or equivalent: AREC 210 or MATH 203 or 241 or 251 or QM 250) or Statistics (or equivalent: AREC 310 or ECON 321 or NURS 203 or PSY 210 or SOC 225)
- e) PSY 100 or SOC 100

For more information and to receive an application, please contact the Office of Student Academic Services (OSAS) in BusAd B101 or at 956-8215.

Graduate Programs

Master of Business Administration

The MBA program provides a solid academic foundation for professional careers in management. The curriculum is particularly strong in international business and focuses on developing the skills and breadth of judgment required of top-level managers and executives in both the private and public sectors. Students may select electives that fit their individual needs and interests. These may include student exchange programs at foreign institutions.

The environment within which managers operate will undoubtedly undergo many changes during the coming decades. The MBA, therefore, stresses the development of analytical skills and their application to decision-making rather than simply reviewing current practices.

Classes are held in the evening during the academic semesters and during each of the two summer sessions.

Students may pursue their studies on a part-time or full-time basis and may switch their rate of taking classes. Part-time students may enroll in one 6-credit-hour core module each semester over four semesters. Full-time students typically complete their degree requirements in two years. Part-time students benefit from integrating their educational experiences with their present employment. Depending on the number of courses taken each term, part-time students usually complete the MBA in four to five years.

Candidates for the MBA may choose either the thesis or non-thesis option. A total of 42–48 credit hours is required, depending on undergraduate background. Students who have earned a BBA from an AACSB-accredited institution within five years of enrollment in the University of Hawai'i MBA are permitted to waive BUS 610 (6 credit hours).

Executive MBA

The Executive MBA (EMBA) program is a 22-month degree program in business administration that closely parallels the regular MBA in curriculum content. A total of 48 credit hours is completed during this accelerated degree program. Classes are uniquely scheduled to allow working individuals to participate with maximum convenience to themselves and their sponsoring organizations. The program consists of a one-week residence session at the start of each of the two academic years, with classes meeting every Tuesday evening and alternate Saturdays. The program seeks highly motivated managers who want to increase their knowledge and acquire the skills needed to assume broader corporate responsibility. An undergraduate

degree, GMAT exam, five years of progressively successful work experience, and a current management position are required for admission. Sessions begin in August of every year.

Japan and China-Focused MBAs

The Japan-focused MBA (JEMBA) and the China-focused MBA (CHEMBA) are unique 15-month international education programs developed by the College of Business Administration and the Japan-America Institute of Management Science (JAIMS). The curricula are tailored for highly motivated individuals who desire programs that effectively balance the practical and theoretical aspects of doing business with Japan or China. These programs lead to an AACSB-accredited MBA totaling 48 hours of academic credit. These programs begin in August of each year and consist of one year of class work at the University of Hawai'i and at JAIMS, plus a 14-week internship program in Japan or China. The programs are designed for English-speaking participants who come from a wide spectrum of national and cultural backgrounds.

Vietnam Executive MBA

The Vietnam Executive MBA (VEMBA) is a 22-month degree program in business administration, conducted in cooperation with the Hanoi School of Business of the Vietnam National University. The 48 credit hour program is modeled after the Executive MBA conducted in Honolulu, with the same faculty and curriculum. The program is conducted by Mānoa faculty who teach courses in Hanoi in one-month modules. The faculty may be resident in Hanoi for up to a full month but most courses are taught partly as distance learning. In addition to providing facilities and logistic support, the Hanoi School of Business provides supporting instructors and teaching assistants. Participants in the program are established executives from the Hanoi area, mostly Vietnamese but some Americans, East Asians, and other expatriates from the Hanoi community are also enrolled. Applicants from other countries in the region are strongly encouraged to apply. VEMBA has Asian business as its focus but constant consideration is given to the impact of globalization on business and economics in the region.

Master of Accounting

The master of accounting (MAcc) degree provides an advanced education in taxation, financial accounting, and auditing necessary for students to pursue leading positions in public practice, business, government, and related fields.

The program offers students the opportunity to adequately prepare for today's multifaceted accounting practice by strengthening one's understanding of the body of accounting knowledge, as well as preparing them for the complexities and new technology facing the accounting profession. The program is also designed to improve the accounting students' oral and written communication skills and to develop their analytical skills.

Graduate Distance Programs for the Neighbor Islands

The MAcc and MBA Programs for the Neighbor Islands will be offered through the College of Business Administration at the University of Hawai'i at Mānoa in cooperation with the University of Hawai'i at Hilo School of Business and the University Centers in Maui, Kauai, and West Hawai'i.

A variety of delivery modalities will be used, including the Hawai'i Interactive Television System (HITS) and the World Wide Web (WWW). In addition, the program will have periodic "residence sessions" where all the participants will meet for an intensive weekend of classes.

University of Hawai'i faculty will provide the course instruction supplemented by adjunct experts from the community. The faculty come from diverse disciplines and are selected on the basis of expertise, teaching ability, commitment to the goals of the programs and sensitivity to participants' needs. Adjunct experts will enhance instructional resources, form panels considering specific issues or topics, and meet informally with participants for discussion.

Throughout the program, a variety of learning formats will be used, including video lectures, seminar discussions, case analysis, expert panels, individual and networked class projects and WWW research and learning assignments.

Master Of Human Resource Management

The master of human resource management degree is for individuals who are in human resource management (HRM) functions and want to upgrade their skills, or individuals who want to move into the profession.

Over the last several decades, HRM has become a much more demanding profession, requiring specialized training and appropriate work experience. Job specialties in HRM include training, staffing, compensation and health fringe benefits, health and safety, organizational development, and career development. Each of the specialties is overseen by demanding legislation and the push to optimize the competitiveness of the organization. The human resource management curriculum is interdisciplinary in its approach. In the past, it was taught as a formal function. Today the courses tend to integrate other disciplines—especially organizational behavior, management systems, and labor and employment legislation.

The preferred admission criteria are 500 or above on the Graduate Management Admission Test, a 3.0 or higher in coursework leading to a bachelor's degree (BS, BBA, BA, or equivalent), and one year of professional work experience, which indicates a capacity for graduate level study.

The program consists of thirty academic credit hours, or ten courses. The curriculum will include the foundation courses (compensation, staffing, training, industrial relations, and health and safety) plus leadership, organizational development, negotiations, and an integrative capstone experience plus an elective. The master of HRM is a cohort program (students will go through the entire program as a group). The classes will be offered on Saturdays plus one evening per week. The program should take approximately 18 months.

PhD in Communication and Information Sciences

The PhD in communication and information sciences (CIS) is an interdisciplinary program integrating the academic disciplines of computer science, communication, library science, and management information systems. Because a broad knowledge base is required to support the interdisciplinary approach, the program also draws from such fields as political science, economics, engineering, operations research, behavioral sciences, and others. For detailed information regarding the PhD in CIS program, contact the chair of the interdisciplinary doctoral program in the Library and Information Science program, Hamilton Library, room 33, 2550 McCarthy Mall, Honolulu, HI 96822; phone: (808) 956-5815; fax: (808) 956-5835; e-mail: cisprog@ics.hawaii.edu

PhD in International Management

The PhD in international management provides opportunities for a select group of students to develop high-level research skills in international business, with a particular focus on Asia and the Pacific. The goal of the program is to encourage the highest level of scholarship so that graduates can look forward to career-long research productivity, education, and contributions to knowledge.

Admission to the PhD program is extremely competitive. Selection is based on academic merit, scores on the Graduate Management Admission Test (GMAT), the Test of English as a Foreign Language (TOEFL), three letters of recommendation, and an analyses of applicants' essays.

For detailed information, please contact the PhD program in international management, College of Business Administration, 2404 Maile Way, Honolulu, HI 96822; phone (808) 956-8266; fax (808) 956-2774; e-mail phd@cba.hawaii.edu; or connect to the Web at www.cba.hawaii.edu/phd.

Admission Requirements

For admission into the graduate programs, CBA prefers applicants to have a score of 500 or above on the GMAT and a minimum GPA of 3.0 in the last two years of undergraduate work and all post-baccalaureate work. Admission is highly competitive as the college is not always able to admit all qualified applicants.

All applicants from foreign countries where English is not the primary language are required to take the TOEFL. The minimum score requirement is 550. Information about both the TOEFL and the GMAT can be obtained from the Educational Testing Service, P.O. Box 6103, Princeton, NJ 08541-6103. At least two years of post-baccalaureate, full-time work experience is required for admission to the MBA and one year required for the CHEMBA and JEMBA. Work experience of at least four years is required for the Executive MBA. CBA has found that individuals with work experience benefit the most from the program and contribute the most to it.

Admission requirements for the MAcc program are found in the "Accounting" section within the College of Business Administration.

For detailed information regarding the MBA, contact the CBA Office of Student Academic Services, 2404 Maile Way, BusAd B201, Honolulu, HI 96822; phone (808) 956-8266; fax (808) 956-9890.

For detailed information regarding the EMBA, CHEMBA, and JEMBA programs, contact the Asia Pacific Executive MBA Programs, 2404 Maile Way, BusAd B201, Honolulu, HI 96822; phone (808) 956-3260; fax (808) 956-2657. You can also reach the programs online as follows:

E-mail: EMBA@cba.hawaii.edu
CHEMBA@cba.hawaii.edu
JEMBA@cba.hawaii.edu
Web: cba.hawaii.edu/jcmba
cba.hawaii.edu/emba

MBA Requirements

All MBA students are expected to enter the program with computer competency and English language proficiency. Up to six courses of English as a second language may be required depending upon placement exam results. These courses must be completed prior to enrollment in BUS 613.

The MBA program consists of four required core courses: BUS 610 (B), (C), and (D); 613 (B) and (C); 614 (B) and (C); and 615 (B) and (C) (24 credit hours); electives (18 credit hours); and the capstone experience, which consists of BUS 660 Business Policy and Strategy (3 credit hours) and BUS 696 Field Studies in the Enterprise (3 credit hours).

Required Core Courses

- BUS 610B Accounting Tools for the MBA (2)
- BUS 610C Statistical Tools for the MBA (2)
- BUS 610D Economic Tools for the MBA (2)
- BUS 613B Organizational Behavior (3)
- BUS 613C External Environment of Asia-Pacific Business (3)
- BUS 614B Managerial Accounting (3)
- BUS 614C Managerial Finance (3)
- BUS 615B Marketing Management (3)
- BUS 615C Information Technologies (3)

Electives

Of the required 18 credit hours, only 6 hours may be at the 400 level. Students may also take graduate electives from outside the college as long as at least three electives are completed within the CBA.

Integrative Capstone

- BUS 660 Business Policy and Strategy (3)
- BUS 696 Field Studies in the Enterprise (3)

Thesis Option

A student may elect to do a research thesis in place of BUS 696 and one elective. Thesis students enroll in BUS 700 Thesis Research.

Special Professional Programs

Academy of International Business (AIB)

Established in 1959, AIB is the premier professional organization for international business educators, researchers, and consultants. It publishes the highly regarded *Journal of International Business Studies*. The objectives of the AIB are to foster education and to advance professional standards in the field of international business.

E-mail: AIB@cba.hawaii.edu
Web: aibworld.net

Asia-Pacific Economic Cooperation (APEC) Studies Center

The APEC Studies Center was formed in July 1994 as a joint venture of the University of Hawai'i at Mānoa and the East-West Center and is one of the founding members of the United States APEC Study Center Consortium. APEC has become the primary vehicle for developing a sense of economic community in the Asia Pacific region. The 18 countries that currently comprise APEC constitute about half of the world's total annual output in terms of GNP and represent more than 40 percent of the world's total merchandise trade.

E-mail: cmorriso@hawaii.edu
Web: cba.hawaii.edu/apec/uhapec.htm

Center for Entrepreneurship and E-Business

The Center for Entrepreneurship and E-Business was established in July 2000 to integrate entrepreneurship and e-business initiatives into the curriculum and provide outreach programs for the University and business communities. Curriculum programs include a three-course summer certificate in entrepreneurship administered by PAMI, and undergraduate and graduate courses in entrepreneurship, internet marketing and e-commerce. Outreach programs include a business plan competition, a student entrepreneurship club, entrepreneurial and e-business internships, and a distinguished lecture series.

E-mail: ceeb@cba.hawaii.edu
Web: cba.hawaii.edu/ceeb

Asia-Pacific Financial Markets (FIMA) Research Center

The FIMA Research Center is spearheading both academic and policy research on financial markets development in the Asia-Pacific region, integrating the academic and practitioner viewpoints. The FIMA Research Center is the home of the premier academic journal, *Pacific-Basin Finance Journal*, which publishes the highest quality theoretical and empirical research on financial markets of the region.

The FIMA Research Center's activities signify the University of Hawai'i's long-standing commitment to a better understanding of the Asia-Pacific region.

E-mail: rhesg@hawaii.edu
Web: www2.hawaii.edu/~fima

Center for Global Japanese Investment and Finance

The Center for Global Japanese Investment and Finance was founded in November 1997. Its mission is to research and study the Japanese financial market: its global investment policies and strategies and ways in which the United States, Hawai'i, and Japan can receive mutual economic benefits through balanced investments in Hawai'i.

E-mail: misawa@cba.hawaii.edu

The Center for International Business Education and Research (CIBER)

Funded by the Omnibus Trade and Competitiveness Act of 1988, the UH CIBER serves as a clearinghouse for international business research and development activities at the University of Hawai'i. As one of 28 such centers at major universities across the U.S., the UH CIBER serves as a national resource for improved international business techniques and strategies as well as a regional resource providing training and research designed to meet the needs of companies doing business with the Asia-Pacific.

Working with language and area studies faculty at the University, CIBER has promoted the creation of interdisciplinary business and language courses. Other curriculum projects supported include the innovative Field Study in Asia course, and the annual PAMI Summer Program. The UH CIBER funds faculty research projects and provides travel support for faculty to present papers at international conferences. Outreach and executive education initiatives include working with various community organizations to sponsor workshops and other training activities.

E-mail: ciber@cba.hawaii.edu

Web: cba.hawaii.edu/ciber

Office of Executive Education

The Office of Executive Education designs and coordinates executive-level management development programs, seminars and workshops designed to meet the specific needs of organizations in the public and private sector.

Participants for these programs come from local, regional and international organizations. The primary thrust of the Office of Executive Education is custom designed programs. It also offers the Hawai'i Management Program, a 96 contact hour program designed for Hawai'i-based mid level executives and managers who want to maintain a competitive advantage and gain the necessary skills to enhance their careers.

E-mail: kimmer@cba.hawaii.edu

Web: cba.hawaii.edu

Family Business Center of Hawai'i

The Family Business Center of Hawai'i is a partnership between Hawai'i's family business community and the University of Hawai'i's College of Business Administration. The mission of the Family Business Center is "equipping, educating, and celebrating families in business." The center

provides opportunities for the families to address many of the challenges they face by providing educational seminars and a forum for the exchange of information between families so that they can survive and thrive into and through the 21st century.

E-mail: kimmer@cba.hawaii.edu

Web: cba.hawaii.edu

Hawai'i Real Estate Center (HREC)

The Hawai'i Real Estate Center was established in 1961 to provide a focus for property rights research in the state of Hawai'i. It is a policy oriented center and has provided research studies on land use and international investment issues affecting the state. In recent years, the HREC has expanded its research mission to address intellectual property rights issues and e-commerce issues as cyberspace interacts with real space. The center is funded by research grants and consulting contracts from private and government sources. It maintains an archive of Hawai'i specific information.

E-mail: nordway@busadm.cba.hawaii.edu

Pacific Asian Center for Entrepreneurship and E-Business (PACE)

PACE exists to foster the entrepreneurial spirit among students, faculty and in the community. The Center helps to coordinate an undergraduate minor in entrepreneurship, an MBA concentration in entrepreneurship, and a PhD emphasis in entrepreneurship. In addition, a Summer certificate program is offered. PACE is the editorial home of the *Journal of Developmental Entrepreneurship*. The Center also supports the student Entrepreneurship Club and numerous outreach programs, including statewide and national business plan competitions, the Kauffman Entrepreneurial Internship Program, a distinguished lecture series, a national program to teach entrepreneurship faculty from around the country, an annual symposium on women and entrepreneurship, and the Hawaii Entrepreneurs Bootcamp.

E-mail: PACE@cba.hawaii.edu

Web: cba.hawaii.edu/PACE

Pacific Asian Management Institute (PAMI)

PAMI was established in 1977 as an institute of international management education and research bridging East and West. Students, teachers, managers, and government officials from more than 170 companies and 200 institutions in 22 countries have attended cross-cultural, international management courses and training programs developed by PAMI. PAMI also coordinates research on international business issues.

The Pacific Asian Management Institute coordinates a summer program in international business during the UH Outreach College Summer Sessions. The PAMI curriculum features international business courses in management, marketing, finance, business economics, entrepreneurship and human resource management. The Pacific Asian Lecture Series (PALS), open to the public, is part of the PAMI summer program.

PAMI is the secretariat for the Pacific Asian Consortium on International Business Education and Research (PACIBER), with 28 member universities in the U.S., Canada, Asia, and Oceania.

E-mail: pami@pami.cba.hawaii.edu
 Web: cba.hawaii.edu/pami

Pacific-Basin Finance Journal

The Pacific-Basin Finance Journal is an academic journal published five times a year by Elsevier Science publishers B. V. (North-Holland) in collaboration with the UH College of Business Administration. The journal provides a specialized forum for the publication of the highest quality theoretical and empirical research on capital markets of the Asia-Pacific region and represents a significant milestone in the FIMA Research Center's program and objectives as it effectively reaches a broader audience in terms of current developments in Asian and Pacific capital markets. Its primary emphasis will be placed on the following areas:

- investment and portfolio management
- theories of market equilibrium
- valuation of market equilibrium
- behavior of asset prices in financial sectors
- normative theory of financial management
- capital markets development
- market mechanism

E-mail: rheesg@hawaii.edu
 Web: www2.hawaii.edu/~pbjf

Pacific Business Center Program

The Pacific Business Center Program, sponsored by the University and the Economic Development Administration of the US Department of Commerce, provides businesses, government agencies, and community groups, a variety of business consultant services at moderate cost. PBCP offers university students opportunities to work with its staff to assist its clients solve a wide variety of business problems. Such work includes market research, feasibility studies, product development, strategic and financial planning, loan packaging, and management consultation. PBCP serves clients in Hawai'i, the Territories of American Samoa and Guam, the Commonwealth of the Northern Mariana Islands, the Republics of Palau and of the Marshall Islands, and the Federated States of Micronesia.

E-mail: director@pbcp.cba.hawaii.edu
 Web: cba.hawaii.edu/pbcp

Pacific Research Institute for Information Systems and Management (PRIISM)

PRIISM is a center for research and educational activities. Drawing on a variety of academic disciplines, PRIISM focuses on information systems and technologies and management of organizations. Its primary objective is to promote research on the development, implementation, and use of information and communication technologies in organizations.

E-mail: priism@busadm.cba.hawaii.edu
 Web: priism.hawaii.edu

Internships and Career Development

A full-time internship director helps to provide opportunities for students to gain real world experience while at the same time earning academic credits. Through the internship program, students are able to practice interviewing and communication skills and obtain hands-on work experience related to one's major. Goals of the internship program are to strengthen students' employment opportunities in the marketplace after graduation and to provide greater insight into a student's selection of a career path and organizations suited to the student. CBA's close working relationship to the university's Career Services Office and to local and mainland business communities helps to connect students to prospective recruiters and job opportunities.

E-mail: rick@cba.hawaii.edu
 Web: www.cba.hawaii.edu/intern

International Study

In addition to the study abroad programs offered through the UH Mānoa Study Abroad Center (see the "Student Life" section for more information), the following CBA sponsored programs are available.

Industry in Asia: Field Study

Each summer, up to 25 business students have the opportunity to participate in a 5-week, 6 credit course (Bus 477) which includes three weeks in Asia. In Asia, the students visit companies, factories, economic agencies and government offices to learn more about organizational structure, government policies and international competition and their effect on these units. Classes are held on campus the week before and after the field study. Some CBA scholarships are available on a competitive basis to help defray the costs.

CBA Exchange Agreements with Foreign Universities

UH CBA students can apply to study abroad in connection with several official exchange agreements between the UH CBA and foreign universities. These universities are: Aarhus School of Business in Denmark; Chulalongkorn University in Thailand; Copenhagen Business School in Denmark; Hong Kong University of Science and Technology; Keio University (Keio Business School) in Japan; WHU Koblenz-Otto Besheim Graduate School of Management in Germany; Korea University CBA; Reims School of Management in France (summer only); Thammasat University in Thailand; and Yonsei University in Korea. In most cases, courses are offered in English for international students, language training is available, and the schools plan instructional excursions for visiting students. Tuition is waived for the students at the host university. Some scholarships assistance is available on a competitive basis to help defray travel costs. The student arranges his/her own travel and housing. For more information, contact the Office of Student Academic Services (OSAS) in BusAd B101 or at 956-8215.

Student Organizations

Active student organizations within the CBA provide students with opportunities to interact socially, academically, and professionally. These organizations include Accounting Club, Alpha Beta Chi, American Marketing Association, Beta Alpha Psi, Business Consulting Club, Business Executive Society of Tomorrow, Entrepreneurship Club, Financial Management Association, Society of Advanced Management, Management Information Systems Club, Net Impact, Pi Sigma Epsilon, and Society of Human Resource Management. Students with superior academic records are invited for membership in Beta Gamma Sigma, the national honor society for business majors and Mu Kappa Tau for marketing majors.

The Graduate Business Student Association is a focal point of graduate student life at CBA. All graduate business students are members.

Guest speakers, tours of local businesses, workshops, seminars, and internships are supported by the various student organizations—many of which have earned national recognition and awards for their contributions to the professional development of CBA students.

Honors and Awards

The College of Business Administration and its departments provide scholarships and awards to exceptional students. For a list of these scholarships, see the “Tuition, Fees, and Financial Aid” section of this *Catalog*. Detailed information on scholarships can be obtained from the office of Student Academic Services, BusAd A-303, (808) 956-8215.

Accounting

School of Accountancy
BusAd A-414
2404 Maile Way
Honolulu, HI 96822
Tel: (808) 956-7332
Fax: (808) 956-9888
Web: www.hawaii.edu/soa

Faculty

*H. Pourjalali, PhD (Director)—accounting
S. Cox, PhD—accounting
*S. Daniel, PhD—accounting
*J. Gramlich, PhD—accounting
*T. Gregson, PhD—accounting
L. Guan, PhD—accounting
M. Kaiama, MAcc—accounting
*P. M. Kazenski, PhD—accounting
*T. Pearson, LL.M./JD—accounting
J. N. Teruya, PhD—accounting
*J. Wendell, PhD—accounting
*D. C. Yang, PhD—accounting

Degrees Offered: BBA in accounting, MAcc, PhD, International Management, Accounting concentration

The Academic Program

The School of Accountancy within the College of Business Administration offers the bachelor of business administration (BBA) with a major in accounting (ACC) and the master of accounting (MAcc) degrees. The undergraduate accounting program provides students with an educational foundation for entry into a wide range of accounting careers and enables students to pursue graduate or advanced professional education. The MAcc program provides advanced education in taxation, financial accounting, and auditing necessary for students to pursue leading positions in public practice, business, not-for-profit organizations, government, and related fields.

An accounting background may provide a competitive edge for those aspiring to become chief executive officers, according to a recent Robert Half International survey. The survey showed that 72 percent of executives believed that during the '90s, top management would be more reliant on information provided by the accounting department than it was during the '80s. Students often study accounting even though their major interests may be in other areas of business. This enables these students to have a salable skill for easy entry into a business firm.

Mission

The school's primary mission is to provide undergraduate and graduate students with a high-quality accounting education and to advance accounting and business knowledge through basic and applied research and instructional development.

Accounting Careers

The accounting profession may be divided into the following two major segments.

Public Accounting

Specialties in this area include auditing, tax, and management advisory services. Some of the larger firms have reorganized these activities along industry lines. Students entering public accounting should prepare to become a Certified Public Accountant (CPA). Many students who graduate with an accounting degree are employed by national or international CPA firms, or by local CPA or public accounting firms, or, after they become certified, open their own independent practices.

Other Accounting Jobs

Accounting positions in industry are most often available in firms engaged in manufacturing, wholesaling, retailing, banking, transportation, insurance, and real estate, as well as in hotels, entertainment enterprises, and restaurants. Positions in these organizations can be found in the areas of financial accounting, managerial accounting, internal auditing, tax accounting, and accounting information systems. Graduates also find employment as accountants in various branches of federal, state, or local governments or in not-for-profit organizations.

Undergraduate Study

BBA in Accounting

Major Requirements

- ACC 305, 321, 323, 401, 415, and 418
- One of the following: SP 253, 280, 333, 351, 352, and 455
- Two of the following: ACC 407, ACC 413, ACC 419, for those who intend to take the CPA examination

Graduate Study

Macc Degree

Admission Requirements

In addition to the College of Business Administration graduate admission requirements, students without an undergraduate degree in accounting are required to complete the following undergraduate deficiencies in accounting: ACC 201 and 202 prior to admission to the MAcc program, and ACC 321, 323 (or ACC 611), 401, 415, and 418 prior to graduation.

Admission to the MAcc program is competitive. The school seeks individuals who have the potential for outstanding achievement in accounting, auditing, or taxation. The admissions committee primarily considers the candidate's academic record and GMAT score and places emphasis on strong communication skills.

Generally, students admitted to the MAcc program have a GPA exceeding 3.3, GMAT scores in the mid-500s, and above average verbal scores on the GMAT.

Degree Requirements

The MAcc degree requires 30 credits (10 courses)

Required Accounting Courses (12 credits)

- ACC 407 Taxation of Business Entities or ACC 606, Tax Research or ACC 625 Accounting and Tax Research (if ACC 407 was completed as an undergraduate)
- ACC 619 Assurance in the Information Age
- ACC 620 Global Accounting
- ACC 660 Analysis in Decision Making

Elective accounting courses, three of the following (9 credits)

- ACC 413 Law for the Accountant (if not taken as undergraduate)
- ACC 606 Tax Research
- ACC 609 Computers and Accounting for Business Systems
- ACC 625 Accounting and Tax Research
- ACC 631 Tax of Partners/Partnerships
- ACC 633 Advanced Corporate Taxation
- ACC 635 Advanced Public Sector Accounting
- ACC 638 Estate & Gift Taxation and Planning
- ACC 639 Multijurisdictional Taxation

- ACC 690 Special Topics
- ACC 695 Internship

Required Courses Outside Accounting (3 credits)

- SP 660 Rhetoric in Organizations

Two more electives (400-600 level)

One elective must be a 400-600 level NON-ACCOUNTING course taken from within the College of Business (except MBA core courses, BUS 610-615, BUS 600 & 696B, and ACC 611) or from the School of Law.

Students must complete a minimum of 30 credits. If a course is waived, another course in the same area of study and of the same or higher level should be substituted.

Financial Economics and Institutions

Department of Financial Economics and Institutions
 BusAd E-305
 2404 Maile Way
 Honolulu, HI 96822
 Tel: (808) 956-6675
 Fax: (808) 956-9887
 Web: www.cba.hawaii.edu

Faculty

- *E. Mais, PhD (Chair)—finance
- *R. Chang, PhD—finance
- D. Cost, JD—business law
- *S. M. Dawson, PhD—finance
- *W. Huang, PhD—finance
- *J. B. Marsh, PhD—business economics
- M. Misawa, PhD—international finance and banking
- *N. Ordway, PhD—real estate
- *G. Rhee, PhD—finance
- *K. K. Seo, PhD—business economics and Asian business
- *J. P. Suyderhoud, PhD—business economics

Degrees Offered: BBA in finance

The Academic Program

The department offers courses in finance, business law, real estate, and insurance.

Undergraduate Study

BBA in Finance

The major in finance (FIN) develops analytical skills in the planning, management, and control of financial resources to achieve the financial goals of the organization. Central to that task is the evaluation of the risk and return consequences of financial decisions. The major financial decisions studied are the selection of assets (equipment, buildings, inventories, securities, etc.) and the choice among financing alternatives

* Graduate Faculty

(selling stock, borrowing from a bank, issuing bonds, etc.). Students may select course sequences that concentrate on business financial management, investment management, personal financial planning, Asian finance, and real estate finance.

The major prepares students for positions and career advancement in financial institutions, retail, wholesale, and manufacturing firms; securities institutions; and personal financial planning.

Requirements

- FIN 311
- Four elective courses from FIN 305, 307, 321, 330, 331, 341, 360, 367, 412, 415, 444, 490

Information Technology Management

Department of Information Technology Management
 BusAd E-303
 2404 Maile Way
 Honolulu, HI 96822
 Tel: (808) 956-7430
 Fax: (808) 956-9889
 E-mail: itmguest@cba.hawaii.edu
 Web: www.cba.hawaii.edu/itm

Faculty

- *R. H. Sprague, DBA (Chair)—information systems
- *T. Bui, PhD—information systems
- *H. M. Chen, PhD—information systems
- *W. G. Chismar, PhD—information systems
- *E. Davidson, PhD—information systems
- *F. N. Kazman, PhD—information systems
- *R. E. Lamb, PhD—information systems
- *R. R. Panko, PhD—information systems
- *W. E. Remus, PhD—decision sciences
- *R. G. Worthley, PhD—statistics

Degrees Offered: BBA in management information systems

The Academic Program

The focus of the Department of Information Technology Management (ITM) is the use of information technology and quantitative methods to improve the management of organizations.

Undergraduate Study

BBA in Management Information Systems

The subject of management information systems (MIS) encompasses the entire system of information flows in an organization. It addresses the design, development, and implementation of the “information-based nervous system” for the organization. It deals with information as an organizational resource and information-related management functions at the

* Graduate Faculty

operational, tactical, and strategic levels. Upon graduation, the MIS major is qualified for positions such as information analysts/programmers in organizations, field service and marketing representatives for information technology companies, and consultants who provide services to organizations about information system development. The market demand for MIS students continues to grow.

Requirements

- ITM 352, 353, 354, 357, 366
- One technical elective. The technical elective may be used to meet the college’s non-introductory elective requirement, but it must be taken with A-F grading.

Management and Industrial Relations

Department of Management and Industrial Relations
 BusAd C-301
 2404 Maile Way
 Honolulu, HI 96822
 Tel: (808) 956-8485
 Fax: (808) 956-2774
 Web: www.cba.hawaii.edu

Faculty

- *L. Kelley, PhD (Chair)—international business, strategy, organizational behavior
- *E. Bailey, EdD—human resources management, organizational behavior
- *D. Bangert, PhD—strategy, management
- *D. H. Bess, PhD—organizational behavior, transportation
- *D. Bhawuk, PhD—organizational behavior, international management
- *R. Brislin, PhD—international management, intercultural communications
- *R. H. Doktor, PhD—international business, organizational behavior, strategy
- H. Folk, PhD—human resources management, international business, industrial relations
- *K. Ito, PhD—international business, management and human resource management
- *Y. Luo, PhD—international business, strategic management
- *J. Richardson, PhD—strategy, international business
- *R. Robinson, PhD—angel investing, entrepreneurship and negotiations

Degrees Offered: BBA in human resources management, BBA in international business, BBA in management

The Academic Program

The Department of Management and Industrial Relations teaches courses in the following areas: international management, comparative management, entrepreneurship, organizational behavior, human resources management (HRM), and industrial relations (IR). The department offers majors in

human resources management, international business, and management (MGT).

Undergraduate Study

BBA in Human Resources Management

Requirements

- HRM 351
- IR 361
- Three elective courses from
- HRM 353, 354, 453, 455
- IR 463, 465, 467, 469
- MGT 341, 344, 350

BBA in International Business (Double major only)

Requirements

- FIN 321
- MKT 381
- BEC 461 or MGT 343
- Two elective courses from
- ANTH 416
- ASAN 312, 320
- BEC 389, 470, 476, 477, 495
- BLAW 360
- ECON 405, 410, 415, 460
- FIN 331, 360 (with international focus), 390C
- IR 469
- MGT 342, 343, 344 (with international focus), 350 (with international focus), 460
- MKT 361 (with international focus) or 411C
- POLS 320, 321, 341
- TIM 324, 325, 361, 421
- TIM 442
- Third-year foreign language
- Integrative, international experience

BBA in Management

The Multitrack Management Major includes the following tracks:

1. Operational Effectiveness
2. Organizational Leadership
3. International Management
4. Flexible/Custom Designed Track - students may design their management major with a faculty member based on their interests and career choices

Requirements

- MGT 322 and 341
- HRM 351
- IR 361
- One elective course from
- ACC 305
- BEC 476
- HRM 353, 354
- MGT 321, 342, 343, 344, 348, 350, 460
- MKT 321, 371

Marketing

Department of Marketing

BusAd C-303

2404 Maile Way

Honolulu, HI 96822

Tel: (808) 956-6692

Fax: (808) 956-9886

Web: www.cba.hawaii.edu/mkt

E-mail: mktg@cba.hawaii.edu

Faculty

*D. L. Alden, PhD (Chair)—marketing communications, healthcare marketing, cross-cultural consumer behavior

*Q. Chen, PhD—e-commerce, online consumer behavior, advertising effectiveness

*D.A. Griffith, PhD—intercultural inter-organizational behavior, international marketing strategy, the influence of technology on retailing

*L. W. Jacobs, PhD—marketing and promotional strategy

*J. A. Lee, PhD—cross-cultural consumer behavior, international marketing, marketing research

*A. P. Palia, DBA—international business

*N. E. Synodinos, PhD—consumer behavior, marketing research

*J. R. Wills Jr., DBA—international marketing, technology marketing, marketing strategy

*N. Y. Wong, PhD—cross-cultural consumer behavior, international marketing, and research methods

Degrees Offered: BBA in marketing

The Academic Program

Marketing (MKT) involves studying the ways that organizations create and maintain mutually satisfying exchanges between themselves and their customers. Marketing course work helps students learn how to effectively and efficiently manage components of the marketing mix: product, distribution, communications, and price.

Marketing offers courses in marketing research, marketing information systems, consumer behavior, personal selling, advertising and promotion, entrepreneurial marketing, retailing, and multinational operations. After completing the marketing major, the student should possess knowledge that is applicable to a wide range of professional careers. These careers include advertising account executive, marketing manager, sales manager, and marketing research manager.

Undergraduate Study

BBA in Marketing

Requirements

- MKT 311, 321, and 391
- Two elective courses from MKT 331, 332, 341, 351, 352, 361, 362, 363, 371, 381, 410, 411

College of Education



Administration

Wist Annex 2-128
1776 University Avenue
Honolulu, HI 96822
Tel: (808) 956-7703
Fax: (808) 956-3106
Web: www2.hawaii.edu/coe

Dean: Randy Hitz
Associate Dean for Academic Affairs: Linda K. Johnsrud
Associate Dean for Research: Donald B. Young, Jr.
Interim Assistant Dean for Student Academic Services: Virgie Chattergy

General Information

The College of Education is an upper division college and graduate professional school that prepares teachers, administrators, school counselors, and other education personnel; provides professional development for teachers and other educational and related professionals; provides information for understanding educational issues to school and community groups; and conducts basic and applied research concerning problems in education.

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The college is one of 19 institutions nationally that has formally established a working school and university partnership as members of the National Network for Educational Renewal. As such, the college is a leader in the nation in the development of field-based programs that effectively link educational theory to practice in the schools. Both students and faculty spend considerable time in schools, share their insights and expertise, while simultaneously learning from school professionals who have the day to day responsibility of educating children and young people.

The college is committed to integrating technology in its educational programs to ensure that Hawai'i's educators are prepared to use technology to enhance instruction and learning, to ensuring that all educators are prepared to work with diverse populations of students including those with special needs, and finally, to fostering the skills and abilities of graduates to assume leadership roles in education in service to the state and region.

Graduates of the bachelor of education (BEd) program are recommended by the College of Education for teaching licensure by the State of Hawai'i. The BEd in elementary education provides optional additional areas of preparation: early childhood education, Hawaiian education, and special education. State approved teacher education programs in elementary or secondary education for post-baccalaureate students are also offered. Graduates of the master of education in teaching (MEdT), master of education (MEd) degrees in secondary, elementary, or special education programs are recommended by the College of Education for professional certification by the State of Hawai'i. Practicing teachers may also seek professional certification through the Professional Diploma in Education (PDE) or the master of education degree in educational foundation or the master of education degree in educational psychology (emphasis in learning and assessment).

Vision and Mission

The College of Education consists of a world class team of educators who provide innovative and cutting-edge research, teaching, service, and leadership to the local community, the

State of Hawai'i, the nation, and the world beyond. The college prepares educators to contribute to the advancement of a diverse humanity in realizing a just, democratic society.

The mission of the college is to:

- prepare and provide ongoing professional development of teachers, administrators, counselors and related professionals at the undergraduate and graduate levels;
- generate, synthesize and apply knowledge in education and related fields through teaching, research and other scholarly activities; and,
- provide service and support to the local, national and global educational and related communities.

The College of Education has a complex set of responsibilities that is unique not only among the colleges of this University but among colleges of education in state universities nationwide. In a state where there is only one major public institution of higher education concerned with the broad array of fields in professional education, the UH College of Education must fulfill the combination of roles other states generally assign to several campuses.

College-wide Themes

There are five fundamental themes that characterize the college's professional education programs. These themes, listed below, are reflected in different ways and to different degrees in each program. Nonetheless, they provide a common sense of purpose and language across the college's wide array of programs.

By **COLLABORATIVE**, we mean that our programs:

- Engage multiple communities;
- Encourage partnerships; and,
- Emphasize field-based experience.

By **INCLUSIVE**, we mean that our programs:

- Respect multiple perspectives;
- Demonstrate concern for ethical/moral dimensions; embrace democratic principles; and,
- Foster health and wellness.

By **DYNAMIC**, we mean that our programs:

- Insist on professionalism/professional competence;
- Nurture professional growth;
- Value a commitment to social justice/social change;
- Advance leading edge-21st century technological innovations.

We believe that our programs promote **INQUIRY** by:

- Integrating theory and practice;
- Drawing on/contributing to an expanding knowledge base; and,
- Prizing scholarship and research.

We believe that our programs promote **REFLECTION** by:

- Cultivating reflective practice;
- Fostering individual and program renewal; and,
- Advancing authentic assessment.

The college motto, "Be Enriched Through Education," developed in 1987, expresses a belief that the lives of individuals and communities are enriched through education and that education is the best way to advance the human condition.

Accreditation

The College of Education is accredited by the National Council for Accreditation of Teacher Education (NCATE) at the initial teacher preparation and advanced preparation levels. It is also accredited by the State of Hawai'i under the State Approval of Teacher Education (SATE) process. SATE approval qualifies education graduates for reciprocal teaching licensure and certification in at least 40 other states and the District of Columbia. In practice, education graduates qualify for certification in all states.

Degrees and Certificates

Bachelor's Degrees: BEd in elementary education, BEd in secondary education, BS in kinesiology and leisure science. Post-baccalaureate students who choose an elementary education major will enroll for a second baccalaureate degree (BEd).

Master's Degrees: MEd in counseling and guidance, MEd in educational administration, MEd in educational foundations, MEd in educational psychology, MEd in educational technology, MEd in elementary education, MEd in secondary education, MEd in special education, MEdT in teaching, and an MS degree in kinesiology and leisure science.

Doctoral Degrees: PhD in Education (with specialization in curriculum and instruction, educational administration, educational foundations, educational policy studies or exceptionalities), PhD in educational psychology

Certificates: PBCSE (post-baccalaureate certificate in secondary education), PBCSPED (post-baccalaureate certificate in special education), and PED (professional diploma in education).

Certifications: school counseling, rehabilitation counseling; dual teacher preparation in elementary/special education, secondary/special education, and elementary education/early childhood

Advising

BEd, Dual Teacher Preparation in Elementary/Special Education, Secondary/Special Education, and Early Childhood/Elementary Education, BS Post-baccalaureate Certificate and the Professional Diploma in Education

Office of Student Academic Services

Wist Annex 2-126

1776 University Avenue

Honolulu, HI 96822

Tel: (808) 956-7849 / 956-7915

Fax: (808) 956-4271

E-mail: osas@hawaii.edu

Web: www.osasweb.coe.hawaii.edu

BS in Kinesiology and Leisure Science

Department of KLS
Physical Education/Athletics 231
1337 Lower Campus Road
Honolulu, HI 96822
Tel: (808) 956-7606
Fax: (808) 956-7976

Graduate Degrees

Contact the departmental offices of graduate fields of study in the College of Education.

Undergraduate Programs

The college offers the bachelor of education (BEd) degree in elementary education (with early childhood, Hawaiian education, and special education options available) and in secondary education (with a special education option available) and the bachelor of science (BS) degree in kinesiology and leisure science. Specific degree requirements for these undergraduate programs, including copies of the General Education Core requirements specified for education majors, are available in the Office of Student Academic Services, Wist Annex 2-126. For program requirements for the BEd, see the Teacher Education and Curriculum Studies section of the *Catalog*. For program requirements for the BS in KLS, see the kinesiology and leisure science section of the *Catalog*.

Admission Requirements

Students applying for admission to the bachelor of education program must have achieved upper division status by completing a minimum of 55 credit hours from an accredited college. Students seeking admission to the elementary program may be admitted to the college conditionally with a minimum of 36 credit hours completed by the end of the semester in which they are applying. BS majors in KLS follow specific General Education Core requirements listed on their program sheet. Students must also meet the following criteria:

1. Cumulative GPA of 2.75 at each postsecondary institution attended.
2. For secondary education majors, GPA of 2.75 additionally in the content major.
3. Pre-Professional Skills Test (PPST) or Computer Based Academic Skills Assessments (CBT): minimal state passing scores in reading, writing, and mathematics subtests.
4. Personal interview to assess fluency and intelligibility in oral communication, prior related field experiences, interest and motivation in the field, and suitability to the profession.
5. Completion of pre-education core requirements (i.e., General Education Core requirements specified for education majors).
6. Documented current active involvement with school-age children at the grade level of most interest in future teaching. Preferably, students will have had a variety of field experiences with both elementary and secondary level children.

Admission requirements are subject to change. Call the Office of Student Academic Services for updated information.

Qualified students who are off-island during the semester of application may be granted a telephone interview.

Students who are denied admission to the College of Education may request reconsideration of their application from the Assistant Dean for Student Academic Services. However, only students who have achieved a minimum overall cumulative GPA of 2.5 and who attain the minimum qualifying passing score on the PPST/CBT may request reconsideration. In addition, students must show strong evidence of future potential in the field and a strong record of recent scholarship.

During the admission process, applicants may be referred to, reviewed by, or interviewed by appropriate faculty members regarding their qualifications and potential as educators. The behavior of applicants should reflect high ethical and professional standards at all times. Behavior will be evaluated on the basis of past experience and current interaction with college personnel.

Applicants should be aware that admission to the college does not guarantee admission to student teaching (teaching residency). Students' progress in teacher education programs will be evaluated at several points throughout the program. Also required for field placement:

1. Original TB certificate clearance as required by state Department of Education school regulations. Contact the Department of Health for more information.
2. Liability insurance.

Application Procedures

1. Submit a current College of Education application form with official transcripts of all previous college work to the appropriate place.
 - a. Classified UHM undergraduate students submit the College of Education application and official transcripts to the Office of Student Academic Services, College of Education.
 - b. Undergraduate applicants from other campuses, classified/unclassified UHM graduate students, and unclassified UHM undergraduate students submit the College of Education application to the Office of Student Academic Services and send a completed UH system application form and transcripts to UHM's Office of Admissions and Records.
2. Make arrangements for the interview and the PPST/CBT.
3. Additionally, for enrollment in the music education program, make sure official transcripts of all university studies are on file in the music department office by the date of application, arrange for a timely interview with the music education faculty, and present evidence of musical/vocational aptitude in support of application.

Application Deadlines

The deadline is March 1 for fall admission; September 1 for spring admission. Deadlines are subject to change. Call the Office of Student Academic Services for updated information.

Student Teaching

The College of Education plans, arranges, and supervises student teaching experiences at the elementary and secondary levels in public and private schools within the state of Hawai'i. Since student teaching is a full-time experience, students may not register concurrently for other courses or undertake employment during school hours.

Prerequisites for registering for student teaching and seminar, which are offered on a mandatory CR/NC basis, include the following:

1. Enrollment in the College of Education as a classified student and completion of all course work;
2. Completion of the required foundations and methods courses with a grade of C or better;
3. A cumulative GPA of not less than that required for admission to the college;
4. A completed application for student teaching, verified by an academic adviser, submitted to the Department of Teacher Education and Curriculum Studies no later than **September 1** or **February 1** for a practicum assignment for the subsequent semester (there is no student teaching program during the summer session);
5. Recommendation by the student's college of education instructors;
6. For BEd in secondary majors:
A recommendation by a designated teacher education personnel for assignment processing or referral to the student review committee;
7. A current, original TB health clearance certificate from the state Department of Health that is valid through the student teaching experience (TB certificate must be filed with the Office of Student Academic Services).
8. Liability insurance.

Students should check with their academic adviser concerning specific requirements.

Graduate Programs

Master's Degrees

The College of Education offers MEd degrees in counseling and guidance, educational administration, educational foundations, educational psychology, educational technology, elementary education, secondary education, special education, and teaching. The MEd programs in elementary and secondary education and the MEdT are in the Department of Teacher Education and Curriculum Studies. The other MEd programs are described under those specific departments.

The College of Education also offers a Masters of Science (MS) Degree in Kinesiology and Leisure Science (KLS). The MS degree was designed as a two-year program of study for students with advanced knowledge, skills, research, and clinical/field experiences in one of the following program areas: Physical Education/Adaptive Physical Education (PE/APE); Athletic Training (AT); and Health, Exercise Science and Lifestyle Management (HESLM).

The MEdT, a two-year, interdisciplinary, field-based program, is designed for students who have earned baccalaureate degrees in fields other than education. Graduates are qualified for state teacher certification in either elementary or secondary education at the professional certificate level. MEdT students must be registered full-time and progress through the program in cohorts. See Teacher Education and Curriculum Studies for more information.

Doctoral Degrees

Doctor of Philosophy in Education (PhD)
Wist 113
1776 University Avenue
Honolulu, HI 96822
Tel: (808) 956-7817

Faculty

- *H. B. Slaughter, EdD (Chair)—language arts, literacy, qualitative research
- *K. Au, PhD—literacy, multicultural education
- *A. Bartlett, PhD—literacy
- *A. Bayer, PhD—reading, composition, collaborative learning
- *R. Black, EdD—mental retardation transition, students at risk, research design
- *P. Chinn, EdD—elementary and secondary science education
- *J. E. Cooper, PhD—higher education, community college curriculum, leadership and reflective practice
- *M. J. D'Andrea, EdD—developmental counseling, adolescent and family life, counseling diverse populations
- *J. A. Daniels, EdD—school, development, adolescent, group, homeless children, loss and transition counseling
- *P. Deering, PhD—curriculum and instruction, middle level education, social studies education, qualitative research
- *C. DeRenne, EdD—physical education and sports science
- *B. Dougherty, PhD—mathematics, education
- *P. Edelen-Smith, EdD—special education, assessment, learning disabilities
- *E. Enomoto, EdD—organization technology, politics of education
- *D. P. Ericson, PhD—philosophy of education, educational policy
- *S. S. Feeney, PhD—early childhood education
- *D. Grace, EdD—language literacy, media studies, early childhood
- *R. H. Heck, PhD—leadership and governance, organizational theory, policy
- *K. Hijirida, PhD—Japanese teaching methodology, curriculum theory & development, language teaching for special purposes
- *C. Ho, PhD—educational technology
- *A. A. Jenkins, PhD—mild/moderate disabilities, content strategies/inclusive education, collaboration
- *J. L. Johnson, PhD—exceptionalities
- *R. Johnson, EdD—early childhood and elementary education
- *L. K. Johnsrud, PhD—academic governance and leadership, organizational theory, ethics
- *J. Kaomea, PhD—mathematics, education, multicultural education
- *A. R. King, Jr., EdD—history of curriculum, higher education
- *I. King, PhD—mathematics education, supervision
- *E. B. Klemm, EdD—science education

- *V. N. Kobayashi, PhD—comparative education, philosophy
- *V. Krohn-Ching, MFA—art education
- *B. J. Lum, PhD—philosophy of education, policy studies, social and cultural studies, human development, moral education
- *M. Maaka, PhD—developmental/cognitive psychology, language and literacy in education; multicultural education
- *S. E. Marlow, EdD—curriculum administration, policy, professional socialization, school administration
- *L. P. McCormick, PhD—early education, communication disorders, behavioral disorders, severe disabilities
- *D. McDougall, EdD—behavioral self-control (self-management, self-monitoring), behavioral disorders/learning disabilities, inclusion/integration, applied behavior analysis, special education law
- *H. McEwan, PhD—curriculum theory, philosophy of teaching
- *L. K. Menton, PhD—history of education, history of education in Hawai'i, 19th-century Hawaiian history
- *M. J. Noonan, PhD—moderate and severe disabilities, early intervention
- *M. M. Omizo, PhD—tests and measurements, research and evaluation, school psychology
- *C. Ornelles, PhD—mild/moderate disabilities, students at risk, integration of services, collaboration
- *N. A. Pateman, EdD—mathematics education
- *M. E. Pateman, HsD—school and college health science
- *F. Pottenger, PhD—science education
- *J. H. Prins, PhD—physical education and exercise science
- *G. G. Reed, PhD—social and cultural foundations, values and education, comparative education
- *M. Salzman, PhD—cross cultural communication, counseling
- *T. Sileo, EdD—mild/moderate disabilities, multicultural education, family involvement, educational collaboration
- *J. Skouge, PhD—exceptionalities
- *D. C. Smith, PhD—school counseling, social and emotional development, and assessment
- *G. Smith, EdD—interdisciplinary team development
- *T. W. Speitel, PhD—science curriculum research and development, computer communications
- *N. J. Stodden, PhD—exceptionalities
- *R. A. Stodden, PhD—mental retardation, career/vocational special education
- *E. H. Tamura, PhD—history of education, history of education in Hawai'i, Asian-American history
- *J. J. Tobin, PhD—ethnography, early childhood, elementary education
- *N. C. Whitman, PhD—mathematics education
- *B. L. Williams, PhD—art education
- *D. Young, EdD—science education
- *J. Zilliox, EdD—elementary mathematics

Cooperating Graduate Faculty

- K. Hijirida, EdD—Japanese teaching methodology, curriculum theory and development, language teaching for special purposes

Affiliate Graduate Faculty

- P. G. LeMaieu, PhD—educational research methodology, statistical analysis, evaluations and measurement

The Doctor of Philosophy in Education (PhD) is a college-wide degree awarded for distinguished academic preparation for professional practice and research in the field of education. The program is designed to enhance and facilitate educational, social, and economic growth locally, nationally, and internationally with a pool of highly qualified educational scholars and leaders.

The quality of a candidate's work is judged by a variety of experiences, which include the College of Education general and specialization area courses, culminating in a field project or internship, a set of comprehensive and final examinations, and a dissertation. The dissertation is based on a selected research problem and is a significant part of the candidate's experience. Five areas of specialization are currently available: curriculum and instruction, educational administration, educational foundations, exceptionalities, and policy studies.

Application for admission to the PhD program will be considered for the fall semester only and is made to the Graduate Division. Students must meet the requirements of both the Graduate Division and the College of Education, including acceptable scores on the Graduate Record Examination (GRE) verbal, quantitative, and analytical sections and the GRE Writing Assessment. Applicants from foreign countries where English is not the dominant language are required to have a TOEFL score of 600 (regardless of degree completion from other U.S. institutions). A master's degree from an accredited university or college is required with evidence of a minimum of three years of experience in the field of education. The applicant must demonstrate competence in writing and present a written statement of higher career goals and academic objectives. At least three letters of recommendation are required. An oral interview may be conducted.

For further information, applicants may contact the graduate chair of the doctor of education program at (808) 956-7817.

Specialization in Curriculum and Instruction

This specialization develops educational leaders in curriculum development, teaching, curriculum evaluation, and/or teacher education and professional development. The program varies in the number of credit hours required, depending upon the candidate's qualifications, and includes courses required for all doctoral students enrolled in the College of Education; courses in an area of specialization, such as curriculum development, teaching and learning, curriculum and program evaluation, and research on teacher education and professional development; courses taken outside the Department of Teacher Education and Curriculum Studies; a field project or an internship; and the dissertation.

Specialization in Educational Administration

The primary purpose of this specialization is to develop educational leaders in elementary, secondary, and higher education settings. Areas of emphasis within the program include management and leadership, organizational theory, policy and governance, organizational socialization, and research methods.

The program includes courses required of all doctoral students in the college, courses in an area of specialization (K–12 or higher education), courses taken outside the department, a field experience, and the dissertation.

Specialization in Educational Foundations

This specialization prepares educational professionals with an understanding of the historical, philosophical, cultural, social, and political contexts of education so that they can make informed and wise decisions about educational problems and policy issues. Graduates with the PhD are expected to exert leadership in the field of education and deal with those aspects and problems in society that need to be taken into account in advancing educational thought, policy development, and practice, especially where these concern the social role of the school and other educational agencies. The program of study varies in the number of credits required, depending upon the candidate's qualifications, and includes two 12-credit-hour semesters (not necessarily consecutive); college and departmental course requirements; course work focused on an area of emphasis in history, philosophy, or comparative or social foundations of education; courses outside the department; a field project/internship or an apprenticeship in teaching; qualifying and comprehensive examinations; and the dissertation.

Specialization in Exceptionalities

This specialization prepares professionals to work as leaders in the education and support of individuals who have unique needs, often due to disabilities. The field is broad, addressing life-span concerns and involving such services as advocacy, family support, community services, vocational training and support, and special education. Graduates of the program are expected to assume leadership roles addressing local, regional, national, and international issues related to research and higher education and/or program development and evaluation. The program varies in the number of credit hours required, depending upon the candidate's qualifications, and includes courses required by the college, courses in the area of specialization, courses in an emphasis area, courses in a field outside of the Department of Special Education, a field internship, and the dissertation.

Specialization in Educational Policy Studies

Educational policy studies consists of a multidisciplinary program of study and research concerned with identifying and ameliorating significant educational problems. It draws upon concepts and research methods from a variety of fields (including the social sciences, history, law, and philosophy) in defining problems and formulating solutions. The purpose of this specialization is to prepare professionals from diverse backgrounds for effective informed engagement in this process. At the same times, it prepares such persons to pursue research and service agendas geared toward lifting policy analysis, discourse, and action to new levels. The program varies in the number of credit hours required, depending upon the candidate's qualifications, and includes courses required of all doctoral students in the college, courses in the specialization

area, work in a cognate area outside the specialization, a field experience/internship, and the dissertation.

Doctor of Philosophy in Educational Psychology (PhD)

See Educational Psychology.

Certification Programs

License in School Counseling

Successful completion of the school counseling curriculum in the MEd program in counselor education will qualify the student for school counseling license at the professional level by the state Department of Education.

Certification in Rehabilitation Counseling

Successful completion of the rehabilitation counseling curriculum in the MEd program in counselor education will qualify the student for national certification by the Commission on Rehabilitation Counselor Certification and for certification by the Department of Labor and Industrial Relations as a rehabilitation service provider.

Dual Preparation in Elementary Education/Special Education; Secondary Education; and Elementary Education/Early Childhood

See the "Special Education" section within the College of Education for more details.

Research Units

Curriculum Research & Development Group

Castle Memorial 132
1776 University Avenue
Honolulu, HI 96822
Tel: (808) 956-7961
Fax: (808) 956-9486
E-mail: crdg@hawaii.edu
Web: www.hawaii.edu/crdg

The Curriculum Research & Development Group (CRDG), including the University Laboratory School, conducts systematic research, design, development, publication, staff development, and related in-service support for the elementary and secondary schools of Hawai'i and other schools in the University's broad service area.

CRDG has curriculum development projects in science, mathematics, English, Pacific and Asian studies, marine studies, environmental studies, Hawaiian and Polynesian studies, Japanese language and culture, music, nutrition, art, drama, technology, health, kindergarten, early education, and computer education. Research and school service projects focus on educational policy research, standards-based education, educational evaluation, teacher development, instructional use of technology, reduction of in-school segregation of students, and programs for students educationally at risk.

CRDG is the senior member of a cooperative program with other U.S. universities to improve schooling in science and mathematics education in K-12 schools. It is also a founding member of the Pacific Circle Consortium of universities, major school systems, and educational ministries in Australia, Canada, Japan, Korea, Mexico, New Zealand, and the United States. CRDG is a lead member along with the Pacific Resources for Education and Learning (PREL) of the Pacific Mathematics and Science Regional Consortium serving Hawai'i and the Pacific Islands. CRDG-developed programs are used throughout Hawai'i, in the continental U.S., and in several countries abroad.

The Education Laboratory: A Hawai'i New Century Public Charter School, formerly known as the University Laboratory School, with its culturally diverse student body, provides an essential experimental ground for developing and testing educational ideas and programs. CRDG draws upon the scholarly resources of relevant University fields. Its own production department currently publishes 600 titles.

Center on Disability Studies - University Center for Excellence

1776 University Avenue, UA4-6
Honolulu, HI 96822
Tel: (808) 956-9199
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Email: cds@hawaii.edu
Web: www.cds.hawaii.edu

The Center on Disability Studies (CDS), University Center for Excellence (UCE) was established in 1988 as the Hawai'i University Affiliated Program at the University of Hawai'i at Mānoa, and is part of a National Network of University Centers for Excellence in Disabilities focused upon Education, Research, and Services. The CDS addresses individual needs from birth to old age, a variety of service issues from prevention to early intervention to supported employment, and a broad range of disabilities by providing interdisciplinary training, exemplary services, technical assistance, and information dissemination, thereby supporting persons with disabilities to live as independently as possible and to participate in their communities.

The mission of the CDS is to support the quality of life, community inclusion, and self-determination of all persons with disabilities and their families. This is accomplished through training, service, research, demonstration, evaluation, and dissemination activities in Hawai'i, the Pacific Region, and the U.S. mainland. The CDS provides a structure and process to support and maintain internal professional development, collegiality, and cooperation, reflecting an organizational commitment to excellence. The CDS activities reflect a commitment to best practice and interdisciplinary cooperation within an academic, community, and family context. Activities are culturally sensitive and demonstrate honor and respect for individual differences in behavior, attitudes, beliefs, and interpersonal styles.

The CDS Core Administration consists of the Leadership Team and Faculty Senate. The Core Administration provides leadership for programmatic planning, operation, and development of CDS activities. Through ongoing faculty and staff meetings, training sessions, retreats, and one-on-one personal and technical assistance, the Core Administration strives to maintain internal professional development and well-being in the CDS. Additionally, the Core Administration makes every effort to develop and maintain sound working relations with the local community, the Pacific Region, and national audiences. These ongoing efforts are directed through the Community Advisory Council and the University Coordinating Council, as well as through day-to-day interactions within the university, state departments, private organizations, families, persons with disabilities, and individuals who address the needs of persons with disabilities.

University and community needs are met through the Community Advisory Council (CAC) and the University Coordinating Council (UCC). Both groups meet quarterly to ensure that program activities are responding to (a) national initiatives, (b) needs of state agencies and advocacy groups, and (c) the University of Hawai'i's academic program objectives. In addition to representatives from key community agencies, the CAC includes persons with disabilities, family members of persons with disabilities, representatives from underserved rural regions of Hawai'i and the Pacific Basin, and persons from underrepresented cultural groups. The UCC consists of representatives from departments, schools, colleges, and programs at the University of Hawai'i, which interface with training and research activities focused on persons with disabilities and their families. The ultimate purpose of all CDS activities is to improve the lives of persons with disabilities and their families by improving systems, communities, services, and supports.

Student Organizations

The College of Education Student Association is open to all persons interested in teacher education. CESA members participate in college committees and projects and sponsor various activities for education students. CESA is an affiliate of the Student National Education Association. For more information, call (808) 956-6924, visit the CESA office at University Annex 1, Room 5A, or e-mail cesa@hawaii.edu.

All doctoral students are eligible to participate in the College of Education Doctoral Student Association (COEDSA). COEDSA sponsors activities and workshops on matters of concern to doctoral students. For more information, visit COEDSA's Web site at: www.hawaii.edu/coedsa/

Honors and Scholarships

Each semester, the College of Education recognizes the scholastic performance of students who achieve a GPA of 3.5 or better by placing them on the dean's list. To be eligible for the dean's list, students must successfully complete at least 15 credits during the semester. Additionally, the college awards the distinction of being student marshals at commencement

exercises to those students who demonstrate high scholastic achievement, outstanding character, and extraordinary potential for teaching. Exemplary students are also invited to join the College of Education's chapter of Pi Lambda Theta, a national education honorary society.

The College of Education makes scholarship support available to classified undergraduate and graduate students. In 2001-2002, students received scholarships totaling over \$150,000. For information, contact the Office of College Development at (808) 956-7988.

Counseling and Guidance

Wist Annex 2-221
1776 University Avenue
Honolulu, HI 96822
Tel: (808) 956-7905
Fax: (808) 956-3814
E-mail: omizo@hawaii.edu
Web: www2.hawaii.edu/~dce

Faculty

- *M. M. Omizo, PhD (Chair)—counseling children, research and evaluation, school counseling, career counseling
- *B. Y. Cartwright, EdD—rehabilitation counseling
- *M. J. D'Andrea, EdD—developmental counseling, adolescence and family life, counseling diverse populations, and counseling research
- *J. A. Daniels, EdD—school counseling, development counseling, adolescent counseling, loss and transition counseling, group counseling, and counseling homeless children
- *M. B. Salzman, PhD—school counseling, school-home-community partnerships, multicultural counseling, existential and Adlerian therapies, and school-based prevention
- *D. C. Smith, PhD—school counseling, social and emotional development, assessment, school psychology
- *D. W. Wong, PhD—vocational rehabilitation and rehabilitation research

Degree and Certifications Offered: MEd in counseling and guidance, License in School Counseling, Certification in Rehabilitation Counseling

The Academic Program

Counseling is providing expert, specialized assistance to a client. It stresses the facilitation of human development, rational thinking and planning, problem solving, decision-making, and stress management in practical situations. Counseling generally focuses on helping individuals with problems and concerns arising from everyday life.

Students majoring in counseling gain knowledge and understanding of normal and abnormal developments, theories of personality and counseling, counseling skills, career and vocational guidance and counseling, cultural differences, family counseling, ethical and legal issues in counseling, research, and testing.

Accreditations

The school counseling program is approved by the state Department of Education and nationally accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP). The rehabilitation counseling program is accredited by the Council on Rehabilitation Education.

Graduate Study

Master's Degree

The Master of Education in counseling and guidance (EDCG) is a two-year, 54- or 60-credit professional degree for the development of counselors in four specialties: school counseling, college counseling, rehabilitation counseling, and community services counseling. All specializations except rehabilitation counseling are 60-semester hours.

The department provides learning experiences for its students through departmental and community resources within the following required program components:

1. Knowledge and understanding of counseling: (a) normal and abnormal developments in physical, cognitive, emotional, social, and personality areas; (b) theories of personality and counseling; (c) individual and group counseling methods; (d) career development, career guidance, and vocational counseling; (e) differences related to ethnicity, culture, sex-membership, and lifestyle; (f) professional literature and research; (g) theories and procedures in assessment and evaluation; and (h) ethical and legal principles of counseling; and
2. Knowledge and competency in a professional specialty: (a) school counseling; (b) college counseling; (c) rehabilitation counseling; or (d) community services counseling.

Objectives

The objectives of the department are as follows:

1. To prepare students with knowledge and techniques in counseling and guidance;
2. To prepare students with knowledge of research and development in counseling and with skills for applying, conducting, and evaluating counseling and guidance programs;
3. To promote an understanding of ethical practices in counseling and guidance through demonstration, research, program development, faculty consultation, and in-service education;
4. To increase student's level of multicultural awareness, knowledge, and skills, especially as applied to counseling practice.

Admission Requirements

Admission is based on previous preparation and background, intellectual and affective potential for graduate study, and personal qualifications that contribute to success as a counselor. Application to the program presumes satisfactory

completion of a bachelor's degree with an acceptable undergraduate grade-point average.

Results of the GRE (General Test only), three letters of recommendation relating to the candidate's personal qualifications and/or professional background, one official transcript from each institution attended, and statement of objectives must be submitted directly to the department. These should show evidence that an applicant's personal qualifications, motivation, and academic preparation indicate competence and potential success in counseling and guidance. Departmental requirements are in addition to those of the Graduate Division.

Applications will be considered for both the fall and spring semesters.

Program Requirements

Candidates may elect either Plan A (thesis) or Plan B (non-thesis) options. Prior to registration, every accepted candidate will be assigned a preliminary adviser with whom he or she will develop a degree program plan. This program must be approved by the student, the adviser, and the graduate program chair. A substitute for a required course may be allowed if the substituted course is equivalent in content and caliber. Supporting documentation may be required.

A student shall be advanced to candidacy on the basis of having successfully completed EDEP 429 and 24 credit hours of required courses in his or her respective specialty, including one practicum. Continuation in the program is based on satisfactory progress toward the degree as determined by the faculty and the Graduate Division. Students who fail to attain a grade of B or better in practicum/internship will not be allowed to continue in the program.

The curriculum in school counseling meets licensure requirements of the Hawai'i Department of Education. The curriculum in rehabilitation counseling meets requirements for certification as a rehabilitation counselor and as a rehabilitation services provider.

All classified counseling and guidance students shall preregister for counseling and guidance courses. Preregistration forms can be obtained from the department office approximately three weeks before the end of the previous semester. Students should consult their adviser before completing preregistration forms and should secure their adviser's written approval.

Educational Administration

Wist 220
1776 University Avenue
Honolulu, HI 96822
Tel: (808) 956-7843
Fax: (808) 956-4120

Faculty

- *R. Heck, PhD (Chair)—leadership and governance, organizational theory, policy
- *J. E. Cooper, PhD—higher education, community college curriculum, leadership and reflective practice

*E. K. Enomoto, EdD—organization, technology, politics of education

*L. K. Johnsrud, PhD—higher education, academic governance and leadership, organizational theory, ethics

*S. E. Marlow, EdD—curriculum administration, policy, professional socialization, school administration

Degree Offered: MEd in educational administration

The Academic Program

The department offers graduate programs leading to the MEd in educational administration (EDEA) for both lower (K–12) and higher education and the PhD with a specialization in educational administration. The educational administration program includes both introductory courses and advanced seminars in the following areas of study:

1. Theory, policies and practices, and principles of educational administration;
2. Research;
3. Organizational theory and behavior;
4. Legal/financial factors; and
5. Educational leadership and management (e.g., program planning and management).

The educational administration program prepares educational administrators and supervisors for a broad range of education-related administrative positions. These positions include elementary and secondary school administrators, higher education staff positions, and department and grade-level chair at lower and higher education institutions.

Participants in the educational administration program will have the opportunity to study in a multicultural setting that includes students from the Pacific and Asia, as well as from private and public schools. The department's focus on both higher and lower education provides students the opportunity to explore a wide range of national and international issues of importance to education and to specialize in an area of interest.

Graduate Study

Master's Degree

Admission Requirements

Students seeking admission to the MEd in educational administration should meet the minimum Graduate Division requirements. In addition, students pursuing a specialization in K–12 administration must (a) present a minimum of 9 credit hours of undergraduate or graduate course work in professional education and (b) have a minimum of two years of teaching experience or appropriate job-related experience in educational organizations. Students specializing in higher education administration are exempt from the additional requirements.

Major Requirements

Advancement to candidacy for the MEd in educational administration degree is based on the quality of the student's

academic record after successful completion of a minimum of 9 credit hours of departmental course work.

The basic program of the department prepares educational administrators and supervisors for a broad range of education-related administrative positions. Students are encouraged to plan an individualized program of electives to prepare them for specific educational positions.

Candidates are encouraged, but not required, to include a planned field experience in their degree programs. Supervised administrative internships can be arranged for individuals in public and private schools and in other positions related to educational administration.

Plan A (Thesis) Requirements

Plan A requires a minimum of 36 credit hours, 6 of which are earned through the master's thesis. Program requirements include EDEA 601 or 657; EDEA 602; one course in organizational theory; one course in leadership and management; one course in legal/financial aspects; one seminar in educational administration; and four elective courses, of which two may be from any related graduate field of study.

Selection of specific courses in the above areas will be made by the candidate with the advice and approval of the major adviser.

The department will accept a maximum of 9 transfer credit hours from an outside, accredited institution when such work is appropriate to degree requirements.

Plan B (Non-thesis) Requirements

Plan B requires a minimum of 36 credit hours. Program requirements include EDEA 601 or 657; EDEA 602; one course in organizational theory; one course in leadership and management; one course in legal/financial aspects; one seminar in educational administration; a directed research project with the major adviser; and five elective courses, of which two may be from any related graduate field of study.

Selection of specific courses in the above areas will be made by the candidate with the advice and approval of the major adviser.

The department will accept a maximum of 9 transfer credit hours from an outside, accredited institution when such work is appropriate to degree requirements.

Doctoral Degree

The Doctor of Education (PhD) is a college-wide degree awarded for distinguished academic preparation for professional practice in the field of education.

The primary purpose of a PhD in educational administration is to provide highly qualified educational leaders in administration. The program includes course work developing knowledge and skills related to educational policy and governance, leadership in organizations, administrative theory and practice, and research.

The program includes courses required for all doctoral students enrolled in the College of Education; courses in educational administration leading to a specialization in either general education (K–12) or higher education; course work

taken outside the field of educational administration; an internship within a school, school district, or post secondary or other educational institution; and the dissertation.

For further information, see “Doctoral Degrees,” or write to the Department of Educational Administration Chair, College of Education, University of Hawai‘i at Mānoa, 1776 University Avenue, Honolulu, HI 96822; tel. (808) 956-7843.

Educational Foundations

Wist 113
1776 University Avenue
Honolulu, HI 96822
Tel: (808) 956-7817
Fax: (808) 956-9100
E-mail: ericson@hawaii.edu
Web: www2.hawaii.edu/edef

Faculty

- *D. P. Ericson, PhD (Chair)—philosophy of education, educational policy
- *A. Awaya, EdD—history and social foundations
- *V. N. Kobayashi, PhD—comparative education, philosophy
- *B. J. Lum, PhD—philosophy of education, policy studies, social and cultural studies, human development, moral education
- *H. McEwan—curriculum theory, philosophy of teaching
- *G. G. Reed, PhD—social and cultural foundations, values and education, comparative education
- *E. H. Tamura, PhD—history of education, history of education in Hawai‘i, Asian-American history

Cooperating Graduate Faculty

- A. R. King Jr., EdD—philosophy, history of curriculum, sociology, higher education
- L. K. Menton, PhD—history of education, history of education in Hawai‘i, 19th-century Hawaiian history

Affiliate Graduate Faculty

- M. A. Raywid, PhD—school restructuring, philosophy of education
- Y. Takei, PhD—sociology, comparative/international education

Degree Offered: MEd in educational foundations

The Academic Program

Educational foundations (EDEF) is a broadly conceived field whose concepts and theory are drawn from academic disciplines such as history, philosophy, sociology, anthropology, economics, political science, and religion; areas of study found within the broad frame of comparative, international, global, environmental, and multicultural concerns; educational policy studies; and efforts toward school renewal and community organization. Department faculty are committed to the use of interdisciplinary perspectives in understanding and assessing educational controversies and issues, contributing to educational change and school renewal, and advancing theoretical understanding.

The multiple perspectives embraced in educational foundations stand in opposition to the idea that a single intellectual and moral outlook and its associated behavior are compatible with education and schooling in a democracy.

Graduate Study

Master of Education in Educational Foundations

The department offers programs of graduate study leading to a MEd in educational foundations with concentrations in history of education, philosophy of education, social/cultural foundations of education, or comparative/international education.

Admission Requirements

Applicants for the MEd in educational foundations degree normally possess credits in undergraduate professional education equivalent to the requirements for the BEd degree at the University. BA degree holders without supervised student teaching may be accepted provided they make a commitment to education, have equivalent experience (such as the Peace Corps), or make up such experience before admission to candidacy. Students from foreign countries, where English is not the dominant language, must also submit the results of the Test of English as a Foreign Language (TOEFL). The minimum score is 580, representing approximately the 64th percentile.

Degree Requirements

Advancement to candidacy is based on the quality of the student's work while in the program.

Both Plan A and Plan B are available. Both programs require at least 30 credit hours. The following are departmental course requirements: EDEF 651, 660, 669, and 683 for Plan A and Plan B (strands I and II). Courses in fields of study other than educational foundations are normally concentrated in one or two of the following: American studies, anthropology, Asian studies, economics, history, philosophy, political science, religion, sociology, or other graduate fields within the College of Education.

Through a study of educational theory and practice using the fields of history, philosophy, and the social sciences, MEd in educational foundations graduates are expected to be able to analyze alternatives in educational thought, policy, and practice related to the social and moral problems faced by schools and other educational agencies at the state, national, and international levels. The great majority of students who do course and degree work in educational foundations plan to become or already are employed in school, college, or university teaching; improvement programs in the schools; departments of education; and governmental or private agencies. Graduates already possessing a basic teaching certificate are eligible for Hawai'i state certification at the professional level.

Plan A (Thesis) Requirements

The Plan A program may include a maximum of 10 credit hours in approved courses other than educational foundations

if related to the candidate's announced goals. The thesis carries 6 credit hours. One seminar in the department is required, and no more than 2 credit hours of directed research (699) may be included in Plan A. The candidate's committee, including two members from the department and one member from outside the department, conducts an oral examination on the thesis, which constitutes the final examination.

Plan B (Non-thesis) Requirements

There are four options (strands) within the Plan B Program including a summers only option. Depending upon the option chosen, the program may include 6 credit hours in approved courses other than educational foundations if related to the candidate's announced goals. Either one or two seminars in the department are required and either 6 or 9 credits of directed research (699) may be included. Plan B requires a committee of two, one of whom is a graduate faculty in Educational Foundations. One option requires a final comprehensive examination. For the others, the presentation of a project of an educational nature along with a paper describing and analyzing the project constitutes the final examination in the Plan B.

Doctoral Degree

The Doctor of Philosophy in Education (PhD) is a college-wide degree awarded for distinguished academic preparation for scholarly professional practice in the field of education.

Educational foundations is a specialization under the PhD program of the College of Education. The program prepares educational professionals with an understanding of the historical, philosophical, cultural, social, and political contexts of education so that they can make informed and wise decisions about educational problems and policy issues. Graduates with the PhD are expected to exert leadership in the field of education and deal with those aspects and problems in society that need to be taken into account in advancing educational thought, policy development and practice, especially where these concern the social role of the school and other educational agencies. The program of study varies in the number of credits, depending upon the candidate's qualifications and will include the following: two 9-credit-hour semesters (not necessarily consecutive); college courses required of all students enrolled in the PhD program of the College of Education; department courses required of all students with a specialization in educational foundations; area of emphasis course work focused in history, philosophy, comparative or social/cultural foundations of education; cognate-field course work usually taken outside of the College of Education; a field project or an internship; qualifying and comprehensive examinations; and the dissertation.

For further information concerning the College of Education PhD program, see "Doctoral Degrees," or write to the Graduate Chair, Department of Educational Foundations, 1776 University Avenue, Honolulu, HI 96822.

Educational Psychology

Wist Hall 214
 1776 University Avenue
 Honolulu, HI 96822
 Tel: (808) 956-7775
 Fax: (808) 956-6615
 Web: www.hawaii.edu/edpsych/

Faculty

- *A. Bayer, PhD (Chair)—literacy, collaborative-apprenticeship, sociohistorical psychology
- *F. T. Bail, PhD—human learning and cognition, learning strategies
- *D. Blaine, PhD—quantitative methods, individual differences in learning and cognition
- *P. R. Brandon, PhD—program evaluation, research on Asian-American students
- *M. K. Iding, PhD—literacy, learning and cognition
- *M. K. Lai, PhD—program evaluation, research methods
- *D. Sherrill, PhD—invitational education, transpersonal education, higher education, teacher education
- G. Tanabe, PhD—organization, management, policy in higher education
- *L. Yamauchi, PhD—cognitive development, cultural influences on learning, minority students and schooling
- *S. Zhang, PhD—quantitative research methodology, statistics, second language acquisition

Cooperating Graduate Faculty

- C. J. Chaudron, PhD—classroom discourse, psycholinguistics, second language acquisition
- B. D. DeBaryshe, PhD—social development, parent-child relations, stress and resilience
- M. H. Long, PhD—second language acquisition, research methods, classroom discourse

Affiliate Graduate Faculty

- M. E. Brandt, PhD—cognitive development, models of memory, alternative assessment
- S. A. Chin-Chance, PhD—program evaluation
- P. G. LeMahieu, PhD—student assessment, program evaluation

Degrees Offered: MEd in educational psychology, PhD in educational psychology

The Academic Program

Educational psychology (EDEP) is directed toward increasing the candidate's competence in educational inquiry. Specific objectives of the graduate programs are (a) the development of competent scholars in the discipline; (b) the preparation of individuals to perform career activities (basic and applied research as well as teaching and mentoring) in school systems, colleges, and universities; and (c) the preparation of individuals to act as consultants or administrators in major areas of educational psychology, namely, human learning, human

development, research methodology, statistics, measurement, and evaluation.

Program graduates can be found in more than a dozen countries serving as teachers, evaluators, personnel specialists, and learning specialists.

Students in educational psychology utilize advanced computer technology supported by the University's computer facilities. They may also gain research internship experience in the University's Curriculum Research and Development Group. Professional growth is further encouraged through departmental links to such institutions as the Hawai'i Department of Education, East-West Center, Kamehameha Schools, Pacific Resources for Education and Learning, and Hawai'i Educational Research Association. Graduate study in Hawai'i offers unique opportunities for multicultural research, including the study of Pacific and Asian populations.

Advising

Prospective students are invited to contact the department for information and advice.

The Graduate Chair assigns each incoming MEd and PhD student a temporary adviser, based on faculty advising load and interest areas. The role of the temporary adviser is to facilitate the student's progress through the program until such time as the dissertation/thesis chair or Plan B project adviser has been determined. Initial assignment of a temporary adviser in no way obligates the student to select the temporary adviser as his/her MEd Plan B project adviser (MEd Plan B) or to include the temporary adviser as a thesis (MEd Plan A) or dissertation (PhD) committee chair or member. Likewise, the temporary adviser has no obligation to become the advisee's Plan B project adviser or to serve on his/her thesis or dissertation committee. Each temporary adviser contacts each of his/her incoming advisees upon acceptance into the program.

It is the intent of the Department to maintain a close working relationship between each student and at least one faculty member. This will allow the faculty a more careful assessment of each student's progress, and it will allow the student a conduit to address his/her concerns and to raise issues that may be brought before the faculty as a whole. Each advisee should contact her/his adviser at least three times each semester: during the first three weeks of classes, prior to determining courses for the following semester, and at the end of each regular semester to assess and direct the student's progress toward the degree. The end-of-semester conference is held with the faculty as a whole for PhD students, with one's Plan B MEd project adviser or Plan A MEd thesis chair, or with one's temporary adviser for all other MEd students.

The Graduate Chair sends a Student Review Progress form to all graduate students early in each semester. This helps students chart their development during the semester and assists faculty in the advisement process. Each graduate student turns in two copies of the completed Student Review Progress form to the adviser during the end-of-semester conference, to be used as the basis for review and planning.

Graduate Study

In general, the domain of inquiry encompasses human learning and development in the context of education, as well as emphases in statistics, measurement, and research methodology. Applicants for the MEd and PhD in educational psychology are expected to be familiar with the fundamentals of measurement, statistics, research design, and psychological foundations of education.

All courses at the 400 level or above are potentially applicable to an individual's program of study, with the provision that all programs must conform to Graduate Division policies. Interdisciplinary study is particularly encouraged. Students in the MEd program are required to take 30 credits, including EDEP 416, EDEP 429, EDEP 611, and EDEP 661. There are no specific course requirements for the PhD.

Application Procedures

In addition to the application form required by the Graduate Division, a departmental form obtained by writing to the department must be submitted. Applications must be accompanied by (a) scores on the GRE (PhD only, General Test only), (b) three letters of recommendation attesting to academic and professional strengths, and (c) a complete record of undergraduate and graduate course work.

Master's Degree

Both Plan A and Plan B MEd options are available in either MEd concentration, although most students in the Learning and Assessment concentration will define a Plan B project in order to finish in the cohort time frame.

Students who plan to later pursue doctoral study are expected to define a Plan A program of study at the master's level. For Plan A candidates, 6 of their graduate credits must be thesis 700. The Plan B project is an original educational inquiry resulting in a product that informs educational practice. The general steps for framing this educational inquiry include identification of a question or problem, identification of the relevant research and professional educational experience to provide a meaningful context for the inquiry question, design of a quantitative and/or qualitative method used to conduct the inquiry, and a 2-3 page proposal addressing these three steps submitted to one or more faculty members in Educational Psychology by the beginning of the second year in the program. This proposal will be the basis of a subsequent discussion with that faculty member. Upon a faculty member's approval of the proposal, that faculty member becomes the student's Plan B adviser. The final format of the Plan B project may be entirely written or it may use a less traditional format (e.g., a video, a website, a web-based presentation, or a CD-ROM). To the extent that the traditional components of educational research (viz., statement of problem, literature review, method, and data analysis) are not directly clear in whatever format the findings are presented, written documentation of those components is required. Students have the option of soliciting a second reader for their Plan B project; this may be particularly helpful when the project is interdisciplinary or when specific professional expertise is desired. Prior to

graduation, students are required to make a presentation of their Plan B projects.

The student's status is reviewed at the end of each semester in a meeting of the adviser and the individual student. Continuation in the master's program is based on satisfactory progress toward the degree as determined by the graduate faculty.

1. Studies in Educational Psychology

Graduate study is primarily oriented toward students with specific professional educational objectives, but it is also applicable to students who find a major in educational psychology congruent with their personal objectives and who wish to engage in elective study to the greatest extent possible while fulfilling degree requirements. After admission, the student and his/her temporary adviser detail a coherent program of study that includes a minimum of 30 credit hours. This program of study is forwarded to the graduate chair for endorsement.

2. Learning and Assessment

This 30-credit MEd concentration is designed to meet the professional development needs of Hawai'i's educators. The program emphasizes (a) understanding student learning in terms of current theories and research, (b) using classroom and student assessment to improve curricula and instruction, (c) integrating classroom instruction and the statewide student assessment system, and (d) examining issues of assessment relative to diverse student populations. Participants who hold a State of Hawai'i Department of Education basic teaching certificate are eligible for professional certification upon completion of the program.

Doctoral Degree

It is expected that students seeking the PhD will have demonstrated their motivation and potential through prior research involvement. Typical evidence of such involvement includes a master's research thesis; a published or publishable article, review, or report; or a coherent research proposal. Some document of this type must be submitted as part of the student's application for doctoral study. Students with insufficient prior research involvement may be advised to enter the master's program. Applications for admission to the PhD program are considered for the fall semester only.

Requirements

Although there are no specific course requirements for the PhD, students are expected to complete at least 6 graduate credit hours outside the department in addition to their work within the department. Students work closely with the members of the graduate faculty in defining individualized programs that typically span three to four years of concentrated study within the broadly defined discipline of educational psychology. An oral review to assess the student's progress toward the degree is conducted by the graduate faculty and the student at the end of each semester. Advancement to candidacy

follows satisfactory completion of the qualifying examination. Candidates for the PhD are also expected to teach at least one course in the undergraduate or graduate program and to complete a directed research course with one or more faculty members.

Educational Technology

Wist 232
1776 University Avenue
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Tel: (808) 956-7671
Fax: (808) 956-3905
E-mail: edtech-dept@hawaii.edu
Web: www.hawaii.edu/edtech

Faculty

- *G. Z. Kucera, PhD (Chair)—communications and sociology
- *C. Fulford, PhD—instructional development and design
- *C. Ho, PhD—instructional technology and design
- *A. C. Sherry, EdD—educational technology and instructional design
- *S. F. Yamashita, PhD—curriculum design and evaluation

Cooperating Graduate Faculty

- L. K. Johnsrud, PhD—higher education
- E. B. Klemm, EdD—curriculum development
- D. Lassner, PhD—computer systems, data communication
- T. W. Speitel, PhD—computer communications, curriculum research and development

Degree Offered: MEd in educational technology

The Academic Program

Educational technology (ETEC) deals with the complex, integrated process of analyzing and devising solutions to problems involved in all aspects of human learning. It is technology because it concerns systematic application of scientific and other knowledge to practical tasks. The field qualifies as educational because the practical tasks are within the context of education at all levels, whether in the public or private sector.

The master's degree in educational technology at the University of Hawai'i at Mānoa is especially appropriate for those who want to work in applying technologies to educational endeavors at various levels, such as preparing teachers or trainers of human resources personnel or designing and developing educational programs for such personnel. The course of study merges the development of practical knowledge and skills with a solid understanding of theoretical and research basics.

Advising

After reviewing the departmental brochure (available from the department office) describing the educational technology program, prospective applicants should confer with the

department chair to obtain further amplification of admission requirements. In particular, an early but tentative assessment of the applicant's background should be attempted, as departmental specifications may necessitate early (i.e., pre-admission) registration in prerequisite courses.

Preregistration is mandatory each semester for educational technology majors, and the department schedules specific days and times for this purpose. Continuous enrollment in the program is required, but majors who have already advanced to candidacy may request a leave of absence for not more than two consecutive semesters.

The importance of careful planning of courses and program requirements, through consultation with the department chair and the student's major adviser, cannot be overemphasized. Just as the admission to and start of the student's participation in the program is possible only in the fall semester, the culminating seminar with concurrent internship can only take place during the spring semester.

Efficient scheduling of courses and resources necessitates that either a two- or three-year program plan be developed by each student at the time of admission.

Graduate Study

The graduate program in educational technology involves a broad view of technologies applicable to educational and instructional situations. Thus, the program does not emphasize mechanical or electronic devices, which are often equated with technology, but deals with larger issues of systematic application of knowledge to such practical tasks as planning, designing, implementing, and evaluating different strategies for an effective and efficient teaching/learning process. When such a view is espoused, the "devices" become an integral part of the various strategies.

The graduate program requires a minimum of 39 semester credit hours, with eight required and five elective ETEC courses.

Objectives

The department has set the following objectives for its graduate students:

1. Advanced knowledge of major instructional models and their technological applications and of aspects of educational technology related to learning;
2. Knowledge of the existing body of research in the field and its meaning, influence, and practical applicability to new technological applications in the teaching and learning process; and the capability of planning and executing research and evaluation studies of technology applications;
3. Thorough knowledge of the principles and processes of the systems approach as applied to instructional and learning situations;
4. Ability to plan appropriate applications of technology for specific instructional situations, select or design and develop materials and strategies, and evaluate objectively such applications;

* Graduate Faculty

5. Proficiency in the techniques involved in developing instructional materials in various formats;
6. Capability of planning and designing new media or learning facilities and modifying existing ones, and knowledge of the management techniques needed in their operation;
7. Interpersonal and communication skills required to carry out professional activities; and
8. Development of a positive professional attitude through active involvement in appropriate professional organizations and community services.

Admission Requirements

Admission to the educational technology program is only in the fall semester. Applications may be filed with the Graduate Division between **November 1** and **March 1** for the following fall semester. The general graduate admission requirements of the University of Hawai'i are augmented by the Department of Educational Technology, which will evaluate applications according to the following criteria:

1. Admission to the program is highly competitive, so the mere meeting of the established criteria does NOT guarantee admission.
2. Educational technology is a professional area that needs infusion of individuals who have the commitment and dedication to make the field their career choice.
3. Students from foreign countries must submit the results of the Test of English as a Foreign Language (TOEFL). The minimum score is 600, representing approximately the 77th percentile rank.
4. A personal interview may be scheduled if faculty members need additional information directly from the applicant. All prospective students from other states and foreign countries should submit an approximately 10-minute-long videotape on which the applicant presents personal, academic, and professional background and long-range professional plan information. The videotape must be in the NTSC standard, in VHS format.
5. Three letters of recommendation, to be submitted with the application for admission, should evaluate the applicant's potential in the field of educational technology, not only his or her academic abilities to do graduate work.
6. All applicants are encouraged to submit additional materials, documentation, or samples of work relevant to the evaluation and selection process.

The department has specified certain areas of knowledge and skills as necessary background for entry into the program. Deficiencies are identified during the selection process, will be specified on the admission letter, and should be removed prior to enrolling in ETEC courses or during the first fall semester of registration.

Master's Degree

Major Requirements

A set of required ETEC courses provides each educational technology major with a solid foundation in technology, instructional psychology, and research, including critical assessment of past research and understanding of discernible research trends. Coupled with such knowledge is the preparation for practical application of both the theories and research and evaluation methodologies particularly appropriate to educational technology.

Two required courses, in a defined sequence, must be taken in each of the first two semesters. Upon completion of the four required courses, each student will be given a general departmental examination to determine whether advancement to candidacy should be recommended. The oral examination ascertains whether the student is making satisfactory academic progress and whether he or she is prepared academically and in other ways for the continuation of the studies. Poise, personal characteristics, attitude, and communication skills are significant components in the overall evaluation. At least three faculty members will administer the examination. If advancement to candidacy is recommended, a permanent adviser will be assigned to the candidate.

Kinesiology and Leisure Science

Physical Education/Athletic Complex 231
1337 Lower Campus Road
Honolulu, HI 96822
Tel: (808) 956-7606
Fax: (808) 956-7976

Faculty

- *I. F. Kimura, PhD, ATC, PT (Chair)—athletic training
- *D. Chai, PhD—physical education and recreation
- *C. DeRenne, EdD—physical education and sports science
- *R. Hetzler, PhD—physical education and exercise science
- *S. Lankford, PhD—physical education and recreation
- *J. R. Little, PhD—adapted physical education and recreation for special population
- J. K. Maeda, PhD—physical education and adapted physical education
- *N. M. Murata, PhD—physical education and adapted physical education
- *J. Prins, PhD—physical education and exercise science
- *J. M. Rosene, DPE, ATC—athletic training

Degrees Offered: BEd in secondary education with an emphasis in K-12 physical education, BS in kinesiology and leisure science, and MS in kinesiology and leisure science.

Undergraduate Study

BEd Degree

The BEd degree program provides professional curricula for students enrolled in the College of Education whose goal is to teach K-12 physical education.

Physical Education: The General Education Core, of 53–61 credits, is specifically selected; therefore, departmental advising should be sought as soon as possible, preferably in the first year. In addition, the professional education requirements consist of 29 credits, and the academic major and related courses area requires 60 credits for a total of 142–150 credits for graduation.

Graduation Requirements

1. Fulfill all University requirements and meet all admissions requirements of the College of Education;
2. Complete the College of Education undergraduate curriculum in elementary or secondary education for letter grades;
3. Successfully complete student teaching;
4. Complete a minimum of 126 credit hours;
5. Have a cumulative GPA not less than that required for admission to the college; and
6. File for graduation and pay the required fee at least one full semester prior to the intended graduation date.

BS Degree

The BS degree in kinesiology and leisure science program has four option areas:

1. Physical Education: Designed for students who want a physical education background but do not intend to seek certification to teach in a public school. This option requires the same modified General Education Core of 53–64 credits required of the BEd candidates. The number of credits for the academic major and related courses area is 73. A total of 126–137 credits is required for graduation.
2. Recreation and Leisure Science: Designed to provide students with professional preparation in recreation leadership and entry-level programming and management positions. In addition, this option will prepare students to take the Certified Leisure Professional Examination administered by the National Recreation and Parks Association's National Certification Board and pursue graduate study in recreation and leisure science. The University's General Education Core of 59 credits has been modified to prepare students for the special demands of this option. The number of credits for the academic major and related courses is 67, which includes 10 credits of fieldwork. A total of 126 credits is required for graduation.
3. Athletic Training: National Athletic Trainers' Association, Board of Certification (NATA/BOC) Certified Athletic Trainers are qualified allied health professionals who deal directly with the proper prevention, care, and rehabilitation of sports-related injuries. The undergraduate Athletic Training program is designed to partially provide the

requirements for NATA/BOC certification and to prepare the student for the "entry level" graduate Athletic Training program, where the student will fulfill the remainder of the requirements for NATA/BOC certification. The University Core of 53–64 credits has been modified to prepare students for the science-oriented demands of this option.

The number of credits for the academic major and related courses is 73, including observational hours. A total of 126–137 credits is required for graduation.

4. Health/Exercise Science: Designed to prepare students to (a) assume professional placement in science-based health/fitness promotion programs within corporate, commercial, clinical, or similar community settings; (b) assume positions as health educators or health specialists in government, voluntary, or private health agencies; or (c) pursue graduate study in exercise science and in the area of allied health sciences (e.g., physical therapy, physician's assistant, occupational therapy, pre-med, etc.). The General Education Core of 53–64 credits has been modified to prepare students for the science-oriented demands of this option. The number of credits for the academic major and related courses is 73. A total of 126–137 credits is required for graduation.

Graduation Requirements

1. Fulfill all University requirements;
2. Complete the College of Education undergraduate curriculum in physical education, recreation and leisure science, athletic training, or health/exercise science;
3. Complete a minimum of 126 credit hours;
4. Have a cumulative GPA not less than 2.75; and
5. File for graduation and pay the required fee at least one semester prior to the intended graduation date.

Graduate Study

MS Degree

The MS degree program provides opportunities for students who wish to pursue advanced knowledge and research in one of the following areas of specialization: physical education, exercise science, enhancement of athletic performance, athletic training, or recreation and leisure sciences.

Admission Requirements

In addition to the requirements of the Graduate Division, applicants for the MS degree will be further evaluated on their disciplinary background in their area of specialization. Admission to the program will depend on the availability of faculty in the particular area of concentration. Each applicant admitted will be classified in one of two categories: (1) Regular status - student who has a Baccalaureate degree in the area which they will pursue and a minimum overall grade point average of 3.0 during the final two years of undergraduate work, or (2) Conditional status - student of promise who may have a deficiency in grade point average and/or subject matter preparation.

Program Requirements

A minimum of 30 credits is required for the MS degree. Of these, 6 credits are required for the Plan A Thesis or Plan B Project, and 6 credits are required for one research method course and one seminar course. The remaining 18 or more credits are to be used for coursework focusing on the student's area of specialization. The student and the Thesis/Project Committee Chair in the KLS department must approve the student's coursework.

Special Education

Wist 120
1776 University Avenue
Honolulu, HI 96822
Tel: (808) 956-7956
Fax: (808) 956-4345

Faculty

- *T. W. Sileo, EdD (Chair)—mild/moderate disabilities, multicultural education, family involvement, educational collaboration
- M. A. Barnes, PhD—general special education, mild/moderate disabilities
- *R. S. Black, EdD—mental retardation, transition, students at-risk, research design
- *P. J. Edelen-Smith, EdD—mild/moderate disabilities, language/cognitive strategies, transition, collaboration
- *A. A. Jenkins, PhD—mild/moderate disabilities, content strategies, inclusive education, collaboration
- *L. P. McCormick, PhD—early education, communication disorders, behavioral disorders, severe disabilities
- *D. McDougall, PhD—general special education, mild/moderate disabilities, behavior disorders
- W. D. Narkon, MEd—mild/moderate disabilities, learning disabilities, reading strategies
- *M. J. Noonan, PhD—moderate and severe disabilities, early intervention
- *C. M. Ornelles, PhD—mild/moderate disabilities, students at risk, integration of services, collaboration
- J. Phillip, EdD—general special education, mild/moderate disabilities
- S. Shimabukuro, MEd—mild/moderate disabilities, secondary special education, behavior disorders, reading strategies
- *G. J. Smith, EdD—interdisciplinary team development, transition/career vocational special education
- J. K. Smith, MAE—collaboration, novice special education teachers, teacher preparation, disability experience/culture, mild/moderate and severe disabilities, issues of diversity
- *R. A. Stodden, PhD—mental retardation, career/vocational special needs, adolescent/adult services

Degrees and Certificates Offered: Basic teacher licensure in general education and special education, MEd in special education, BEd dual teacher preparation in elementary/special education, BEd dual teacher preparation in secondary/special education, post-baccalaureate dual preparation in secondary and special education, post-baccalaureate preparation in special education.

The Academic Program

Special education (SPED) is a component of general education. Its basic purpose is to assist individuals who do not benefit from traditional educational programs. Special educators teach and help others teach persons who have special learning needs. They individualize and adapt instruction to help individuals with special needs become independent and contributing members of society.

Faculty in the Department of Special Education prepare students at the undergraduate and graduate levels to work in both school and non-school settings. Professional roles include teacher, resource manager, consultant, infant specialist and transition specialist. The program is field-based.

Accreditations

The special education program is accredited by the State of Hawai'i under the State Approval of Teacher Education (SATE) process, applying standards established by the National Association of State Directors of Teacher Education and Certification (NASDTEC). The master of education degree program is accredited by the Council of Exceptional Children (CEC).

Advising

Advising of students in the undergraduate and post-baccalaureate programs is the responsibility of the Office of Student Academic Services, College of Education.

Upon acceptance to special education graduate programs, students are assigned to a faculty adviser. Advisers review program requirements and progress, plan program course work, complete departmental preregistration forms for the next semester, and sign course registration materials. Program advisers may waive course work (based on courses taken previously) on an individual basis. Advisers have the responsibility of reviewing and individualizing students' programs to complement their needs. Advisers ensure that students have appropriate knowledge and applied skills to perform as competent special educators. Given this responsibility, advisers may require additional course work and/or practicum experience for certain students. Changes made in students' programs must be approved by their advisers.

Undergraduate Study

BEd

The College of Education offers a program option within the BEd in elementary and secondary education programs that culminates in basic teacher licensure in general elementary or secondary education and special education. The optional program consists of 30 credit hours in special education, including six hours of supervised field experience, and one semester student teaching (as required for the BEd programs) in an educational setting with students identified as having disabilities.

Graduate Study

Post Baccalaureate Programs

The College of Education offers a dual preparation program option in secondary education at the post-baccalaureate level that culminates in eligibility for basic teacher licensure in secondary education and special education. In addition to the credit hours required in the Post-baccalaureate Certificate in Secondary Education (PBCSE) program (see program description under Teacher Education and Curriculum Studies), the optional program consists of 30 additional semester credit hours in special education, including 6 credit hours of supervised field experience and one semester teaching in an educational setting with students identified as having disabilities. The College of Education offers a Post-baccalaureate Certificate in Special Education for individuals who hold or are eligible for licensure in elementary or secondary education. The program consists of 30 semester credit hours in special education, including 12 credit hours of supervised field experience. Program sheets listing the specific course requirements for both post-baccalaureate programs are available in the College of Education's Office of Student Academic Services.

Admission Requirements

Admission is through the Office of Student Academic Services. Classified status in the College of Education is necessary for registration in the Post-baccalaureate Programs. Program sheets listing the specific requirements are available in the Office of Student Services. Students must fulfill all program requirements in effect for the semester in which they are admitted into the college.

Master's Degree

The MEd program in special education offers two program options: (1) special education teacher training with a specialization in mild/moderate disabilities (mental retardation, specific learning disabilities, emotional/behavior disorders) or severe/multiple disabilities, and (2) interdisciplinary studies for candidates wishing to work in non-classroom-based services for persons with disabilities. Both options are field based, consisting of at least 43 credit hours in a planned and approved program of study.

Admission Requirements

In addition to the application form and official transcripts required by the Graduate Division, materials must also be sent directly to the department. These include (a) scores on the Graduate Record Exam (GRE) General Test only, (b) three letters of recommendation attesting to academic and professional strengths, and (c) unofficial transcripts of all undergraduate and graduate course work. An interview by the department's selection committee may be required.

Requirements

The MEd in special education consists of a minimum of 43 credits, including 12 credits of required professional courses, 12 credits of field experiences taken over three semesters, and 18 credits in the mild/moderate or severe program track.

The MEd in interdisciplinary studies/special education consists of a minimum of 43 credits, including 12 credits of required professional courses, 12 credits of field experience taken over three semesters, and 18 credits in selected specialty areas. The specialty credits may be within special education or related areas (e.g., general education, psychology, social work, public health).

Both Plan A and Plan B are offered. Six credit hours of SPED 700 are required for Plan A, and additional work in statistical analysis and research design may be necessary. Plan B requires a master's paper/project or a written comprehensive examination and a minimum of 1 credit of SPED 699.

Graduates of the teacher education option are eligible to be recommended for teacher licensure and receive the Hawai'i Professional Teacher Certification in Special Education. They are qualified to work with students who have mild/moderate or severe disabilities, in a direct teaching, self-contained, or resource setting, at preschool, elementary, or secondary levels, or to act as special education resource managers and as collaborative consultants to general educators. Graduates of the interdisciplinary studies option do not qualify for teacher licensure but may seek positions in related fields and services.

Doctoral Degree

The PhD program with a specialization in exceptionalities prepares professionals to work as leaders in the education and support of individuals who have unique needs, often due to disabilities. The field is broad, addressing life-span concerns and involving such services as advocacy, family support, community services, vocational training and support, and special education. Graduates of the program are expected to assume leadership roles addressing local, regional, national, and international issues related to research and higher education and/or program development and evaluation. The program varies in the number of credit hours required, depending upon the candidate's qualifications, and includes course work required by the college, the specialization area, and a cognate field. In addition students may be required to complete course work in an emphasis area. At least one field internship and the dissertation are also required.

Teacher Education and Curriculum Studies

Wist Annex 2-223
1776 University Avenue
Honolulu, HI 96822
Tel: (808) 956-7856
Fax: (808) 956-3918

Faculty

- *F. C. Walton, PhD (Chair)—technology and vocational education
- *S. Feeney, PhD, MEd in elementary education and secondary education (Chair)—early childhood education
- *K. Au, PhD*T. W. Sileo, EdD (Chair)—mild/moderate disabilities, multicultural education, family involvement, educational collaboration/language, literacy
- *A. Bartlett, PhD—literacy, reading, language arts
- K. Berg, PhD—elementary and secondary education, educational psychology
- *V. Chattergy, EdD—multicultural education, elementary education
- *P. Chinn, EdD—elementary and secondary science education
- *P. Deering, PhD—social studies, middle school curriculum
- P. Espiritu, PhD—secondary social studies, multicultural education
- *A. R. Freese, PhD—elementary and secondary education, educational psychology
- *D. Grace, EdD—language, literacy, media studies, early childhood
- *T. Greenfield, EdD—science education
- K. A. Hewett, EdD—elementary language, literacy
- *R. Hitz, PhD—early childhood
- *R. Johnson, EdD—elementary and early childhood education
- J. Kaomea, PhD—elementary mathematics
- I. King, PhD—mathematics education, supervision
- *E. B. Klemm, EdD—science education
- P. Lopes, MA—elementary education, supervision, social studies
- *M. Maaka, PhD—language, literacy, multicultural education, cognition
- F. Matsuoka, MEd—supervision, elementary
- *M. E. Pateman, HSD-MPH—health education
- N. Pateman, EdD—mathematics education
- *H. Slaughter, EdD—language arts, literacy, qualitative research, reading
- G. T. Tamaribuchi, MEd—social studies, secondary education
- *J. Tobin, PhD—ethnography, early childhood education, elementary education
- *N. Whitman, PhD—mathematics education, secondary education
- *B. L. Williams, PhD—art education
- *J. Zilliox, EdD—elementary mathematics

Cooperating Graduate Faculty

D. H. Davidson, PhD—early childhood education

Degrees, Certificates, and Certifications Offered: BEd in elementary education, BEd in secondary education, MEd in elementary education, MEd in secondary education, MEdT in teaching, Certificate in Community College Teaching, PBCSE

The Academic Program

Teacher Education and Curriculum Studies (TECS) offers undergraduate degrees in elementary and secondary education (BEd) and advanced degrees in teaching (MEdT) and in elementary and secondary education (MEd). Elementary BEd students can enroll in dual certification programs, which earn them elementary and special education certification. Elementary BEd students also can take courses that lead to an endorsement for early childhood education. Secondary MEd students have the option of taking courses that lead to middle school endorsement. All programs focus on the educational needs of children and adolescents, teaching, learning and curriculum. TECS also cooperates in a graduate program for community college faculty in the industrial arts.

The students at UH Mānoa are ethnically diverse as are the students in Hawai'i's school system. Students in TECS programs, therefore, learn and teach in a unique multicultural environment.

Undergraduate Study

Bachelor's Degree

Basic Requirements

The program for undergraduate teacher education majors includes a strong liberal arts foundation, professional education courses, academic subject preparation, and student teaching. Classified status in the College of Education is necessary for registration in most required teacher education courses. Program sheets listing the specific requirements for the elementary and secondary BEd programs are also available in the College of Education's Office of Student Academic Services. Students must fulfill all program requirements in effect for the semester in which they are admitted into the college.

Major Requirements

The Elementary Education program qualifies graduates to teach in elementary school (K–6). Requirements include completion of the General Education Core specified for education majors, elementary emphasis and methods courses in elementary education, and student teaching, for a minimum of 129 credit hours.

Upon admission, students take elementary emphasis courses or are assigned to cohorts and will enroll in a set sequence of courses over four semesters. The program requires full-time enrollment.

Elementary Education/Early Childhood preparation qualifies graduates to teach in elementary school (K–6) and to work with preschool children. BEd requirements include completion of the General Education Core specified for

education majors, the early childhood sequence of courses, elementary emphasis and methods courses in elementary education, and student teaching in an elementary school.

The Secondary Education program qualifies graduates to teach in grades 7–12. Requirements include completion of the General Education Core specified for education majors, a major in a teaching field, foundations and methods courses in secondary education, and student teaching, for a minimum of 126 credit hours.

The College of Education offers teaching majors in the following fields: agriculture, English, English as a second language, languages (Chinese, French, German, Hawaiian, Ilokano/Filipino, Japanese, Russian, Spanish), home economics, industrial arts, marketing, mathematics, music, office education, physical education, general science, science (biology, chemistry, physics, earth science), social studies (with concentrations in American studies, anthropology, economics, geography, Hawaiian studies, history, political science, psychology, or sociology), industrial education, and trades and industry.

Special Requirements for Certain Secondary Education Majors

Agriculture Education majors may enroll in the Colleges of Arts and Sciences or the College of Tropical Agriculture and Human Resources their freshman and sophomore years. Students then transfer to the College of Education for the BEd program. Agriculture education majors must meet regular entrance requirements to the college.

Business Education: Marketing Education and Office Education majors may begin in the University of Hawai‘i Community College’s transfer programs for their General Education Core and selected marketing and office education skill courses (such as typing, shorthand, business machines, and data processing) as partial fulfillment of the bachelor of education requirements. Candidates transfer to the College of Education at the end of their sophomore year to complete professional education and teaching field major requirements. Students planning to transfer to the College of Education should consult with its Office of Student Academic Services.

Home Economics Education majors generally enroll in the College of Tropical Agriculture and Human Resources their freshman and sophomore years. They transfer to the College of Education at the end of the sophomore year to complete their program of studies for the bachelor of education degree. Their major field courses are taken in the Department of Family and Consumer Sciences and the Department of Human Nutrition, Food, and Animal Sciences.

Industrial Arts Education majors complete a coordinated program between the College of Education and the UH Community Colleges to prepare teachers for work in intermediate and high schools. Since technical courses are offered only at the community colleges, students may either enroll concurrently at the Mānoa campus for General Education Core courses and at a community college for technical courses, or they may enroll at a community college for both the General Education Core and technical courses during their freshman

and sophomore years and then transfer to the College of Education for professional education courses in the junior and senior years.

Music Education majors complete a coordinated program offered in conjunction with the Department of Music to prepare teachers for grades 7–12. Prospective music education majors should see the chair of the music education committee in the Department of Music during their first semester.

Physical Education majors must complete the General Education Core specified for education majors, the professional education required courses, and the academic major and related courses. In addition, the student must show skill and knowledge proficiency in 14 sports or activities appropriate to grades 7–12. Interested students should see an adviser in the KLS department prior to their first year of registration.

Trades and Industry and Technical Education majors enroll in programs articulated with the University of Hawai‘i Community Colleges system to prepare teachers for high schools, community colleges, and technical institutes where persons train to enter the labor market. Prospective teachers must have an associate in science degree or equivalent in a specialty area and/or occupational experience; credit for work experience may be awarded to qualified individuals.

Graduate Study

Master of Education

The MEd programs in elementary education and secondary education help teachers become better informed about the developmental and educational needs of children and adolescents from various types of communities; skillful in diagnostic and evaluation procedures and in developing educational programs to meet individual and group needs; versatile in their employment of teaching strategies; capable of providing leadership in a classroom, school, or school system; knowledgeable about issues, trends, and research in their fields; systematic in their reflective assessment of trends and innovations; and well-informed about new technology and its applications.

Admission Requirements

In addition to the requirements of the Graduate Division, applicants for the MEd in elementary and secondary education programs must provide the following:

1. Successful academic performance in curriculum, psychological and societal foundations, and appropriate methods courses;
2. Successful academic performance in an academic minor (elementary education applicants) or in an academic major (secondary education applicants);
3. Full-time teaching experience or its equivalent; and
4. Three letters of recommendation from references who have observed or supervised the applicant’s work and are able to comment on the quality of the applicant’s teaching experience, ability to pursue graduate study, and general character.

Program Requirements

Students are advanced to candidacy only after the development of their program plan and the successful completion of 12 credit hours of approved courses.

Additional details about the program are available in the *Information Bulletin* available from the Department of Teacher Education and Curriculum Studies.

Plan A (Thesis) Requirements

The Plan A program is designed primarily for students interested in research and in writing a thesis. It requires a minimum of 30 credit hours of course work with at least 12 credit hours in teacher education and curriculum studies. Of these, 12 credits hours (excluding 699s and 700) must be approved course work. Required courses are the appropriate sections of TECS 622 and TECS 667, a research methods course, and an elective in another area of education. A maximum of 18 credit hours is to be taken in a related field. Usually this field will be the same as the student's undergraduate major (or minor), but it may be in reading or another area of specialization within the Department of Teacher Education and Curriculum Studies, in other departments in the College of Education, or in a discipline in one or more of the other colleges at the University. Of the approved courses, 12 credit hours (exclusive of research methods courses) must be at the 600 to 700 level. Six credit hours are required for the thesis.

Plan B (Non-thesis) Requirements

The Plan B program is designed primarily for students who wish to strengthen their teaching field major or minor or to pursue course work in selected areas of teacher education and curriculum studies. It requires a minimum of 30 credit hours of approved course work, with a minimum of 12 credit hours in teacher education and curriculum studies (excluding TECS 699). Required courses are an appropriate section of TECS 622 and TECS 667, a research methods course, and an elective in another area of education. A maximum of 12–15 credit hours is to be taken in a related field. The related field is usually the same as the student's undergraduate academic major (or minor), or it may be in reading or another area of specialization within the Department of Teacher Education and Curriculum Studies, in other departments in the College of Education, or in a discipline in one or more of the other colleges at the Mānoa campus. Of the approved courses, 18 credit hours must be at the 600 to 700 level. A maximum of 6 credit hours of 699 may be applied to the degree program. The Plan B program also requires a paper.

Master of Education in Teaching

The Master of Education in Teaching (MEdT) is a two-year, master's level, teaching preparation program. Students are admitted each fall in cohorts of approximately 25 students, and each cohort is composed of both elementary and secondary education student-teachers. Students work closely together over the two years of study in school groups at appointed

professional development schools. The program also has a strong academic component, and emphasis is placed on student inquiry and action research. In the first year of the program, students spend 15 hours a week in the field. They write a portrait of the school, team teach, and develop curriculum. As part of the academic course work, students are required to study research methods and to pursue several educational inquiries. Twelve credits of course work are also required for the area of specialization. The second year of the program focuses on classroom teaching and is composed of a semester-long, pre-internship practicum and a final semester of paid internship in a public school. A Plan B paper is required to complete the degree work.

Applicants must have completed a bachelor of arts or bachelor of science degree and be highly motivated to enter a challenging two-year graduate program resulting in a master's degree and state teacher certification. The MEdT requires a full-time commitment for two academic years and the intervening summer. Cohorts are available at the elementary and secondary levels; however, specialization areas for the secondary level are currently restricted to specific subject areas. The program is based upon four principles:

1. Professional learning should take place in the context of thinking and acting as a teacher. The primary vehicle for the professional content in the program will be realistic school and classroom situations. Students will be placed in partnership schools and will be provided with many opportunities to participate in school and classroom activities.
2. To become independent professionals, students should be actively involved in and responsible for their own learning. The inquiry mode of problem solving will be the primary teaching/learning activity. Students will study and learn in small groups with a faculty mentor and be actively engaged in shaping their own educational program.
3. To learn to work collaboratively in schools, students should collaborate with one another and with practicing professionals. Throughout the program, tasks will be assigned to groups of students who will share responsibility for their completion. Students will also plan and implement their instructional activities in conjunction with experienced classroom teachers and with MEdT faculty.
4. To develop a thoughtful and self-critical attitude toward professional practice, students should routinely evaluate and be evaluated on their learning and performance. Students' explanation, justification, and assessment of their professional judgments and actions will be a planned part of the program. MEdT faculty and professional teachers will be regularly involved in the developmental evaluation of student performance in every part of the program.

Further information can be obtained from the MEdT Web site: www2.hawaii.edu/met/.

Doctoral Degree

The Doctor of Philosophy in Education (PhD) is a college-wide degree awarded for distinguished academic preparation for professional practice in the field of education.

The goal of the PhD with a specialization in curriculum and instruction is to develop specialists in curriculum development, teaching, and curriculum evaluation. The number of credit hours for the program of study varies, depending upon the candidate's qualifications, and includes a college component required for all doctoral students enrolled in the College of Education; an area of specialization with course work leading to a specialty in curriculum development, teaching and learning, or curriculum and program evaluation; a cognate field with course work taken outside the Department of Teacher Education and Curriculum Studies; a field project or an internship; and the dissertation.

For additional information, see the "Doctoral Degrees" section within the College of Education.

Certificate in Community College Teaching

The Department of Teacher Education and Curriculum Studies, in cooperation with the University of Hawai'i Community Colleges, offers a three-phase graduate program for prospective and in-service community college faculty in the industrial arts field. Phase I, a pre-internship preparation, covers community college foundations, media technology, teaching, curriculum, and evaluation. Phase II is a full-time internship in a postsecondary institution. Phase III, a follow-up of the internship experience, summarizes and generalizes the practical experience.

Post-Baccalaureate Certificate in Secondary Education (PBCSE)

The PBCSE is a three semester (Summer, Fall or Spring or Spring, Fall, Spring) post-baccalaureate certificate program for the preparation of secondary school teachers. It is designed for students who possess a BA or BS degree and wish to obtain initial basic teacher certification. Students admitted to the PBCSE will have completed an academic content major appropriate to their proposed teaching subject.

The PBCSE offers a cohesive, field-based experience that encourages students to integrate educational theory and practice in cooperating secondary schools. The program consists of nine interrelated courses totaling 33 credits.

Students who complete this initial basic teacher certification program are encouraged to continue their professional growth. They may be able to apply up to 12 course credits from the PBCSE to a master's degree program. Students must negotiate course transfer at the time of application.

Admissions Requirements

All applicants to the PBCSE program will be evaluated competitively and considered for admission on the basis of a profile composed of the following criteria:

1. Applicants must achieve minimal passing scores in the reading, writing, and mathematics subtests on the Pre-

Professional Skills Test (PPST) or Computer Based Academic Skills Assessments (CBT).

2. Applicants must have a baccalaureate degree from an accredited and UHM recognized four-year institution of higher education with an academic major in one of the following teaching fields:
 - Agriculture
 - Art
 - Business Education: marketing education, office education
 - English
 - English as a Second Language
 - Foreign Language: Chinese languages, French, German, Japanese, Latin, Philippine languages, Russian, Spanish
 - Hawaiian Language
 - Mathematics
 - Music*
 - Physical Education*
 - Science*: general science, biology, chemistry, Earth science, physical science, physics
 - Social Studies*: American studies, anthropology, economics, geography, Hawaiian studies, history, political science, psychology, and sociology

*Students usually are not required to take additional courses in their undergraduate academic majors. However, in specific areas where an extensive undergraduate preparation is required—such as music, physical education, science, or social studies—additional undergraduate courses may be required. In these fields, early advising during the undergraduate major is strongly recommended.

3. Applicants, must demonstrate knowledge in their teaching field by passing an appropriate PRAXIS Subject Assessment Content Knowledge Test. Those majoring in Art, Business, Home Economics, ESL, and Industrial Arts/Trades and Industry take the PRAXIS Subject Assessment Test as an exit requirement.
4. A minimum post secondary cumulative grade point average of 2.75 and a minimum grade point average of 2.75 in the academic major.
5. Applicants must demonstrate oral and nonverbal communicative competence through the successful completion of an interview. Applicants also must demonstrate attitudes toward education, learners, and themselves as prospective teachers that are compatible with the standards and curriculum of the program.
6. Applicants must document current (within the past five years) active involvement, paid or volunteer, with groups of youth between the ages of 12 and 19. A minimum of 40 hours of experience is required.

Admission requirements are subject to change. Call the Office of Student Academic Services for updated information.

College of Engineering



Administration

Holmes 240
2540 Dole Street
Honolulu, HI 96822
Tel: (808) 956-7727
Fax: (808) 956-2291
Web: www.eng.hawaii.edu

Dean: Wai-Fah Chen
Assistant Dean: Tep Dobry

General Information

An engineering degree provides an excellent background for seeking solutions to many of the problems in the development and management of technology related to urban demands, the enhancement of our living environment, and the effective utilization of our nonrenewable resources. Engineering curricula include both general and theoretical course work designed to enable graduates to meet the challenges of a technology-oriented society. Particular emphasis is placed on problems related to energy and the preservation and enhancement of the environment.

Engineering has been a major program of study at this institution since its founding in 1907. The University has granted more than 6,500 engineering degrees, and many of the professional engineers practicing in industries, consulting firms, and governmental agencies throughout the State are graduates of the University of Hawai'i.

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Accreditation

The undergraduate curricula in civil, electrical, and mechanical engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Degrees and Certificates

Bachelor's Degrees: BS in civil engineering, BS in electrical engineering, BS in mechanical engineering

Master's Degrees: MS in civil engineering, MS in electrical engineering, MS in mechanical engineering

Doctoral Degrees: PhD in civil engineering, PhD in electrical engineering, PhD in mechanical engineering

Certificate Programs: Construction Engineering and Management Graduate Certificate

For information on programs in biosystems engineering, please refer to the College of Tropical Agriculture and Human Resources. For information on programs in ocean engineering, please refer to the School of Ocean and Earth Science and Technology.

Advising

Student Services
Holmes 250
2540 Dole Street
Honolulu, HI 96822
Tel: (808) 956-8404

All students in the College of Engineering must receive approval of their program of courses from their advisers prior to registration each semester.

Updated curriculum check sheets summarizing all of the requirements for each undergraduate curriculum are available in the College's Student Academic Services Office.

Undergraduate engineering students who are unusually well-qualified academically are encouraged to participate in the

UH Mānoa Honors Programs (see the “Special Programs” section within the Colleges of Arts and Sciences).

New Students

An orientation session for new students is held each semester before classes begin. Incoming students receive approval of their program of courses at that time. In addition, incoming students with waived course work (e.g., advanced placement examination) must still fulfill credit hour requirements and should contact the College’s Student Academic Services Office for more information.

Undergraduate Programs

Each of the curricula offered by the College of Engineering provides a fundamental science-oriented university education with coverage of communications, the humanities, and social sciences, as well as the basic physical sciences of mathematics, physics, and chemistry. The curricula also encompass engineering sciences common to all engineering disciplines and elective engineering courses that introduce the engineering method of design.

Entering engineering freshmen may choose to attend any of the University of Hawai‘i system campuses to complete lower division curriculum requirements in the areas of mathematics, chemistry, physics, lower division (100- and 200-level) engineering, history, humanities, and social sciences. As an engineering student on any system campus, students are entitled to benefits such as computer accounts, membership in engineering student clubs, invitations to student events, and scholarship eligibility. Students electing to defer enrollment are required to re-enter the Mānoa campus within three years of initial acceptance. Tuition and fees are based on the campus attended.

Any academic actions (e.g., probation, suspension, etc.) will be administered by the appropriate student services office of the attending campus. In addition, re-entering students must have a minimum 2.0 grade point average for all transfer-level courses (numbered 100 and above) based on the University of Hawai‘i at Mānoa grading standard. Students are required to submit a common application form to the University of Hawai‘i at Mānoa Office of Admissions and Records for the sole purpose of updating student records prior to re-entry no later than June 1 for fall semester re-entry or November 1 for spring semester re-entry.

Admission Requirements

Requirements for admission to the University are described in the front of the Catalog. High school students applying to the College of Engineering should have completed trigonometry, physics, and chemistry. The college also uses aptitude tests and high school records in its screening procedure.

Transfer students must have completed ENG 100, MATH 241 and 242/242L, PHYS 170/170L, and CHEM 161/161L and 162 or their equivalents and have an overall cumulative GPA of 3.0 or higher.

College Requirements

Course work in each curriculum consists of a set of required courses common to all engineering majors and additional courses to satisfy departmental requirements. The courses required of all engineering students, which also satisfies the General Education Core requirements of the University, consist of the following 50 credits:

Communications

- ENG 100 Expository Writing (3)

Humanities

- SP 251 Principles of Effective Public Speaking (3)
- One elective (3)

Social Sciences

- ECON 120 Introduction to Economics (3), ECON 130 Principles of Economics (3), or ECON 131 Principles of Economics (3)
- One elective (3)

World Civilizations

- HIST 151 World Civilizations I (3)
- HIST 152 World Civilizations II (3)

Quantitative and Logical Reasoning

- MATH 241 Calculus I (4)
- MATH 242 Calculus II (3)
- MATH 242L Calculus Computer Lab (1)
- MATH 243 Calculus III (3)
- MATH 244 Calculus IV (2)

Natural Sciences

- CHEM 161/161L, and 162 General Chemistry/Lab (3/1/3)
- PHYS 170/170L General Physics I/Lab (4/1)
- PHYS 272/272L General Physics II/Lab (3/1)

BS Degree Requirements

The undergraduate curricula are designed to be completed in eight semesters.

To receive a bachelor of science degree in engineering, a student must adhere to the following:

1. Complete the course work for one of the engineering curricula, which also satisfies all University requirements;
2. Maintain a minimum GPA of 2.0 for all registered credit hours; and
3. Maintain a minimum GPA of 2.0 for all upper division courses (numbered 300-499) in mathematics, science, and engineering.

Major Requirements

See appropriate departments for specific major requirements leading to a bachelor’s degree.

Other Requirements

Undergraduate engineering students are subject to the policies of academic probation, suspension, and dismissal of the University of Hawai‘i at Mānoa as specified in the Catalog. In

addition, engineering students with either a cumulative GPA of less than 2.0 or an upper division GPA of less than 2.0 may be placed on academic probation. The student must raise his or her cumulative and upper division (if applicable) GPAs to 2.0 or higher by the end of the probationary semester. Failure to meet any of the above conditions may result in suspension or dismissal. Engineering undergraduates may also be suspended when they fail to achieve a cumulative GPA of at least 1.7 after attempting 24 credit hours.

Students who are suspended must reapply for admission to the Office of Admissions and Records within specified deadlines. Students who do not take courses after being suspended for the required one semester are eligible to be readmitted to the College of the Engineering. Suspended students who attend another institution (including other University of Hawai'i system campuses) will be considered "transfer" students when reapplying to the University and must meet the transfer requirements of the College of Engineering.

Graduate Programs

See appropriate department for specific description and requirements.

Certificate Programs

Construction Engineering and Management Graduate Certificate

A candidate for admission must have a bachelor's degree in engineering, architecture, or business administration. A GPA of 3.0 is required for regular admission. The certificate program requires 15 credit hours, of which 9 credit hours must be taken from core graduate construction engineering offerings. The other 6 credits can be taken from senior-level construction courses and a wide array of related courses from civil and environmental engineering or other departments.

CEE 375 Construction Materials and CEE 472 Construction Management or equivalents are mandatory requirements beyond the 15-credit-hour standard. Applicable credits earned in the certificate program may be transferred-upon approval of the graduate chair-to a master's degree in civil and environmental engineering provided other requirements for graduate admission are fulfilled.

Student Organizations

Student chapters of professional engineering societies are active at the college, and all students are encouraged to participate. Honorary societies are represented in all three departments. The activities of these student organizations are coordinated by the Engineers' Council of the University of Hawai'i (ECUH).

Honors and Awards

The College of Engineering and its departments provide scholarships and awards to exceptional students. For a list of these scholarships, see the "Tuition, Fees, and Financial Aid" section of this Catalog.

Civil and Environmental Engineering

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2540 Dole Street
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Tel: (808) 956-7550
Fax: (808) 956-5014
Web: www.eng.hawaii.edu/CEE/Home.html

Faculty

- *E. D. H. Cheng, PhD (Chair)—hydrology, hydraulics, wind engineering
- R. Akiona, MS—construction management
- *A. R. Archilla, PhD—transportation and infrastructure systems engineering
- *R. W. Babcock, PhD—environmental engineering
- *H. Brandes, PhD—geotechnical engineering
- *W. F. Chen, PhD—structural engineering
- *R. A. Grace, PhD—offshore engineering
- *A. S. Kim, PhD—environmental engineering, computer simulations
- *C. C. K. Liu, PhD—hydrology, environmental and systems engineering
- *P. G. Nicholson, PhD—geotechnical engineering
- *P. Ooi, PhD—geotechnical engineering
- *C. S. Papacostas, PhD—transportation, systems engineering
- *S. H. Park, PhD—structures, computational mechanics
- *P. D. Prevedouros, PhD—transportation engineering
- *C. Ray, PhD—groundwater hydrology, water quality environmental engineering
- *H. R. Riggs, PhD—structural engineering, numerical methods
- *I. N. Robertson, PhD—structures, earthquake engineering
- *A. Singh, PhD—construction management
- *G. T. Taoka, PhD—applied mechanics
- *M. H. Teng, PhD—hydrodynamics, coastal and hydraulic engineering

Degrees Offered: BS in civil engineering, MS in civil engineering, PhD in civil engineering

The Academic Program

Civil engineering is concerned with the activities of people and the environment. The civil engineer conceives, plans, designs, constructs, operates, and maintains the physical works necessary for the environmental needs of people. Students who enter the program today can look forward to one of the most rewarding careers open to men and women—rewarding in

personal fulfillment, enduring service to humankind, and financial reward. The curriculum is uniquely designed to meet the demands of business, industry, and government where a broad, fundamental education is required.

Undergraduate Study

Bachelor's Degree

The BS degree requires completion of at least 124 credit hours of course work, the equivalent of four years of full-time work. These requirements include 61 credit hours of civil and environmental engineering courses from the following areas: applied mechanics, structural analysis and design, hydraulics, surveying, transportation, construction, soil mechanics, hydrology, water resources, and environmental engineering. There are additional required courses in mathematics, physics, and chemistry, as well as courses required by the University in humanities and social sciences. The curriculum provides a broad-based background of fundamentals with coverage of the humanities and social sciences, basic sciences, mathematics, and the engineering design method. Course enrollment for all CEE majors is subject to the approval of an adviser. The requirements are described below and reflected on the check sheet and the list of course prerequisites.

All electives are subject to the approval of an adviser.

College Requirements

Students must complete the General Education Core courses for engineering (see "Undergraduate Programs" within the College of Engineering).

Departmental Requirements

Students must complete the following courses as well as one course in engineering math, one non-CEE engineering course, two CEE technical electives, and one biological science elective (specific options are provided on the curriculum check sheet):

- CEE 123 Computer Aided Design and Drafting (1)
- CEE 211/211L Surveying I with lab (3)
- CEE 270 Applied Mechanics I (3)
- CEE 271 Applied Mechanics II (3)
- CEE 305 Applied Probability and Statistics (3)
- CEE 320 Fluid Mechanics Fundamentals (4)
- CEE 330 Environmental Engineering (3)
- CEE 355 Geotechnical Engineering I (4)
- CEE 361 Fundamentals of Transportation (3)
- CEE 370/370L Mechanics of Materials and Lab (3/1)
- CEE 375 Construction Materials (3)
- CEE 381 Structural Analysis (3)
- CEE 421 Engineering Hydraulics (3)
- CEE 431 Water and Wastewater Engineering (3)
- CEE 455 Geotechnical Engineering II (3)
- CEE 462 Traffic Engineering (3) or CEE 464 Urban and Regional Transportation Planning (3) or CEE 465 Traffic Network Simulation (3)

- CEE 472 Construction Management (3) or CEE 473 Construction Equipment and Methods (3) or CEE 474 Construction Estimating and Bidding (3)
- CEE 485 Reinforced Concrete Design (3)

Other important requirements:

1. C grade or better is required for CEE 270.
2. All CEE courses must be passed in two attempts.

Structures Track

Students who want to pursue a structures track should refer to the curriculum checksheet for alternative senior year course work.

Graduate Study

Master's Degree

The department offers a graduate program leading to the MS degree in civil engineering with several areas of concentration under Plan A (thesis) or Plan B (non-thesis). Close cooperation is maintained with other departments and the Water Resources Research Center. Details and requirements of each program may be obtained from the department office.

Applicants must present a BS in civil engineering or the equivalent and must submit either the EIT (Engineer-in-Training) exam or the results of the GRE General Test. If so required by the Graduate Division, applicants must supply the TOEFL score.

Requirements

Plan A requires a minimum of 30 credit hours, exclusive of seminars. Plan A includes 9 credit hours of thesis research and a minimum of 12 credit hours in graduate civil engineering courses, exclusive of thesis, seminar, and directed reading. Plan B requires a minimum of 38 credits including a minimum of 18 credit hours of graduate civil engineering courses, exclusive of seminar and directed reading, as well as a technical report. Both plans require a minimum of 2 credits of seminar.

Doctoral Degree

Applicants to the PhD program must have fulfilled the requirements for the MS in civil engineering at the University of Hawai'i or its equivalent. Those who have earned the MS at universities other than the University of Hawai'i must furnish the results of the GRE General Test. All applicants must furnish official transcripts of all previous undergraduate and graduate studies and three letters of reference clearly indicating that they are capable of completing a rigorous PhD program. Applicants must also supply a letter explaining in detail their career goals, specific area of concentration, work experience, and reasons for applying to the program. If so required by the Graduate Division, applicants must supply the TOEFL score.

Requirements

Candidates for a PhD are required to pass a qualifying examination consisting of oral and written components. The examination will be confined to basic topics in civil engineer-

ing. One purpose of the qualifying examination is to identify possible deficiencies in the student's background with a view toward remedial measures. In addition, the examination will serve as a means of assessing the student's potential for doctoral studies.

In order to earn a PhD in civil engineering, a student must satisfactorily complete a minimum of 50 credit hours in course work beyond the BS and a minimum of 2 credit hours in civil and environmental engineering graduate seminar. Students must also complete and successfully defend a satisfactory doctoral dissertation. Based on a written recommendation of the student's dissertation committee and with the approval of the chair of graduate studies in civil engineering, students entering the PhD program may be granted an equivalence of up to 30 credit hours earned as part of the student's master's program. The 30-credit-hour equivalents may include up to 9 credit hours for the previous MS thesis work but exclude graduate seminar credit hours taken as part of the MS program.

The courses that a student undertakes in order to fulfill the PhD-credit-hour requirements must be selected by the student and approved by the student's dissertation committee. At least 24 credit hours must be from graduate-level civil engineering courses. The remaining courses may include graduate and advanced undergraduate courses offered by the civil and environmental engineering department or other appropriate departments of the University.

Comprehensive Examination

Every PhD student must pass a comprehensive examination. The purpose of this examination is to ascertain the student's comprehension of the advances in the chosen specialty. Examinations are given when, in the judgment of the dissertation committee, the student has had sufficient preparation, but not sooner than six calendar months after the student has passed the qualifying examination.

Students pass the examination upon favorable recommendation of the majority of the dissertation committee. Students who fail may, at the discretion of the graduate faculty, repeat the test once at least six months later. Students who fail the examination a second time are dropped from the program.

Students attain the status of doctoral candidate only after passing the comprehensive examination and submitting a dissertation proposal that receives the unanimous approval of the dissertation committee.

Final Examination

PhD candidates are required to take a final oral examination in defense of their dissertation. The examination is conducted by the candidate's dissertation committee. Students pass upon the favorable recommendation of the majority of the committee.

Electrical Engineering

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E-mail: eeoffice@spectra.eng.hawaii.edu
Web: www-ee.eng.hawaii.edu

Faculty

- *A. Kuh, PhD (Chair)—neural networks, communications
- *A. M. Bullock, PhD—physical electronics, lasers
- *R. Chattergy, PhD—power electronics
- *M. DeLisio, PhD—electromagnetic theory, microwaves
- *T. P. Dobry, PhD—digital systems, computers
- *M. Fossorier, PhD—coding theory, communication algorithms, magnetic recording
- *N. T. Gaarder, PhD—communication theory, information theory
- *A. Hac, PhD—software systems, telecommunication networks
- *J. W. Holm-Kennedy, PhD—applied solid-state physics, solid-state devices, IC technology
- A. Host-Madsen, PhD—communications signal processing, CDMA communications, multi-user communications, equalization
- *F. T. Koide, PhD—biomedical engineering, operational amplifiers, electronic circuits
- *V. Malhotra, PhD—physical electronics, solid-state devices
- *G. H. Sasaki, PhD—computer communication networks, performance evaluation, optimization algorithms
- *W. A. Shiroma, PhD—electromagnetic theory, microwaves
- *M. J. S. Smith, PhD—computer-aided analog integrated circuit design
- *V. L. Syrmos, PhD—linear system theory, control theory
- *J. R. Yee, PhD—computer communications networks, network optimization, stochastic models
- *D. Y. Y. Yun, PhD—networked computing, intelligent systems, 3D imaging, tele-health, resource planning

Adjunct Faculty

- J. C. Chiao, PhD—microwaves, microelectromechanical systems, optoelectronics, optical networks
- R. P. Halverson, PhD—computers
- E. S. Kim, PhD—solid-state devices, integrated sensors
- G. T. Uehara, PhD—integrated circuits, communication systems

Cooperating Graduate Faculty

- E. L. Miller, PhD—electronic materials research for photovoltaics, sensors, hydrogen-production and fuel cells
- W. W. Peterson, PhD—computer software
- R. Rocheleau, PhD—photovoltaics, sensors, thin films
- S. K. Sharma, PhD—thin films, amorphous materials and ceramics, instrumentation development

Degrees Offered: BS in electrical engineering, MS in electrical engineering, PhD in electrical engineering

The Academic Program

Electrical engineering (EE) is concerned with the basic forms of energy that run our world and the exciting fields of electronics and information technology. Electronics continues to bring forth new breakthroughs in solid-state technology (transistors, integrated circuits, LSI and VLSI chips, microprocessors, lasers, optical fibers), which in turn fuel the unprecedented revolution in telecommunications (World Wide Web, voice, and data), computers (neural network, distributed, and intelligent), instrumentation (biomedical, intelligent), and many other areas.

The undergraduate and graduate programs focus on three major areas: computers (architecture, algorithms, networking, and software), electro-physics (solid-state devices and sensors, analog and digital circuit design, and electromagnetic fields and microwaves) and systems (telecommunications, automatic controls, and power). The undergraduate and graduate programs require students to major in one of these three areas.

The culmination of the undergraduate program is the capstone design project; this is a significant project that integrates the design content of previous courses while satisfying realistic constraints.

Undergraduate Study

Design Experience Statement

A key aspect of electrical engineering education is a significant and meaningful design experience that is integrated throughout the curriculum. The design experience is necessary to prepare students in becoming professional engineers.

At the University of Hawai'i, the Electrical Engineering curriculum assigns design credits to each course (see design credits). A student graduating in Electrical Engineering is required to have a minimum of sixteen design credits with three design credits coming from EE 496 Capstone Design Project. Students can check their progress in obtaining design credits by checking with their adviser and looking at design credits and Curriculum Flow Chart. EE 496 places significant design responsibility on the students as they must plan and execute a major design problem. In order to prepare students for EE 496, students must take at least one credit of EE 296, Sophomore Projects course and two credits of EE 396, Junior Projects course. The project courses help students in getting design experience outside the classroom as they are learning fundamental engineering concepts in the classroom. The project courses provide students more project and design experience to better prepare the students for EE 496, the capstone design project. The current setup of project courses and capstone project gives students exposure to what they will see in engineering industry with opportunities to work on teams, develop leadership skills, and work on more open ended design projects.

Bachelor's Degree

The BS degree program requires a minimum of 121 credit hours. The departmental requirements consist of 51

credit hours of basic courses and 20 credit hours of technical electives. Students must major in one of the three tracks (computers, electro-physics, or systems).

All electives are subject to the approval of an adviser. Enrollment in EE courses requires a grade of C or better in all prerequisite courses.

College Requirements

Students must complete the General Education Core courses for engineering (see "Undergraduate Programs" within the College of Engineering).

Departmental Requirements

Students must complete a total of 71 credit hours including the following:

- EE 160 Programming for Engineers (4)
- EE 211 Basic Circuit Analysis I (4)
- EE 213 Basic Circuit Analysis II (4)
- EE 260 Introduction to Digital Design (4)
- EE 315 Signal and System Analysis (3)
- EE 323 Microelectronic Circuits I/Lab (3/1)
- EE 324 Physical Electronics (3)
- EE 341 Introduction to Communication Systems/Lab (3/1)
- EE 342 EE Probability and Statistics (3)
- EE 371 Engineering Electromagnetics I (3)
- PHYS 274 General Physics III (3)
- ME 311 Thermodynamics (3) or CEE 270 Applied Mechanics I (3)
- MATH 302 Introduction to Differential Equations I (3)
- Projects (6)
- Technical electives (20)

Projects

There is a requirement of a minimum of 6 credits of projects (EE 296/396/496) that culminates in the capstone design experience. A minimum of 1, 2, and 3 credits are from EE 296, 396, and 496, respectively.

Technical Electives

There is a requirement of a minimum of 20 credits of technical electives. A minimum of 17 credits are in one of the major tracks (computers, electro-physics, systems), which includes all courses in Group I and the remaining courses from Group II. A minimum of 3 credits are outside the major track that must be above the 300 level.

Computers Track:

- Group I: EE 361/361L, 366, 367/367L
- Group II: EE 449, 461, 467, 468

Electro-Physics Track:

- Group I: EE 326/326L, 327, 372/372L
- Group II: EE 328/328L, 422/422L, 423, 426, 427, 473, 474, 477

Systems Track:

- Group I: EE 351/351L, 415
- Group II: EE 331/331L, 435, 436, 437, 442, 446, 449, 452, 453

Graduate Study

Master's Degree

Intended candidates for the MS degree in electrical engineering must present the BS degree in electrical engineering or the equivalent. Plan A (thesis) and Plan B (non-thesis) options are offered. However Plan B is only for Intern Plus Program students.

Requirements

Plan A (thesis): This program requires 30 credit hours in approved technical courses including one graduate seminar in electrical engineering or a related field. This plan requires 9 credit hours in EE 700 Thesis Research and a minimum of 12 credit hours in 600-level courses in a major track (computers, electro-physics, or systems), 6 credit hours in 400- or higher-level courses outside of the major track (engineering, mathematics, science), and 3 credit hours of electives in 400- and higher-level courses.

Plan B (non-thesis): A minimum of 30-credit hours is required with a grade of B or better. Students will be required to take 12 credits (600 level and above) in their major track, 6 credits (400 level and above) outside the major track, and 6 credits (600 level and above) as electives. A maximum of 6 credits will be counted towards EE 699. As part of the curriculum, a 600 graduate level seminar course in the major track or related field must be taken. Plan B must be applied for and approved of prior to admission into the program. This is done through the Intern Plus Program of the department and requires industry sponsorship. The final exam includes a research report and a seminar presentation.

Doctoral Degree

Intended candidates for the PhD degree in electrical engineering must present the BS degree in electrical engineering or its equivalent. Applicants are required to submit the GRE General Test scores. PhD students are required to achieve a good, broad understanding of electrical engineering fundamentals and a thorough knowledge, up to its present state, in a chosen specialty. Students must perform research in their special field under the guidance of a faculty adviser and present a dissertation that is an original contribution to electrical engineering. The dissertation must be a scholarly presentation suitable for publication.

Requirements

PhD students are required to specialize in a major track (computers, electro-physics, or systems) and show competence in a minor track. In addition to the MS course credit requirements, 9 credit hours of 600-level course work in the major track and 3 credit hours of 600-level course work in a minor track are required. All PhD students must also participate in a substantial teaching project and demonstrate competence in teaching.

Intended candidates for the PhD degree must take a qualifying examination covering electrical engineering fundamentals. Students must demonstrate superior understanding of

these fundamentals and the potential to do research. The qualifying examination will be offered about one week after registration every fall and spring semester. It must be passed during a student's first three semesters in the PhD program. Students who do not pass will be dropped from the PhD program.

After passing the qualifying examination, students are advanced to candidacy and must have a doctoral committee appointed within two semesters. The committee should consist of at least five members, one of whom must be in a department other than electrical engineering. After appointment of the committee, students should work out a tentative program of courses that meets with the committee's approval.

Comprehensive Examination

When students have completed most of their course work, they must pass a comprehensive examination before research is undertaken. This consists of an oral examination given by the entire committee; it may be preceded, at the discretion of individual committee members, by an additional oral or written examination. Students who fail may repeat the examination only once, no sooner than three months after the first examination. Once students pass the comprehensive examination, they may proceed with dissertation research.

Final Examination

At the conclusion of the research, students write a dissertation that must be approved by a majority of the doctoral committee. Finally, students must pass another oral examination covering primarily the dissertation.

Mechanical Engineering

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Web: www.eng.hawaii.edu/ME/

Faculty

- *B. E. Liebert, PhD (Chair)—materials, corrosion, failure analysis
- *B. H. Chao, PhD—combustion, perturbation methods
- *C. F. M. Coimbra, PhD—applied math in multiphase flows, heat and mass transfer
- *R. M. Fand, PhD—heat transfer, fluid mechanics
- *M. N. M. Ghasemi Nejhad, PhD—thermomechanics, composite materials processing
- *L. H. Hihara, PhD—materials, corrosion, mechanical behavior of materials
- *K. M. Htun, PhD—properties of materials, materials processing
- *R. H. Knapp, PhD—solid mechanics, design
- *J. Yuh, PhD—control, robotics, design

Cooperating Graduate Faculty

- M. J. Antal Jr., PhD—alternate energy, combustion
 C. M. Kinoshita, PhD—combustion, energy systems, thermo-chemical systems
 B. Y. Liaw, PhD—materials, energy conversion, solid-state ionics
 S. M. Masutani, PhD—combustion, turbulent transport phenomena, energy systems
 R. Rocheleau, PhD—thin film ceramic materials
 S. Q. Turn, PhD—thermo chemical energy conversion, fuels processing, energy systems

Degrees Offered: BS in mechanical engineering, MS in mechanical engineering, PhD in mechanical engineering

The Academic Program

Mechanical engineering (ME) is concerned with the design of all types of machines, conversion of energy from one form to another, instrumentation and control of all types of physical and chemical processes, the manufacturing and utilization of engineering materials, and control of human and machine environments. Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of a wide variety of devices, machines, instruments, materials, and systems used for energy conversion, heat and mass transfer, environmental control, control of human and machine environment, physical and chemical process control, materials processing, transportation, manufacture of consumer products, materials handling, and measurements. Mechanical engineers also employ Computer Aided Design (CAD), Computer Aided Manufacturing (CAM), Computer Aided Testing (CAT), Computational Fluid Dynamics (CFD), computer modeling and simulations, novel materials, robotics, and mechatronics (integration of computers with electromechanical systems) in their day-to-day activities. Mechanical engineers find opportunities for employment in every branch of industry and in a variety of government agencies. Work may involve research, development, design, analysis, manufacture, testing, marketing, or management.

Undergraduate Study

Bachelor's Degree

The BS degree requires completion of at least 121 credit hours of course work. The curriculum consists of a group of required courses chosen to provide the students with the basic tools for the professional practice of mechanical engineering and to assist students in developing a sense of responsibility as professionals. The objectives of the lower division curriculum are to build a foundation in the basic sciences and mathematics, provide an introduction to engineering design and professional ethics, develop communications and computer programming skills, and acquire an appreciation for the humanities and social sciences. The objectives of the upper division program are to provide a sound foundation in the engineering sciences; build on that foundation for applications in the areas of energy conversion, mechanical systems and

control, experimentation, and manufacturing; and encourage creativity culminating in a “capstone” design experience. To provide sufficient flexibility, technical elective courses enable students to acquire additional competence in areas compatible with their career objectives.

All electives are subject to the approval of an adviser.

College Requirements

Students must complete the General Education Core courses for engineering (see “Undergraduate Programs” within the College of Engineering).

Departmental Requirements

Students must complete the following coursework:

- ME 113 Introduction to Engineering Design (2)
- CEE 270 Applied Mechanics I (3)
- CEE 271 Applied Mechanics II (3)
- MATH 190 Basic and Fortran Programming (1)
- MATH 302 Introduction to Differential Equations I (3)
- ME 360 Computer Methods in Engineering (3)
- EE 211 Basic Circuit Analysis I (4)
- ME 213 Introduction to Engineering Design II (2)
- ME 331 Material Science and Engineering (3)
- ME 341 Manufactory Processes/Lab (3/1)
- ME 371 Mechanics of Solids (3)
- ME 372 Component Design (3)
- ME 374 Kinematics/Dynamics Machinery (3)
- ME 375 Dynamics of Machines and Systems (3)
- ME 311 Thermodynamics (3)
- ME 312 Applied Thermodynamics (3)
- ME 322 Mechanics of Fluids (3)
- ME 422 Heat Transfer (3)
- ME 301 Mechanical Engineering Experimentation (2)
- ME 401 Measurements Lab (2)
- ME 481 Design Project I (3)
- ME 482 Design Project II (3)
- Technical electives (9). Three courses that can be selected from ME 400-level technical electives (3), one of which can be replaced with a non-ME course (3) (with approval from chair), and a second that can be replaced with an ME 600-level course (3) (3.00 GPA minimum and approval from chair) or ME 499 (3).

Graduate Study

The department offers graduate programs leading to MS and PhD degrees in mechanical engineering, with areas of concentration in thermal and fluid sciences conversion (heat and mass transfer, thermodynamics, combustion, thermal environmental engineering), in materials/manufacturing (composite and smart materials, mechanical properties, electrochemistry and corrosion, solid-state ionics, processing, marine materials), and in mechanics, systems, and controls (robotics, dynamics, control, continuum mechanics). For qualified graduate students, teaching assistantships, research assistantships, and scholarships are available.

Master's Degree

Applicants for admission to the MS program must have completed a BS degree in engineering or its equivalent from a reputable institution.

Requirements

Students are required to follow the Plan A (thesis) program. However, under special circumstances, a petition to follow Plan B (non-thesis) may be granted by the graduate faculty. A minimum of 30 credit hours is required for graduation, including 1 credit hour for seminar. Plan A students must take 8 credit hours for thesis, 12 credit hours in the ME 600 course series, and 9 credit hours in technical electives. Technical elective courses must be at the 400 level or above, selected from engineering, mathematics, or physical sciences approved by the student's thesis committee. For those students completing the Renewable Energy Engineering Graduate Certificate, 3 credit hours of the electives may be in any area approved by the advising committee.

For graduation, each candidate must present an acceptable thesis (research report for Plan B) and must pass a final oral examination based on the thesis for Plan A or on the course work and the research report for Plan B.

Doctoral Degree

Applicants for admission to the PhD program must have completed the requirements for the MS in mechanical engineering at UH Mānoa or an equivalent degree from a reputable institution.

Requirements

Intended candidates for the PhD are required to pass an oral qualifying examination within the prescribed period of time. The purpose of the qualifying examination is to judge students' ability to pursue research. After passing the qualifying examination, the student will be admitted to the status of "candidate" in the PhD program. At the discretion of the qualifying examination committee, students who fail the qualifying examination will be dropped from the program.

Students must satisfactorily complete a minimum of 50 credit hours in course work beyond the BS level. They are required to select one major and one minor field of study

within the following three areas of concentration: materials/manufacturing, mechanics/systems/controls, or thermal/fluid sciences.

Students who enter the program may, with the approval of the graduate chair, be credited with up to 30 credits for equivalent work to be counted toward their PhD-credit-hour requirement. Up to 8 of these 30 credit hours may be assigned for prior MS thesis work. Students who possess a second MS degree may be credited with up to 9 additional credit hours for equivalent work. Up to 6 credit hours may be assigned for course work taken as an unclassified graduate student. All courses shall be selected by students but must be approved in writing by their committees. These courses must form an integrated education plan. A minimum of 2 credit hours in ME 691 or its equivalent must be included in every PhD program.

Students who desire teaching experience may, with the approval of the PhD committee chair, request that the department chair assign them teaching responsibility for a particular undergraduate course. The department chair will determine whether students are qualified to teach the course in question, and, if they are deemed qualified, they may be given the teaching assignment. Students who teach a course or courses will be assigned a maximum of 3 credit hours toward their PhD course work requirements.

Comprehensive Examination

PhD candidates must pass an oral comprehensive examination to demonstrate their comprehension of the chosen areas of study relevant to their dissertation proposals and basic knowledge of courses taken in their major and minor fields. Students who fail the comprehensive examination may, at the discretion of the graduate faculty concerned, repeat it once after at least six months. Students who fail the examination a second time will be dropped from the program.

Final Examination

Students are required to complete a satisfactory doctoral dissertation and to pass an oral final examination based primarily upon the dissertation. The final examination will be administered by the respective PhD committee. A student passes the final examination upon the favorable recommendation of a majority of the PhD committee.

School of Hawaiian, Asian, and Pacific Studies

Administration

Moore 310
1890 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8324
Fax: (808) 956-6345
Web: www.hawaii.edu/shaps/

Dean: Willa Jane Tanabe

General Information

Strategically located and with a multicultural heritage, the state of Hawai'i has always been uniquely international in outlook. Reflecting this perspective, the School of Hawaiian, Asian, and Pacific Studies (SHAPS) represents the ongoing commitment of the University of Hawai'i to enhance international awareness and intercultural understanding throughout the educational experience. In fulfilling this commitment, SHAPS has become the largest resource facility for Asian and Pacific studies in the world.

Established in 1987, SHAPS offers academic programs in Asian studies, Hawaiian studies, and Pacific Islands studies. SHAPS also houses the Centers for Chinese Studies, Hawaiian Studies, Japanese Studies, Korean Studies, Pacific Islands Studies, Philippine Studies, Russia in Asia, South Asian Studies, and Southeast Asian Studies, as well as a program for Buddhist studies. Through these centers and programs, SHAPS helps to coordinate the efforts of some 300 faculty specialists throughout the University who offer more than 600 courses related to Hawai'i, Asia, and the Pacific.

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Research supported by SHAPS appears in a wide range of journals, monographs, and occasional papers published by its centers and programs. Complementing these publications are the volumes in the SHAPS Library of Asian Studies and the SHAPS Library of Translations, published in association with the University of Hawai'i Press.

Research and publications, specialized training and instructional programs, conferences, symposia, resources development, and a full schedule of co-curricular activities and cultural programs are all a part of the School of Hawaiian, Asian, and Pacific Studies. Students electing to focus their studies on Hawai'i, Asia, or the Pacific at the University of Hawai'i at Mānoa will discover a unique learning environment especially appropriate to the understanding and appreciation of the peoples and cultures of the region.

Degrees and Certificates

Bachelor's Degrees: BA in Asian studies, BA in Hawaiian studies

Master's Degrees: MA in Asian studies, MA in Pacific Islands studies

Certificate Programs: Certificates in Pacific Islands, Chinese, Japanese, Korean, Philippine, South Asian, and Southeast Asian studies

Advising

Moore 315
1890 East-West Road
Honolulu, HI 96822
Tel: (808) 956-2699
E-mail: chizuko@hawaii.edu

Students interested in Asian studies and Pacific Islands studies are urged to consult a school adviser through SHAPS Student Academic Services Office at the above address and telephone number. Those interested in Hawaiian Studies

should visit the Hawaiian Studies office at the Center for Hawaiian Studies, 2645 Dole Street, Room 209A, or call (808) 973-0989.

Undergraduate Programs

Requirements

- Acquire a minimum total of 124 credit hours.
- Earn at least 60 credit hours in non-introductory courses. These may be upper division courses (courses numbered 300 or above) or 200-level courses that have an explicit college-level course prerequisite.
- Fulfill the University of Hawai'i at Mānoa General Education Core requirements and additional basic course work specified by the degree program.
- Complete writing intensive courses as specified by the University of Hawai'i at Mānoa.
- Fulfill requirements for the major.
- Earn at least a 2.0 GPA for all UH Mānoa registered credits.

Prospective students interested in the BA in Asian studies, BA in Hawaiian studies, or the BA in liberal studies (with an emphasis in Pacific Islands studies) should contact the respective department or refer to the program listing in the *Catalog*.

Graduate Programs

Prospective students interested in the MA in Asian studies or the MA in Pacific Islands studies should contact the respective program or refer to the program listing in the *Catalog*.

Instructional and Research Facilities and Programs

Center for Chinese Studies

The Center for Chinese Studies aims broadly at an increased understanding of contemporary China in light of its history and its hopes for the future. The Center pursues this goal through instruction from 35 faculty members in 23 departments who teach more than 200 China-related courses; research by faculty, who publish an average of six books and a score of articles on China each year; service publications, such as its semiannual journal *China Review International*, which provides an overview of current world wide scholarship on China, and an annual resource book, *The Guide to Chinese Studies at the University of Hawai'i*; and community outreach, conferences, and national and international linkages with institutions such as Peking University in Beijing and the Chinese University of Hong Kong.

By interdepartmental cooperation and by creating a stimulating environment for the faculty and the 250 students specializing in Chinese studies, the Center actively supplements the offering of the basic scholarly disciplines at both

undergraduate and graduate levels and focuses attention on the University's significant resources for the study of China. These include the Asia Collection in Hamilton Library, the Wong Audiovisual Center in Sinclair Library, and the multimedia collection of the Language Telecommunication Resource and Learning Center.

Center for Hawaiian Studies

The Center for Hawaiian Studies is committed to perpetuating the legacy of Hawaiians through instruction, research, community outreach, and student services. Established in 1970 and made a center in the School of Hawaiian, Asian, and Pacific Studies in 1987, it is the only academic program in the world focusing on the history, culture, and traditions of the Hawaiian people. The center offers a BA in Hawaiian studies; promotes research in Hawaiian language, culture, history, and politics; offers a wide array of student services to all students of Hawaiian ancestry; and coordinates an active program of outreach to the out-of-school Hawaiian community. On-campus resources include the Kānewai taro garden and the Hawaiian and Pacific Collections at Hamilton Library. Off-campus resources include the State Archives, Bishop Museum, other private collections, and the unique availability of an ancient and rich native culture still present from Ni'ihau to the Big Island of Hawai'i. The native Hawaiian view is emphasized in the major.

Center for Japanese Studies

The Center for Japanese Studies includes 41 professors, 19 language instructors, and two library specialists who offer approximately 200 courses in 20 departments. Important activities of the center include administration of the student exchange program with Doshisha, Nanzan, and Sophia Universities; coordination of the Japanese Studies Endowment Fund, which makes grants to support faculty and graduate student research, and publication of the quarterly newsletter *J-Current* and the *Guide to Japanese Studies at the University of Hawai'i*, published every three years. The center also acts as a coordinating body for Japanese studies on campus and as a clearinghouse for inquiries related to the field; it sponsors visiting colleagues; and it arranges for lectures, performances, and receptions for visiting scholars and artists.

Center for Korean Studies

The Center for Korean Studies coordinates and develops the University's resources for the study of Korea. The 18 faculty members affiliated with the center represent the disciplines of history, language and literature, economics, political science, sociology, communication, urban planning, theater and dance, and ethnomusicology. The center promotes interdisciplinary and intercultural approaches to Korean studies; conducts scholarly conferences; sponsors research projects; presents specialists and visiting scholars in colloquia; publishes scholarly works and an interdisciplinary journal, *Korean Studies*; and coordinates University resources on Korea

and researches the activities of Hawai'i's Korean community. The center maintains a special collection of personal libraries and private papers of distinguished scholars on Korea. It also has a small collection of books, journals, audiovisual materials, and other documents as an adjunct to the University library's Korean collection.

Center for Pacific Islands Studies

The Center for Pacific Islands Studies coordinates aspects of the Pacific-related activities within the University and promotes further study of the region. The center sponsors an annual conference and a seminar series that features a variety of visitors en route to and from other Pacific Islands. The program publishes a bimonthly newsletter, a series of occasional papers, and, in collaboration with the University of Hawai'i Press, the Pacific Islands Monograph Series, South Sea Books, and *The Contemporary Pacific: A Journal of Island Affairs*.

Center for Philippine Studies

The Center for Philippine Studies at the University of Hawai'i at Mānoa is the only university center and academic program for Philippine studies in the United States. The center initiates and conducts Philippine-oriented activities on campus and in the community involving library resources, publications and research, seminars, workshops, lectures, scholarly conferences, and cultural presentations. It also sponsors a regular colloquium series and promotes professional exchanges with Philippine and Philippine-related institutions. The center has more Philippine specialists on its faculty than does any other campus in the country.

Center for South Asian Studies

The Center for South Asian Studies supports courses, provides opportunities for intensive study of societies and cultures of South Asia, and promotes faculty research and interaction across departmental lines to foster comparative and interdisciplinary research in the region. This area includes contemporary Bangladesh, Bhutan, India, the Maldive Islands, Nepal, Pakistan, Sri Lanka and, for some purposes, Afghanistan and Tibet. The center initiates and supports outreach activities to the Mānoa campus, as well as to the wider Honolulu community.

Center for Southeast Asian Studies

The Center for Southeast Asian Studies coordinates and supports many of the resources at the University related to Southeast Asian studies. The center sponsors lectures and seminars given by the 55 University faculty focusing on Southeast Asia, as well as frequent visitors from the region. It arranges faculty exchanges with Southeast Asian universities and publishes the Southeast Asia Paper Series, which began in 1972. The center also produces a journal, *Cakalele*, and a student journal, *Explorations in Southeast Asian Studies*, concerned with the Moluccas. Outreach is a strong component of the center and includes programs for Hawai'i's public school system and community organizations on a regular basis.

Committee for the Preservation and Study of Hawaiian Language, Art and Culture

The committee was established in 1959 to protect and encourage a deeper knowledge of the language and culture of the native people of Hawai'i. Through the resources and efforts of the committee, more than two hundred projects have been funded in part or in whole over the past 40 years. Examples range from the groundbreaking *Hawaiian Dictionary; Hawaiian-English and English Hawaiian*, by Mary Kawena Pukui and Samuel H. Elbert, to the Na Kanikau Aloha O Hawai'i, a project currently in progress that documents the adaptation of Hawaiian to the written language in the 19th century, focusing on the kanikau, a chant of mourning and lamentation.

Campus Events and Community Programs

SHAPS and its centers sponsor lectures, colloquia, teacher workshops, conferences, film festivals, concerts, and special events, such as the Grand Kabuki performance, Chinese martial arts performances, and the Southeast Asian Studies Summer Institute. The centers' outreach programs take University expertise into the community and secondary schools, and the Center for Hawaiian Studies provides support services for native Hawaiian students.

Asian Studies

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1890 East-West Road
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Tel: (808) 956-6085
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Web: www.hawaii.edu/shaps/asian

Faculty

*R. D. Trimillos, PhD (Chair)—ethnomusicology, Southeast Asia, Japan
C. Allen, PhD—history, Korea
*B. Andaya, PhD—history, Southeast Asia
*B. Aquino, PhD—political science, Philippines
*M. Aung-Thwin, PhD—history, Southeast Asia (Burma)
*R. Brown, JD, LL.M.—law, China
*L. Carlile, PhD—political science, Japan
*D. Gladney, PhD—anthropology, China, Muslims
*E. Harwit, PhD—political science, East Asia (China)
*R. Kwok, PhD—urban and regional planning, East Asia (China)
*S. Minichiello, PhD—history, Japan
*C. Ning, PhD—Chinese literature, China
S. O'Harrow, PhD—oriental philology, Southeast Asia (Vietnam)
*E. Porter, EdD—higher education administration, China
G. Satsuma, PhD—history, Japan
*M. Sharma, PhD—anthropology, South Asia (India)
E. Shultz, PhD—history, Korea
*W. Tanabe, PhD—art history, Japan
*R. Valliant, PhD—history, Russia and East Asia

Cooperating Faculty

All graduate faculty who are specialists and offer courses related to the eight area centers within Asian studies serve as cooperating faculty in Asian studies. Faculty related to the area centers—the centers for China, Korea, Japan, the Philippines, South Asia, Southeast Asia, Russia in Asia, and Buddhist studies—number more than 300; they are too numerous to list here, but they can be found under departmental listings.

Degrees and Certificates Offered: BA in Asian studies, MA in Asian studies, Graduate Certificates in Chinese studies, Korean studies, Japanese studies, Philippine studies, South Asian studies, and Southeast Asian studies

The Academic Program

Asian studies (ASAN) is concerned with the people and countries in the broad arc of Asia extending from Afghanistan in the west to China, Japan, and Korea in the east and including the Philippines and other islands and peninsulas of Southeast Asia to the south. In cooperation with other departments of the University, the Asian studies program offers an opportunity for students to concentrate on the interdisciplinary study of an Asian country or region. Emphasis is placed on learning the language of the chosen area, giving an opportunity for area study and language to progress together.

The growing importance of Asia in the United States and in the economy, government and politics, diplomacy, and the arts will relate directly to the academic programs linked to Asian studies.

The University of Hawai‘i at Mānoa has made a commitment to the study of Asia far greater than any other university in terms of numbers of languages taught, areas studied, and faculty specialists employed. This provides a unique opportunity to students interested in Asia.

Interdisciplinary graduate and undergraduate programs draw upon the rich resources for the study of Asia at the University of Hawai‘i at Mānoa. The Asian studies program offers courses of its own and also incorporates Asia-related courses taught in the various departments on campus, enabling each student to design a defined program of study tailored to his or her particular interests.

Students in the program may select courses from Asian studies and the following disciplines: anthropology, art, economics, education, ethnic studies, geography, history, linguistics, literature, music, philosophy, political science, population studies, religion, sociology, theater and dance, urban and regional planning, and women’s studies. Competence in an Asian language appropriate to the student’s interests is considered fundamental, and the achievement of language proficiency by graduation is a required part of the graduate degree program.

The graduate program is organized into the following areas: China, Japan, Korea, Philippines, South Asia, Southeast Asia, and Buddhist studies.

Advising

Graduate students are advised by the appropriate area director or designated faculty. Undergraduates majoring in Asian studies are advised by an undergraduate studies adviser.

Undergraduate Study

Bachelor’s Degree

The undergraduate program in Asian studies is designed for students desiring a liberal arts education and a broad background in traditional and contemporary Asian cultures.

Students seeking a BA in Asian studies must meet all the requirements for admission established by the School of Hawaiian, Asian, and Pacific Studies.

Asian studies is normally declared as a major at the end of the sophomore year or beginning of the junior year though students may apply for admission to the program at any time. The formal declaration is made through the school’s Student Academic Services Office.

Major Requirements

- Total of at least 36 credit hours of Asia-related course work
- ASAN 201 and 202, ASAN 310 or 312, and 6 additional credit hours of ASAN courses at the 300 or 400 level
- Two years of an Asian language (excluding conversation or aural comprehension courses), or demonstration of the equivalent level

Majors must also complete one of the following study plans:

Plan 1:

- 12 credit hours of Asia-related course work from one of the following disciplines or areas: anthropology, art, economics, geography, history, linguistics, literature, music, philosophy, political science, religion, sociology, speech, or theater and dance
- 9 credit hours of Asia-related courses outside the primary field of concentration, as approved by the adviser

Plan 2:

- 12 credit hours of course work on one Asian country or region (e.g., Japan, Southeast Asia)
- 9 credit hours focused on one or more additional Asian countries or regions

If ASAN 312 or other ASAN courses are used to satisfy General Education Core requirements, these courses may not be used to satisfy major requirements or vice versa.

Language study beyond the required level may count toward the major and is encouraged for Asian studies majors.

Minor Requirements

There are no required courses for acceptance into the Asian Studies minor program. Attendance in ASAN 201–202 (Introduction to Asian Studies) is recommended.

Students must complete 15 credit hours including:

- ASAN 310 Asian Humanities or ASAN 312 Contemporary Asian Civilization (3 credits)
- ASAN courses numbered 300 and above (minimum 6 credits)
- Asia-related courses in disciplines other than the major field numbered 300 and above (maximum 6 credits)

It is possible to focus on one particular country or region, such as China, Japan, Korea, Philippines, Southeast Asia, or South Asia.

The Asian studies undergraduate adviser will identify Asia-related courses in various disciplines and assist in planning schedules and preparing minor forms.

Graduate Study

Master's Degree

The master's program in Asian studies is designed primarily for students who wish to focus their studies on a particular geographical and cultural region of Asia. Such an approach entails interdisciplinary study.

The MA in Asian studies is offered in Plan A (thesis) and Plan B (non-thesis). Although the University of Hawai'i does not offer a PhD in Asian studies, Asia-focused PhD programs are available in anthropology, East Asian languages and literatures, economics, geography, history, linguistics, music, philosophy, political science, public health, sociology, theater, and tropical agriculture.

Students who wish to pursue a doctoral degree in any of these fields should contact the appropriate department.

A student's academic program should concentrate on one of the regions of Asia as represented by the area centers in SHAPS—China, Japan, Korea, the Philippines, South Asia, and Southeast Asia. Regarding the latter two, a student may concentrate on a particular country within those regions if sufficient courses are available. The director of each area center or a designated faculty member serves as the graduate student adviser for his or her respective area.

Students without sufficient academic background in Asia-related course work may be required to take certain preparatory courses to make up this deficiency without credit toward the degree. Prospective students should note that the program requires successful completion of course work or demonstrable proficiency in an Asian language at the fourth-year level for students concentrating on China, Japan, or Korea, or the third-year level for students concentrating on South Asia or Southeast Asia. Students enrolling from an Asian country may have the foreign language requirement waived if they plan to concentrate on their native country or region. If they elect to concentrate on a country other than their own, they must fulfill the language requirement as previously stated.

Plan A (Thesis) Requirements

The MA Plan A degree in Asian studies requires the following:

1. A minimum of 36 credit hours. Of these, at least 18 must be earned in courses numbered 600 or higher (including 6 credit hours in ASAN 700 Thesis Research);
2. Full time study for minimum of two academic semesters or four six-week summer sessions;
3. A minimum of 6 credit hours in an Asian language equivalent to the following: Japanese—6 credit hours beyond the 401 and 402 level; Chinese—8 credit hours at the 401 and 402 level; Korean—6 credit hours at the 401 and 402 level; South and Southeast Asian languages—6 credit hours at the 301 and 302 level (entering students who have achieved this level and can demonstrate proficiency through examination may select alternate courses equaling 6 credit hours with the consent of their area adviser);
4. An introductory graduate seminar in the particular area of concentration (ASAN 600), taken early in the student's program;
5. A graduate research seminar in the particular area of concentration (ASAN 750);
6. A minimum of 3 additional credit hours in Asian studies.
7. A minimum of 15 credit hours of interdisciplinary study related to the candidate's country or region, with at least 3 credit hours each in the fields of humanities, social sciences, and arts. No more than 9 credit hours in one discipline will be counted.
8. Satisfactory completion of a master's thesis and an oral examination on the thesis given by the student's three-member faculty committee.

Plan B (Non-thesis) Requirements

The MA Plan B degree in Asian studies requires:

1. A minimum of 36 credit hours. Of these, at least 18 credits must be earned in courses numbered 600 or higher;
2. Full-time study for minimum of two academic semesters or four six-week summer sessions;
3. A minimum of 6 credit hours in an Asian language equivalent to the following: Japanese—6 credit hours beyond the 401 and 402 level; Chinese—8 credit hours at the 401 and 402 level; Korean—6 credit hours at the 401 and 402 level; South and Southeast Asian languages—6 credit hours at the 301 and 302 level (entering students who have achieved this level and can demonstrate proficiency through examination may select alternate courses equaling 6 credit hours with the consent of their area adviser);
4. An introductory graduate seminar in the particular area of concentration (ASAN 600), taken early in the student's program;
5. A graduate research seminar in the particular area of concentration (ASAN 750);
6. A minimum of 3 additional credit hours in Asian studies
7. A minimum of 21 credit hours of interdisciplinary study related to the candidate's country or region, with at least 3 credit hours each in the fields of humanities, social sciences,

and arts. No more than 9 credit hours in one discipline will be counted.

8. Presentation of a portfolio consisting of two seminar papers, and satisfactory completion of an oral examination based on the papers given by the student's three-member faculty committee.

Certificate Programs

Graduate Certificates

SHAPS, through its Asia focused centers, offers graduate certificates in the following areas: Chinese studies, Korean studies, Japanese studies, Philippine studies, South Asian studies, and Southeast Asian studies. Regularly enrolled graduate students in non-Asian studies disciplines receive a certificate for completing a program of study that focuses on a particular Asian country or region. MA students in Asian studies also receive a certificate for completing studies in their area of concentration.

Certificate Requirements

- 18 credits of course work, in a defined program of study, at the University of Hawai'i at Mānoa within the chosen certificate area
- Of these, 15 credits must be at 300-level or higher from at least two major divisions (social sciences, humanities, or arts), with no more than 9 credits in a single divisions, and at least 9 credits in graduate level courses (600 level or higher)
- ASAN 600-Asian Studies Seminar: Scope and Methods, in the chosen certificate area
- A research paper in the chosen certificate area and an oral examination based on the paper; or a thesis or dissertation related to the chosen certificate area in the student's major discipline
- Language requirements:
 - For the Japanese certificate, 4th year competency (JPN 407)
 - For the Chinese and Korean certificate, 3rd year competency (CHN 301/302 or KOR 301/302) ; and
 - For the remaining regional certificates, 2nd year competency (201/202 language courses of the chosen certificate area)

All language competency requirements can be met either through course work in or equivalency examinations in the chosen certificate area. Language courses do not count towards certificate credit requirements.

Academic advising is provided by the center of the student's chosen certificate area.

Hawaiian Studies

Hawaiian Studies 209A
2645 Dole Street
Honolulu, HI 96822
Tel: (808) 973-0989
Fax: (808) 973-0988
Web: www.hawaii.edu/shaps/

Faculty

- L. Kame'elehiwa, PhD (Chair)—Hawaiian mythology, history, land tenure, literature, traditional navigation
- J. Osorio, PhD—politics of identity in the Hawaiian kingdom, colonization in the Pacific
- H. Trask, PhD—native political movements in Hawai'i and the Pacific, literature and politics of Pacific island women, Hawaiian history and politics, third world and indigenous history and politics
- K. G. T. Young, PhD—class and culture in native Hawaiian society, contemporary politics in Hawai'i and the Pacific

Degree Offered: BA in Hawaiian studies

The Academic Program

The Center for Hawaiian Studies (HWST) offers a bachelor's degree with a choice of six areas of concentration: traditional society, arts, history, modern society, language, and natural environment. Third-year fluency in Hawaiian language is required, as well as some familiarity with Hawaiian literature, culture, politics, and economics. The native Hawaiian view is emphasized in the major.

Undergraduate Study

Bachelor's Degree

Major Requirements

A 3.0 in all courses for the major.

- Total of 35 credit hours
- 23 credit hours in the following required courses:
 - HAW 301 and 302
 - HWST 270, 341, 342, 343, and 390
 - MUS 478B, MUS 312, or MUS 412
- 12 credit hours of approved courses in one of these concentrations:
 - Traditional society
 - Modern society
 - History
 - Arts
 - Language
 - Natural environment
- Third-year fluency in Hawaiian

Before beginning work on the major, students should have completed HAW 101, 102, 201, and 202; HWST 107; and BOT 105. Specific programs should be determined through consultation with program advisers. Majors should be interviewed by the program adviser by the end of the sophomore year.

Pacific Islands Studies

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1890 East-West Road
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Web: www.hawaii.edu/cpis/

Faculty

*R. Kiste, PhD (Chair)—anthropology
*A. Arno, PhD—anthropology
*E. Beauchamp, PhD—education
L. Chapman, MA—Pacific Islands studies
*M. Chapman, PhD—geography
*W. Chapman, PhD—American studies
*D. Chappell, PhD—history
*L. G. Eldredge, PhD—marine zoology
*B. Finney, PhD—anthropology
L. Furuhashi, MLS—Pacific collections
*M. W. Graves, PhD—anthropology
*M. Hamnett, PhD—anthropology
*D. L. Hanlon, PhD—history
V. Hereniko, PhD—literature
L. Hickson, PhD—Pacific Islands studies
*A. Howard, PhD—anthropology
*T. L. Hunt, PhD—anthropology
*L. K. Kame‘eleihiwa, PhD—Hawaiian studies
*E. A. Kay, PhD—zoology
M. Kelly, MA—ethnic studies
*C. Lamoureux, PhD—botany
F. Lesa, MA—Indo-Pacific languages
*N. D. Lewis, PhD—geography
*J. Mak, PhD—economics
J. F. Mayer, MA—Indo-Pacific languages
D. McGregor, PhD—ethnic studies
*J. Moulin, PhD—music
*M. R. Ogden, PhD—communication
*K. M. Peacock, PhD—Pacific Collection curator
A. Papalii—Indo-Pacific languages
*A. B. Robillard, PhD—social science and political economics of health services development in Oceania
*B. V. Rolett, PhD—anthropology
*C. Sinavaiana-Gabbard, PhD—English
V. Tanielu—Indo-Pacific languages
*H. Trask, PhD—Hawaiian studies
*F. Untalan, DSW—public health

*J. Van Dyke, JD—law
*D. Waite, PhD—art
*J. Ward, PhD—Indo-Pacific languages
*T. A. Wesley-Smith, PhD—political science
*G. M. White, PhD—anthropology

Degrees and Certificate Offered: BA in liberal studies (Pacific Islands studies), MA in Pacific Islands studies, Certificate in Pacific Islands studies

The Academic Program

Since the establishment of the Pacific Islands studies program in 1950, the University of Hawai‘i has made a special commitment to the Pacific Islands region, its peoples, and their environment. On the Mānoa campus alone, some 200 faculty members (including a large number in the natural sciences, physical sciences, and tropical agriculture) have teaching and research interests related to the Pacific region. In addition, the University’s Hamilton Library houses one of the finest collections of Pacific materials in the world. With a core faculty of 30 members drawn from a wide variety of academic disciplines, the Pacific Islands studies program offers multidisciplinary programs of study leading to the MA in Pacific Islands studies and the Certificate in Pacific Islands Studies. A “major equivalent” in Pacific Islands studies is available through the BA program in liberal studies.

The University of Hawai‘i is the only university in the United States to offer an MA in Pacific Islands studies. The MA in Pacific Islands studies is intended for students who desire a multidisciplinary degree focused on the Pacific Islands region (Polynesia, Melanesia, and Micronesia). The Certificate in Pacific Islands Studies is designed for students pursuing advanced degrees in other areas and whose course of study includes a substantial component of Pacific-related courses and research. The objective of the certificate is to provide recognition of this expertise and to encourage further study in the Pacific region. Undergraduate students who wish to focus their studies by integrating courses in anthropology, history, geography, Indo-Pacific languages, etc. with work in Pacific Islands studies may earn the BA in liberal studies (Pacific Islands studies).

Undergraduate Study

Bachelor’s Degree

The study of Micronesia, Melanesia, and Polynesia, including the Polynesian aspects of Hawai‘i and New Zealand, might integrate courses in anthropology, history, geography, Indo-Pacific languages, religion, etc. with work in the Center for Pacific Islands Studies. Prospective students should contact the department for further information on the BA in liberal studies (Pacific Islands studies) program.

Graduate Study

Master's Degree

The MA in Pacific Islands studies is intended for students of the region who wish to transcend established disciplinary boundaries and explore innovative interdisciplinary approaches to learning, research, and writing. Plan A (thesis) and Plan B (non-thesis) are offered. Students selecting Plan A complete a scholarly research-based thesis on a Pacific Islands-related topic. Those opting for Plan B must also demonstrate an ability to conduct independent research and produce a final research paper that is substantial in nature and represents a contribution to the field of study. Some recent graduates are pursuing doctoral degrees in traditional disciplines; others are employed in a wide variety of fields, such as education, social work, publishing, and library and museum work.

Admission Requirements

Applicants should have some knowledge of the physical features, cultural characteristics, and history of the region, as well as some familiarity with contemporary issues and concerns. Normally, 18 credits, or the equivalent, of appropriate Pacific-related course work are expected to satisfy this requirement. In exceptional cases, a student may take prerequisites concurrently with courses meeting degree requirements.

On entry, or before graduation, students are required to have a second-year level of competence in a foreign language. The language can be indigenous or an administrative language of the Pacific. It must be a second language and related to the student's research interests.

GRE scores, a writing sample, and three letters of recommendation must be submitted when applying for admission.

Degree Requirements

All MA students are required to complete a minimum of 33 credits of course work, which must include three core seminars offered by the Center for Pacific Islands Studies:

- PACS 691 Approaches to Pacific Islands Studies
- PACS 692 Research Materials and Design
- PACS 693 Cultural Identities

A list of preferred Pacific-related courses offered across the campus serves as a guide in the selection of other courses that will count toward the degree. These courses are selected in consultation with a faculty adviser to form an integrated program of study that strengthens the student's general background in the Pacific region, as well as providing a particular concentration of interest. Students in both Plan A and Plan B choose a three-person faculty committee to supervise the production of the thesis or Plan B paper and to evaluate the final product.

By no later than the third semester in residence, all MA students are required to take a general written examination that is designed to determine the adequacy of the student's general knowledge of the Pacific region, analytical skills, and competence to conduct research. Successful performance on the examination advances the student to candidacy. A student failing the examination may take a repeat examination in one

year. A second failure results in the student being dropped from the program.

Plan A (Thesis) Requirements

The student taking the Plan A option is required to complete a minimum of 33 credit hours, including the following:

- 24 credit hours of course work, of which at least 15 must be in courses numbered 600 and above (excluding PACS 700). Included in these 24 credit hours are PACS 691, 692, and 693; and
- 9 credit hours of thesis research, a completed thesis, and examination on it.

Plan B (Non-thesis) Requirements

The student taking the Plan B option is required to complete a minimum of 33 credit hours of which at least 21 must be in courses numbered 600 and above. Included in the 33 credit hours are PACS 691, 692, and 693.

The Plan B student is also required to demonstrate research capacity by submitting a final paper that is substantial in nature and represents a contribution to the field of study. The paper must be judged acceptable by all three members of the student's advisory committee.

Certificate Program

Certificate in Pacific Islands Studies

The Certificate in Pacific Islands Studies is designed for students who are pursuing advanced degrees in other areas and whose course of study includes a substantial component of Pacific-related courses and research. The objective of the certificate is to provide recognition of this expertise and to encourage further study of the Pacific region.

Students applying for the certificate must have previously been admitted to the Graduate Division in a field of study. Following the diagnostic interview required of all incoming Pacific Islands studies students, the certificate student is assigned a two-person advisory committee consisting of one member of the Pacific Islands studies faculty (as appointed by the program director) and the student's field of study adviser.

Requirements

A certificate student is required to have 18 credit hours in Pacific-related courses or 12 credit hours in Pacific-related courses and a Pacific-related thesis/dissertation. The courses are to be taken from the list of preferred courses, as prepared by the Pacific Islands studies faculty. PACS 690 is the only required course; the others must, however, constitute a logically related set of courses.

The certificate student is also required to take the general written examination. As with MA students, the certificate student failing the examination may take a repeat examination in one year. A second failing performance results in termination from the program. The certificate student may take the written examination any semester while in the program.

The certificate is awarded upon the student's completion of an advanced degree in his or her field of study.

College of Health Sciences and Social Welfare



General Information

The College of Health Sciences and Social Welfare is made up of three professional schools—medicine, nursing and dental hygiene, and social work. It was established to provide a coordinated interdisciplinary approach to the solution of problems common to the three fields. Interdisciplinary courses, colloquia, institutes, and practicum experiences permit students to become acquainted with one another and with trends and developments in the professions represented. The college is governed by an executive committee composed of the deans.

The degree programs of each school are summarized in this *Catalog* and in separate bulletins published by the schools. These bulletins are available through the student services office of each school.

Mission

The mission of the college is to serve society by increasing, refining, disseminating, applying, and sharing knowledge, wisdom, and values relating to the health and social welfare concerns of the public. It carries out this mission through research, instruction, and service in medicine, nursing, public health, social work, and related health and biomedical sciences.

Degrees and Certificates

For information on degree and certificate offerings, refer to the *Catalog* sections on the Schools of Medicine, Nursing and Dental Hygiene, and Social Work.

Interdisciplinary Programs

Aging and Gerontology

Degrees and Certificates Offered: Undergraduate Certificate in Aging, BA in liberal studies (emphasis on aging), Graduate Certificate in Gerontology

See the “School of Medicine” section of the *Catalog* for more information.

Cell and Molecular Biology

Biomedical Science A 209
1960 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8552
Fax: (808) 956-9530
Web: www.hawaii.edu/cmb

Graduate Faculty

R. L. Cann, PhD (Chair)—evolutionary genetics, MtDNA, and molecular phylogenetics

Biochemistry

- Y. Hokama, PhD—inflammation, C-reactive peptides, and pathology
D. M. Jameson, PhD—energetics and dynamics of protein interactions; fluorescence spectroscopy
S. E. Seifried, PhD—molecular recognition and transcriptional control
A. G. Theriault, PhD—molecular biology of lipid metabolism and heart disease

Cancer Biology

- J. S. Bertram, PhD—cancer preventative agents, gap junctions, and intercellular communication
R. V. Cooney, PhD—carcinogenesis
L. N. Kolonel, MD, MPH, PhD—dietary and biomarker studies in multiethnic populations
A. F. Lau, PhD—oncogenes, cellular transformation and signal transduction
C-W. Vogel, MD, PhD—biochemistry of cellular toxins, neuroblastoma
R. K. Wada, MD—molecular oncology, oncogene regulation, tumor differentiation
B.J. Warn-Cramer, PhD—connexin 43 regulation in proliferative vascular disease

Cell Signaling

- A. Fleig, PhD—excitation-contraction coupling in muscle
R. Penner, MD, PhD—calcium signaling in neurons and immune cells
H. Turner, PhD—vanilloid and cannabinoid signal transduction, immunology

Developmental Biology

- H. G. de Couet, PhD—neurogenetics, cytoskeleton, cell motility
M. G. Hadfield, PhD—settlement and metamorphosis of marine invertebrate larvae
T. D. Humphreys, PhD—immune system of sponges, evolutionary foundations of animal immunity, molecular biology of hemichordates
S. Lozanoff, PhD—developmental biology and craniofacial development
M. McFall-Ngai, PhD—microbial symbiosis in shaping animal developmental biology
S. Robinow, PhD—hormonal regulation of central nervous system development of *Drosophila melanogaster*
E. G. Ruby, PhD—molecular physiology of bacterial adaptation to host associations

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Genetics and Molecular Biology

- R. L. Cann, PhD—molecular and evolutionary genetics of animal populations
- D. S. Haymer, PhD—molecular genetics of Diptera
- S. Kathariou, PhD—molecular biology of bacterial virulence
- T. W. Lyttle, PhD—structure of *Drosophila* heterochromatin, evolution of chromosomal rearrangements
- S. Robinow, PhD—hormonal regulation of central nervous system development of *Drosophila melanogaster*
- J. F. Scott, PhD—yeast DNA replication

Immunology/Retrovirology

- S. Chang, PhD—immunology, molecular approaches to vaccine development
- V. Nerukar, PhD—viral pathogens, marine virology, molecular epidemiology
- E. Tam, MD—mast cell proteases, asthma, and immunology
- K. Yamaga, PhD—immunological mechanisms of disease
- R. Yanagihara, MD—viral pathogens, molecular phylogeny, emerging infections

Matrix Pathobiology

- C. D. Boyd, PhD—molecular genetics of human connective tissue
- K. Csiszar, PhD—lysyl oxidase tumor suppressor family
- K. K. Kumashiro, PhD—solid state NMR studies of mineralized elastin
- Z. Urban, PhD—elastic fiber pathologies, gene mapping

Neurobiology / Neurophysiology

- D. C. Blanchard, PhD—psychopharmacology and neurobiology of behavior
- R. J. Blanchard, PhD—experimental ethology and ethnopharmacology
- I. Cooke, PhD—cellular neurobiology, peptidergic neurons in culture
- D. K. Hartline, PhD—small network neurophysiology
- M. D. Rayner, PhD—sodium channel control mechanisms
- S. Robinow, PhD—hormonal regulation of central nervous system development
- J. Stollberg, PhD—mechanisms of aggregation of acetylcholine receptors

Plant Molecular Physiology

- D. Borthakur, PhD—regulation of genes in the rhizosphere bacteria by root exudates
- J. Hu, PhD—molecular biology of plant viruses

Reproduction Function

- G. Bryant-Greenwood, PhD—molecular and cell biology of human fetal membranes and decidua
- Y. Marikawa, PhD—molecular control of the body plan of vertebrate embryos
- L. Millar, MD—effects of distension on gene expression in human fetal membranes and decidua
- W. S. Ward, PhD—tertiary structure of DNA, nuclear structure, and genetic instability
- R. Yanagimachi, DSci—mammalian germ cells, assisted reproduction, cloning and transgenesis

Degrees Offered: MS in biomedical science (cell and molecular biology), PhD in biomedical science (cell and molecular biology)

The Academic Program

The cell and molecular biology (CMB) program in biomedical science represents an interdisciplinary approach to graduate education with faculty in many sub-disciplines of biology dedicated to helping qualified students pursue original research using technical innovations of modern molecular biology. The first cohort of students was admitted in August 2000. The CMB program brings together faculty from three colleges and three research institutes, all who share a desire to train the next generation of students in this fast-moving and conceptually challenging area. Planning for collaborative research is emphasized in this program, as well as solid training in a variety of laboratory techniques.

Master's students fall into two categories, depending on whether they opt for a Plan A (thesis) or Plan B (non-thesis). The MS Plan B is usually a terminal degree, appropriate for professionals in medical technology, government, and related fields who wish to obtain broad training in modern genetics to advance their credentials in their chosen fields. The completion of the MS Plan A serves as a qualifying examination for students who intend to continue toward the PhD in cell and molecular biology. It may also serve as a terminal degree for those who wish to pursue careers as research technicians, either in the public or private sector. Those who seek the PhD degree usually wish to make a career in college and university teaching and research, in research for industry and government, or in medicine, dentistry, or medical technology.

The CMB program provides fellowships for PhD students in their first year of training, and additional support in the way of teaching assistantships for qualified applicants after that time. Training in the program is intended to prepare students for careers in academia, in research institutes, and in the ever-expanding areas of biotechnology in the private sector.

Advising

For complete details regarding the program, contact the CMB program chair or visit the Web site www.hawaii.edu/cmb.

Graduate Study

Applicants are expected to have at least a bachelor's degree emphasizing biological or physical sciences with courses in calculus, organic chemistry, biochemistry, genetics, and cellular and molecular biology. Applicants with MD degrees are welcome. Results of the Graduate Record Examination (GRE) general test should be submitted with the application, and students whose native language is not English are required to take the Test of English as a Foreign Language (TOEFL). Three letters of recommendation from former instructors or research supervisors must also be submitted.

Master's Degree

The core of the CMB program is a specialized lecture class, spanning two semesters (CMB 621-622). The remaining credit requirements can be fulfilled by specialized courses, seminars, and research units as recommended by the particular committee and research adviser each student picks to guide their academic program. Following the completion of the two semester core course, the student is expected to pass a qualifying exam, form a committee, and then propose, complete, and defend an original research project (MS Plan A) or study plan and research paper (MS Plan B).

Doctoral Degree

PhD candidates do not need to have completed a master's degree. If an MS was not earned through the CMB program, the core lecture class is required (CMB 621-622). Formal course requirements beyond the core include additional courses specified by the dissertation committee and three laboratory rotations. The student is expected to form a committee, and then propose, complete, and defend an original research project.

Selected Specialized Courses**Cell Biology**

- BOT 617 Biological Electron Microscopy
- BOT 674 Plant Growth and Development
- HORT 614 Cellular Genetics of Crops
- MICR 641 Ultrastructure of Cells
- MICR 655 Advanced Virology
- PMP 620 Plant Biochemistry
- REPR 603 Biology of Gametes, Fertilization, and Embryos
- ZOOL 610 Topics in Developmental and Reproductive Biology
- TRMD 604 Infectious Disease Microbiology
- TRMD 671 Advanced Medical Protozoology
- TRMD 690 Seminar in Tropical Medicine and Public Health

Molecular Biology

- BIOC 624 Protein Interactions
- BIOC 730 Phage, Plasmids, and Recombinant DNA
- BIOP 633 Nucleic Acids
- CMB 680 Molecular Genetics
- CMB 654 Seminars in Human, Molecular, and Evolutionary Genetics
- CMB 625 Advanced Topics in Genetics
- MICR 625 Advanced Immunology
- MICR 661 Regulation of Gene Expression in Microorganisms
- MICR 671 Advanced Microbial Genetics
- PMP 673 Organization and Expression of the Plant Genome
- PMP 680 Methods in Plant Molecular Biology

Neurobiology

- PHRM 640 Neuropharmacology
- PHYL 606 Human Neurophysiology
- PHYL 607 Membrane Physiology
- PHYL 615 Introduction to Axonology
- PHYL/ZOOL 642 Cellular Neurophysiology
- ZOOL 712 Topics in Nerve/Muscle Physiology

Communication and Information Sciences**Degrees Offered: PhD**

See the "Colleges of Arts and Sciences" section of the *Catalog* for more information.

Environmental Studies

Degrees and Certificates Offered: Undergraduate Certificate in Environmental Studies, BA in liberal studies (emphasis on environmental studies)

See the "Colleges of Arts and Sciences" section of the *Catalog* for more information.

Graduate Interdisciplinary Specializations

These graduate specializations offer graduate students the opportunity to complete a course of study utilizing courses and faculty from several different fields. Participants must apply for admission and must also be admitted to a 'regular' graduate program.

Ecology, Evolution, and Conservation Biology

2538 McCarthy Mall-Snyder 407
Honolulu, HI 96822
Tel (808) 956-4602
Fax: (808) 956-4707
Web: www.hawaii.edu/eecb/

Graduate Faculty

- *R. A. Kinzie, PhD (Chair)—aquatic ecology, coral reefs and tropical streams
- **I. Abbott, PhD—Hawaiian ethnobotany and systematics of marine algae
- *L. Arita-Tsutsumi, PhD—behavioral ecology of insects
- *S. K. Atkinson, PhD—reproductive biology of marine animals
- *W. W. Au, PhD—sensory biology of cetaceans
- *R. L. Cann, PhD—conservation genetics and molecular evolution
- *G. D. Carr, PhD—plant biosystemics, cytogenetics, hybridization and speciation
- **H. Carson, PhD—speciation of Hawaiian *Drosophila*
- *S. Conant, PhD—conservation biology, life history and ecology of Hawaiian birds

- *R.H. Cowie, PhD—evolutionary biology and conservation of land and freshwater snails
- *C. C. Daehler, PhD—invasive plants, plant-insect interactions
- *H. G. de Couet, PhD—developmental and molecular evolution
- *M. J. deMaintenon, PhD—gastropod evolution
- *D. C. Duffy, PhD—conservation biology (basic and applied)
- *N. L. Etkin, PhD—medicines of the "informal sector" in contemporary Hawai'i
- *L. A. Freed, PhD—evolutionary ecology, behavioral ecology and conservation biology
- *D. Greenfield, PhD—systematics and ecology of marine fishes
- *M. G. Hadfield, PhD—larval biology of marine invertebrates, conservation and demography of Hawaiian tree snails
- *D. Haymer, PhD—molecular evolution
- *J. A. Hunt, PhD—molecular evolution
- *K. Y. Kaneshiro, PhD—sexual selection and biology of small populations
- **E. A. Kay, PhD—systematics and biogeography of marine mollusks
- *S. C. Keeley, PhD—plant molecular systematics and evolution
- *T. W. Lyttle, PhD—population genetics and chromosome evolution
- *M. Q. Martindale, PhD—evolution of development of metazoan animals
- *W. C. McClatchey, PhD—the flora, ethnobotany and prehistory of the Solomon Islands and the Rotuma Islands
- *M. D. Merlin, PhD—biogeography, ethnobotany, Pacific natural history
- *R. H. Messing, PhD—behavioral ecology of insect parasitoids and biological control
- *C. W. Morden, PhD—molecular systematics and evolution of plants and algae
- **D. Mueller-Dombois, PhD—vegetation ecology
- *J. D. Parrish, PhD—ecology of aquatic (marine) communities, fishery biology
- *D. K. Price, PhD—evolutionary genetics of behaviors
- *M. A. Ridgley, PhD—human-environment systems analysis: modelling and evaluation of society-environment interactions
- *C. M. Smith, PhD—physiological ecology of marine macrophytes, marine ecology
- *L. E. Sponsel, PhD—human ecology in tropical forests and deforestation
- *J. S. Stimson, PhD—population ecology
- *K. Suryanata, PhD—political economy of natural resources
- *A. D. Taylor, PhD—population ecology
- *A. Teramura, PhD—environmental stress physiology, global climate change, ecosystem analysis and biodiversity
- *T. Ticktin, PhD—ethnoecology and conservation
- *T. C. Tricas, PhD—sensory neurobiology of fishes
- *L. Wester, PhD—plant geography, biogeography of islands, human-plant relationships
- *B. A. Wilcox, PhD—ecosystem and human health
- *C. Womersley, PhD—environmental physiology, biochemical adaptation, parasitology
- *D. Woodcock, PhD—vegetation and climate

Affiliate Graduate Faculty

- *A. Allison, PhD—systematics and population biology
- *A. Asquith, PhD—insect systematics and conservation
- *E. W. Campbell III, PhD—applied and basic herpetology, invasive species management, conservation biology, predator ecology
- *J. E. Canfield, PhD—conservation biology of silverswords and vegetation restoration
- *P. Cox, PhD—ethnobotany, plant evolutionary ecology
- *J. S. Denslow, PhD—ecology of invasive exotic species in tropical and warm temperate forests
- *N. L. Evenhuis, PhD—systematics and evolution of *Diptera*
- *J. Ewel, PhD—ecosystem processes in terrestrial communities
- *K. Ewel, PhD—wetland ecology and systems ecology
- *D. Foote, PhD—ecology and conservation of native Hawaiian insects
- *A. M. Friedlander, PhD—nearshore fisheries, reef fish ecology and community structure
- *F. Kraus, PhD—evolution and conservation of insular faunas
- *F. G. Howarth, PhD—evolutionary biology of cave ecosystems and insect conservation
- *L. L. Loope, PhD—conservation biology, plant ecology
- *J. E. Maragos, PhD—human impact on marine ecosystems and coral reefs
- *D. Ragone, PhD—Pacific Island ethnobotany, especially conservation and use of traditional crops, focusing on breadfruit
- *E. G. Ruby, PhD—bacterial colonization of animal epithelial tissue

The Academic Program

The objectives of the interdisciplinary graduate specialization in ecology, evolution, and conservation biology (EECB) are to do the following:

- A. Exploit Hawai'i's unique opportunities to integrate tropical population biology and natural history studies with modern laboratory techniques;
- B. Provide the interdisciplinary, conceptual, and technical training to participate in academic and research programs in ecology, evolution, and conservation biology; and
- C. Foster scholarly training in research programs involving expertise in ecology, evolution, and conservation biology.

Modern theories of ecology, evolution, and conservation biology share a core of concepts and techniques that span classical academic disciplines. This common core, coupled with the emergence of powerful new technologies, invites cross-disciplinary approaches, which generate many of today's most exciting scientific knowledge.

The EECB program provides opportunities for students in many traditional subdisciplines represented at Mānoa. This intercollegiate, interdisciplinary graduate program brings together faculty members from agronomy and soil science, anthropology, biomedical sciences (genetics and molecular biology), botanical sciences, entomology, geography, horticulture, microbiology, oceanography, and

zoology, with all their skills and technologies, to provide the training students need to contribute effectively to this research area.

EECB is implemented as a “specialization” within existing graduate programs of the departments whose faculty participate in this program. While the EECB program is designed primarily for a doctor of philosophy degree, it also includes a master of science degree for students who wish to pursue positions such as might be available in state and federal forestry and wildlife conservation programs or in biological resource management positions with private organizations such as The Nature Conservancy. Students accepted to the EECB graduate specialization have already been accepted into a graduate program of one of the various departments participating in the EECB program. Course work in statistics, organic chemistry, biochemistry, genetics, evolution, and ecology are considered most important for admission into the EECB program.

Request complete details on the EECB program from the chair of the program at the previously listed address.

Admission Requirements

All applicants will be required to submit undergraduate transcripts, statements of career goals, three letters of recommendation, and results of the Graduate Record Examination. Although a GRE advanced test score is not required for admission, applicants are advised to submit the results of an appropriate advanced test. Before s/he can be admitted, an applicant must have a faculty sponsor who is also a member of the EECB graduate faculty. Ordinarily, though not necessarily, the sponsor would become the student’s graduate adviser/committee chair.

Course Requirements for the Graduate Specialization in EECB

Course requirements for all EECB graduate students:

- One course in ecology at the 600 or 700 level (at least 2 credits)
- One course in evolution at the 600 or 700 level (at least 2 credits)
- One course in conservation biology at the 600 or 700 level (at least 2 credits)

Acceptable graduate (600-700 level) courses currently being offered are listed here. Along with 400-level courses that may be of interest to EECB students.

For one subject area, students may petition the EECB Graduate Education Committee to have a 400-level course (at least 3 credits) count towards the EECB course requirement. While we do not recommend this option for most students, relevant course offerings in each area may sometimes not be available at the 600 level.

Master’s Degree with Specialization in EECB (Plan A)

- 30 credits total 18 credits at the 400-700 level (excluding 699 and 700)
- At least 12 of these 18 credits must be at the 600 or 700 level
- 8 credits of 699 and/or 700
- At least one graduate seminar

Master’s Degree with Specialization in EECB (Plan B)

Same course requirements as plan A but:

- No more than 9 credits of 699 can be applied toward the degree
- A minimum of 18 credits must be in courses numbered 600-798

Doctoral Degree with Specialization in EECB

- Additional course work may be required by the Graduate Education Committee, depending on background and experience prior to entering the program
- At least one graduate seminar

In addition to course requirements for the specialization in EECB, each department (e.g. botany, genetics, geography, zoology) has its own, separate course requirements. In some cases, courses taken to fulfill EECB requirements will also count towards department requirements. Please consult with your department’s graduate chair to determine which courses can count towards departmental requirements.

Course Offerings

New courses or one-time offerings not listed here may also count towards the EECB requirement. Please consult with the graduate education committee.

Note: The 400-level courses are listed below primarily to make you aware of the diversity offerings available. Six credits of 400-level courses can count toward the Master’s specialization (see MS requirements above), but 400-level courses normally do not count towards the EECB area requirements that must be fulfilled by all students.

Ecology

- BOT 450 Natural History of the Hawaiian Islands (3)
- BOT 453 Plant Ecology and Environmental Measurements (4)
- BOT 454 Vegetation Ecology (4)
- BOT 456 Plant-Animal Interactions (3)
- BOT 482 Adaptations of Plants to Marine Environmental (3)
- BOT 482L Adaptations of Plants to Marine Environmental (1)
- BOT 650 Ecology Seminar (2)
- BOT 651 Invasion Biology (3)
- ENTO 671 Insect Ecology (3)
- GEOG 402 Agricultural Climatology(3)
- MICR 485 Microbial Ecology (3)
- MICR 485L Microbial Ecology Lab (2)

- MICR 680 Advanced in Microbial Ecology (3)
- OCN 626 Marine Microplankton Ecology
- OCN 627 Ecology of Pelagic Marine Animals (3)
- OCN 628 Benthic Ecology
- ZOOL 439 Animal Ecology (3)
- ZOOL 439L Laboratory in Animal Ecology (2)
- ZOOL 450 Natural History of the Hawaiian Islands (3)
- ZOOL 460 Avian Biology (3)
- ZOOL 606 Principles of Animal Behavior (2)
- ZOOL 606L Principles of Animal Behavior Lab (1)
- ZOOL 620 Marine Ecology (3)
- ZOOL 621 Evolutionary Ecology (4)
- ZOOL 623 Quantitative Field Ecology (3)

Evolution

- BOT 411 Morphology and Evolution of Land Plants (4)
- BOT 450 Natural History of the Hawaiian Islands (3)
- BOT 461 Principles of Plant Systematics(4)
- BOT 462 Plant Evolution (3)
- BOT 480 Algal Diversity and Evolution (4)
- BOT 661 Hawaiian Vascular Plants (3)
- BOT 662 Advanced Systematics (4)
- BOT 675 Molecular Systematics and Evolution (3)
- ENTO 462 Systematic Entomology (3)
- ENTO 633 Insect Genetics (3)
- CMB 604 Evolutionary Genetics (2)
- CMB 625 Advanced Topics in Genetics (2)
- CMB 650 Population Genetics (3)
- CMB 680 Molecular Genetics (3)
- HORT 615 Quantitative Genetics (3)
- MICR 671 Advanced Microbial Genetics (3)
- ZOOL 450 Natural History of the Hawaiian Islands (3)
- ZOOL 480 Animal Evolution (3)
- ZOOL 606 Principles of Animal Behavior (2)
- ZOOL 606L Principles of Animal Behavior Lab (1)
- ZOOL 621 Evolutionary Ecology (4)
- ZOOL 719 Topics in Systematics and Evolution (V)

Conservation Biology

- ANTH 415 Ecological Anthropology (3)
- ANTH 435 Human Adaptation to Forests (3)
- ANTH 620H Human Ecology (3)
- BOT 651 Invasion Biology (3)
- BOT/ZOOL 690 Conservation Biology (3)
- BIOL 425 Wildlife and Plant Conservation (3)
- ENTO 675/675L Biological Control
- GEOG 411 Human Dimensions of Global Environmental Change (3)
- GEOG 412 Environmental Impact Assessment (3)
- GEOG 455 Resource Management (3)
- GEOG 752 Research Seminar: Resource Management (3)
- GEOG 758 Research Seminar: Conservation (3)
- BIOL/GEOG 410 Human Role in Environmental Change (3)
- OCN 621 Biological Oceanography (3)
- ZOO 750 Topics in Conservation Biology (3)

Content Varies (but may be counted towards a specific area, depending on the topic)

- GEOG 750 Research Seminar: Biogeography
- ZOOL 714 Topics in Animal Behavior

Marine Biology

Edmondson 152
2538 McCarthy Mall
Honolulu, HI 96822
Tel: (808) 956-8617
Fax: (808) 956-9812
Web: www2.hawaii.edu/~wormlab/gradspec.html

Graduate Faculty

I. A. Abbott, PhD—botany
M. Alam, PhD—microbiology
M. J. Atkinson, PhD—oceanography/HIMB
S. K. Atkinson, PhD—HIMB/zoology
W. W. L. Au, PhD—HIMB
J. H. Bailey-Brock, PhD—zoology
R. R. Bidigare, PhD—oceanography
R. Cann, PhD—genetics
S. Conant, PhD—zoology
I. Cooke, PhD—zoology
H. G. de Couet, PhD—zoology
M. Diamond, PhD—anatomy
G. Grau, PhD—zoology
D. Greenfield, PhD—zoology
R. W. Grigg, PhD—oceanography
L. Herman, PhD—psychology
K. Holland, PhD—HIMB
T. D. Humphreys, PhD—biochemistry
D. Jameson, PhD—biochemistry
P. Jokiel, PhD—HIMB/zoology
D. Karl, PhD—oceanography
E. A. Kay, PhD—zoology
R. Kinzie III, PhD—zoology
M. Landry, PhD—oceanography
E. Laws, PhD—oceanography
P. Loh, PhD—microbiology
G. Losey, PhD—zoology
P. E. Nachtigall, PhD—HIMB
J. Parrish, PhD—zoology
E. Reese, PhD—zoology
F. Robert, PhD—microbiology
H. Roitblat, PhD—psychology
C. Smith, PhD—botany
J. Stimson, PhD—zoology
C. Whitrow, PhD—physiology
R. Young, PhD—oceanography

The Academic Program

The marine biology specialization is a University wide program focusing on recent advances in the understanding of marine systems at the ecological, organismic, and cellular-molecular levels. Students can select courses, advisers, and

research opportunities from a wide range of specialties, including: marine botany, ecology, genetics, virology, microbiology, and zoology, aquaculture, behavioral biosystematics, biological oceanography, coral reef biology, fisheries and molecular biology.

The marine biology specialization is available to graduate students in botany, microbiology, oceanography, and zoology. Prospective graduate students should apply first to one of these programs. Applications from students who have been accepted to botany, microbiology, oceanography, or zoology who have also indicated a desire to specialize in marine biology are reviewed by the Marine Biology Admissions Committee.

Students specializing in marine biology supplement the courses required for a degree in their chosen field with courses specific to marine biology. The actual selection is determined by the student in consultation with his or her adviser. Graduate student research is carried out in the laboratories of the graduate faculty. These include laboratories in Edmondson Hall, Snyder Hall, the St. John Laboratory (botanical sciences), the Marine Science Building, the Hawai'i Institute of Marine Biology (located on Coconut Island in Kaneohe Bay), the Bekesy Laboratory, and the Kewalo Laboratory of the Pacific Biomedical Research Center. Research capabilities include DNA sequencing using PCR technology; video and acoustic recording for ecological and behavioral studies of coral reef and planktonic organisms; transmission and scanning electron, ultraviolet, and light microscopy; electrophoretic analysis; flow cytometry; and radioisotope tracer studies.

Selected courses:

- ANSC 360 Topics in Aquaculture Science (3)
- ANSC 450 Aquaculture Production (3)
- BE 604 Aquaculture Systems (3)
- BOT 480 Algal Diversity and Evolution (4)
- BOT 482 Adaptations of Plants to Marine Environments (3)
- BOT 680 Marine Macrophytes Seminar (2)
- MICR 653 Methods in Microbiology Oceanography (3)
- OCN 450 Aquaculture Production (3)
- OCN 621 Biological Oceanography (3)
- OCN 626 Marine Microplankton Ecology (4)
- OCN 627 Ecology of Pelagic Marine Animals (4)
- OCN 628 Benthic Biological Oceanography (4)
- OCN 653 Methods in Microbiology Oceanography (3)
- OCN 750 Topic in Biological Oceanography (V)
- PHYL 701 Undersea and Hyperbaric Physiology (3)
- PSY 633 Behavioral Processes of Marine Mammals (3)
- ZOOL 466 Fisheries Science (3)
- ZOOL 467 Ecology of Fishes (3)
- ZOOL 475 Biology of Invertebrates (3)
- ZOOL 620 Marine Ecology (3)
- ZOOL 666 Systematic Ichthyology (3)
- ZOOL 716 Topics in Fish and Fisheries Biology (V)

International Cultural Studies

Certificate Offered: Graduate Certificate in International Cultural Studies

See the "Colleges of Arts and Sciences" section for more information.

Liberal Studies

Degree Offered: BA in liberal studies

See the "Colleges of Arts and Sciences" section for more information.

Peace Studies

Degrees and Certificates Offered: Undergraduate Certificate in Peace Studies, BA in liberal studies (emphasis on peace studies). See the "Colleges of Arts and Sciences" section for more information.

Population Studies

Certificate Offered: Graduate Certificate in Population Studies. See the "Colleges of Arts and Sciences" section for more information.

Renewable Energy Engineering

Certificate Offered: Graduate Certificate in Renewable Energy Engineering.

This certificate program is designed for those students pursuing advanced degrees in a traditional discipline who also seek to develop interdisciplinary competence in renewable energy engineering. Students completing the certificate requirements will gain a rigorous understanding of the energy sciences, accompanied by an appreciation of the complex economic and societal issues that surround the coming transition to an energy economy based on renewable resources.

Students previously admitted as classified graduate students are eligible to apply for admission to the certificate program. Prerequisites for admission include 6 credit hours of calculus, 6 credit hours of physics, 3 credit hours of chemistry, and 3 credit hours of thermodynamics. Following a required introductory interview, the certificate candidate will be assigned an adviser from the program committee in addition to the student's field of study adviser. Through consultation with these two advisers, the student will select appropriate courses and a research topic that together will satisfy the requirements of both the student's field of study and the certificate program.

To earn a certificate in renewable energy engineering, students must participate in the Hawai'i Natural Energy Institute seminar series during each term of their residency and complete ME 629 and approved courses in a technical

area, energy economics, and policy with a grade B (or higher). In addition, the student must complete a thesis or dissertation that involves renewable energy engineering.

The Renewable Energy Engineering Graduate Certificate will be awarded to students upon completing of an advanced degree in their field of study.

Resource Management

Saunders Hall 107
2424 Maile Way
Honolulu, HI 96822
Tel: (808) 956-7381

Certificate Offered: Graduate Resource Management Certificate

The Graduate Resource Management Certificate is a cooperative program primarily involving the College of Social Sciences, the Department of Urban and Regional Planning (anthropology, economics, geography), the College of Tropical Agriculture and Human Resources (agronomy

and soil science, agricultural and resource economics), and the East-West Center (Program on Environment, Program on Resources: Energy and Minerals). Because of its diverse topical components, multidisciplinary faculty, and practical application throughout Asia and the Pacific, the program is ideal for students who are pursuing graduate studies in traditional disciplines and also seeking expertise in environmental resource management.

This program provides students with specialized training in an area that augments their primary field and develops their pragmatic problem-solving and decision-making skills through analysis of real-world problems. Any student who has previously been admitted as a classified graduate student at the University of Hawai'i at Mānoa is eligible to apply for admission to this certificate program. Interested applicants should contact their adviser or any representative of the program in the collaborating departments and institutions.

To earn this certificate, students are expected to complete 15 credit hours, at least 9 of which are at the graduate level. For more information, contact the program office.

School of Law



Administration

2515 Dole Street
Honolulu, HI 96822
Tel: (808) 956-7966
(808) 956-3000 (Application Request Line)
Fax: (808) 956-6402
E-mail: lawadm@hawaii.edu
Web: www.hawaii.edu/law

Dean: Lawrence C. Foster
Associate Dean: Carol Mon Lee
Assistant Dean: Laurie A. Tochiki

Faculty

D. Antolini, MPP, JD—environmental law, torts, legal writing
J. Barkai, MBA, JD—clinical program, alternative dispute resolution, evidence
H. Beh, PhD, JD—contracts, advanced torts, legal writing
R. Brown, JD, LL.M.—labor law, legal writing
D. Callies, JD, LL.M.—real property, land use regulation, state and local government, legal writing
W. Chang, JD—native Hawaiian rights, water law, jurisprudence, legal writing
A. Conner, PhD, JD—Chinese law, legal writing
D. Conway-Jones, JD—government contracts, intellectual property, internet law and policy, legal writing
K. Gebbia-Pinetti, JD—commercial law, bankruptcy, legal writing
V. Hench, JD, LL.M.—criminal law, civil rights, gender and law, legal writing

C. Iijima, JD (Pre-admission Program director)—remedies, legal writing
C. Jarman, JD, LL.M.—environmental law, ocean law, legal writing
M. Levin, JD, LL.M.—sales, Japanese law, legal writing
C. Pang, MPH, JD—elder law, family law
J. Pietsch, JD—elder law, health law
R. Roth, JD, LL.M.—taxation, trusts and estates, professional responsibility
L. Seeger, JD, MLawLibr—legal research
J. Van Dyke, JD—constitutional law, international law, international human rights, legal writing
E. Yamamoto, JD—civil procedure; race, culture and the law; legal writing

General Information

Since admitting its first class of students in 1973, the William S. Richardson School of Law has graduated more than 1,800 attorneys, most of whom continue to serve in the state of Hawai'i. As the school matures, its graduates have risen to prominent positions, including governor of Hawai'i; president of a Hawai'i university; a federal magistrate; circuit, district, family, and per diem court judges; partners in major law firms; and members of the state Legislature and Honolulu City Council. In addition, graduates of the school are found in significant numbers at the attorney general, public defender, and prosecutor offices.

The law school offers a three-year, post-baccalaureate program culminating in the Juris Doctor (JD) degree, also known as the first professional degree in law. Although some law schools offer graduate degrees in law (this school does not), the great majority of students find that the JD degree is sufficient to prepare for admission to a bar and for a career in law.

Student Body

Many of the 245 students in the law school either were born in Hawai'i or have other ties to the state or region. We also welcome students from the continental United States, Asia, and the Pacific. Many students from out-of-state express an interest in the school's exceptional Pacific-Asian, environmental, or

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ocean policy areas of emphasis. Each entering class (75–80 in number) typically reflects the ethnic diversity of Hawai‘i and includes individuals of African American, Caucasian, Chinese, Filipino, Hawaiian, Japanese, Korean, and Pacific Island ancestry. Currently enrolled students from the Asia Pacific region represent China, Guam, Japan, and the Northern Mariana Islands.

Approximately half of the students are female, and about 20 percent have completed other graduate degrees before enrolling in the law school.

Mission

The mission of the William S. Richardson School of Law is to provide formal legal education, encourage and support scholarly legal research, and promote justice in our society and professional responsibility and public service within our profession. We share the goals of the State of Hawai‘i and the University to provide educational opportunities for the people of this state and to be leaders in environmental law, Pacific and Asian legal studies, and the law of the sea.

In carrying out this mission, the school’s graduates fill a demand for qualified attorneys who are sensitive to Hawai‘i’s special needs and who will serve government and the public interest as well as private entities.

Students are encouraged to study law and legal institutions as integral parts of larger social, political, economic, and ecological systems. A number of law students concurrently seek graduate degrees at the University of Hawai‘i while undertaking the JD program.

Accreditations

The accreditation process of the American Bar Association (ABA) is designed to ensure that approved law schools have adequate facilities and adhere to sound educational policies. The School of Law has been fully approved by the ABA; this enables its graduates to present a JD degree acceptable to the bar examiners in every state. There are approximately 180 ABA-approved law schools in the United States.

In 1989, the School of Law was admitted to full membership in the Association of American Law Schools (AALS).

Degree Offered: Juris Doctor (JD)

Advising

Students have access to academic, personal, and career counseling at any time during the program. Academic counseling is intended to assist the student in defining a program that will satisfy both personal interests and professional development.

Career counseling and information on job opportunities are provided to students for part-time, clerkship, and entry-level positions. About 40 Honolulu legal employers representing the private, public, and public-interest sectors participate in the on-campus interview program for law students. The law school also presents informational programs on career choices and alternatives and preparation for the job search.

Admission Requirements

Admission to the law school is based on an applicant’s academic achievement, aptitude for the study of law, and professional promise. Included among the specific factors evaluated are undergraduate grade point average, results of the Law School Admission Test (LSAT), academic work beyond the bachelor’s degree, academic rigor, writing ability, work experience, and volunteer and civic activities. The admission committee also takes into consideration the diversity of the class and unusual accomplishments or achievements. Residency in Hawai‘i or special experience relevant to Hawai‘i, the Asia Pacific region, or the law school’s programs is also a significant admission criterion.

All applicants must have earned, by the entrance date, a baccalaureate degree from an accredited institution of higher learning in the United States or a foreign degree that is fully equivalent. Other requirements include the LSAT results, submission of transcripts to the Law School Data Assembly Service (LSDAS), two letters of recommendation, and a completed law school application.

Application Deadlines

Applications for admission must be filed with the School of Law and must be submitted on the current year’s forms. Contact the law school for up-to-date deadlines and applications. Late or incomplete applications are not considered. Applicants are notified of the admission decision in late March/early April for August entry. In 2002, the law school received about 600 applications for admission.

Pre-admission Program

Established in 1974, the Pre-admission Program provides students from disadvantaged backgrounds with an opportunity to demonstrate their ability to do law school work. Each year, 12 students are selected from among applicants with academic records not strong enough to justify admission to the regular program, but who, nevertheless, demonstrate potential for successful completion of law study and significant contribution as lawyer.

There is no separate application process for this program. Those invited to participate are identified by the admission committee during its review of regular applications to the JD program. Students who successfully complete the Pre-admission Program are admitted to the first-year class the following year.

Program Requirements

The JD program is a three-year, full-time course of study that begins in August with a one-week orientation for new students. The JD degree is awarded upon completion of six semesters of full-time study and the satisfactory completion of 89 credit hours, including a selection of required courses. Completion of the program must be attained within five years of the date of first registration. Full-time study is defined as registration for a minimum of 12 credit hours per semester plus regular and punctual attendance at scheduled class meetings. In

addition, all law students must complete 60 hours of pro bono legal service in order to graduate. The School of Law does not offer part-time or evening programs, and its classes are open only to law students and selected classified graduate students with prior departmental and law school approval. Contact the law school for a detailed description of the degree requirements.

The first-year curriculum is entirely prescribed and offers a conventional format of substantive courses and intensive small group seminars in legal writing, research, and advocacy. The program for the second and third years is primarily elective and includes writing and research seminars, clinical workshops (some of which involve students in actual litigation under the Supreme Court's Student Practice Rule), and a variety of courses in both traditional and new areas of law.

Most grading within the law school is done anonymously and on a C+/B- curve.

Additional Information

For complete information on school policies and programs, request a *School of Law Catalog* from the Office of Admissions at 2515 Dole Street, Honolulu, HI 96822 or online at www.hawaii.edu/law

Special Programs

Dual Degree and Graduate Certificate Programs

Law students may integrate their law school work with graduate work in other schools and colleges at the University of Hawai'i and receive both the JD degree and a graduate degree. The most popular dual degree programs have been the JD-MBA, the JD-Master of Urban and Regional Planning, and the JD-MA in Asian studies, although other dual degrees may be approved in consultation with the law school. Students may also pursue graduate certificate programs including ocean policy, resource management, or gerontology.

Students interested in dual degree or certificate programs must apply separately and be admitted to both the School of Law and the graduate or certificate program. Admission to one program does not guarantee admission to the other.

Elder Law Program

The University of Hawai'i Elder Law Program (UHELP) consists of two components: the course on legal problems of the elderly and the Elder Law Unit. The course is part of the law school's educational program for training law students in elder law. The Elder Law Unit, housed at the law school, provides direct delivery of legal services to elderly who are socially and economically needy. It is an important source of cases assigned to law students in the Elder Law Clinic.

Students interested in this area of law may also undertake the UH Advanced Certificate in Gerontology.

Environmental Law Program

Recognizing the challenges that Hawai'i faces in developing an environmentally sustainable economy, the law school has developed a vibrant, diverse Environmental Law Program

(ELP). The ELP offers a significant number of exciting and varied courses in environment law and related fields. The centerpiece of the ELP is the Certificate in Environmental Law, described below. For more information on the law school's ELP, visit our website at www.hawaii.edu/elp. The certificate program recognizes the increased student interest in this area, the expertise of a substantial number of our faculty and opportunities in the field. Students interested in the certificate might also want to consider pursuing a Graduate Ocean Policy Certificate which is offered at the University of Hawai'i and is part of our dual degree program. The certificate is available only to University of Hawai'i law students.

Pacific-Asian Legal Studies

Because of Hawai'i's location, population, culture, and economic relationships, the law school faculty has developed the Pacific-Asian Legal Studies Program (PALS). The program has the twofold purpose of conducting new research and enriching the JD curriculum. A number of faculty have expertise in Pacific-Asian research, teaching, and consultation. Course offerings have included Chinese law and society, Chinese trade and investment law, Japanese criminal law, Japanese trade law, Japanese constitutional law, Korean law, and Pacific Islands legal systems. The program benefits from an exchange with the law faculty at Hiroshima University in Japan. Other exchanges are also being explored.

Interested law students can elect to do a full semester externship for academic credit with selected courts in the Pacific. With prior approval, students may also plan to study with a law faculty in Asia for one semester and transfer credits toward the JD degree.

Student Organizations

The current list of student organizations at the School of Law includes the following:

- Advocates for Public Interest Law
- 'Ahahui O Hawai'i
- American Bar Association—Law Student Division
- American Inns of Court
- American Trial Lawyers Association Student Chapter
- Asian Pacific Law and Policy Journal*
- Christian Legal Society
- Client Counseling Team
- Delta Theta Phi International Legal Fraternity
- Environmental Law Society
- Environmental Law Moot Court Team
- Hispanic Law Students Association
- LAMBDA Law Student Association
- National Lawyers Guild
- Native American Moot Court Team
- Pacific-Asian Legal Studies Organization
- Pacific Islands Legal Studies Association
- Phi Delta Phi International Legal Fraternity, Richardson Inn
- Philip C. Jessup International Law Moot Court Team
- Student Bar Association
- University of Hawai'i Filipino Law Students Association
- University of Hawai'i Law Review*
- Women Law Students Association

School of Medicine



Administration

Biomedical Science T-101
1960 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8287
Fax: (808) 956-5506
Web: hawaiiimed.hawaii.edu

Dean: Edwin C. Cadman
Senior Associate Dean: Satoru Izutsu
Vice Dean: T. Samuel Shomaker

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General Information

The John A. Burns School of Medicine works to improve the quality, effectiveness, and equity of health-care delivery in Hawai'i and the Pacific region. The school provides opportunity for qualified residents of Hawai'i and the Pacific Islands, including students from various underrepresented socioeconomic and minority groups, to qualify for an MD degree; provides MD graduates with competency to enter postgraduate programs; and provides residency training programs with emphasis on primary-care specialties.

The school also administers graduate research and professional programs leading to MS, PhD and MPH degrees in the basic medical sciences and health-related fields; BS degree programs in speech pathology and audiology and medical technology; and undergraduate courses for majors in nursing, dental hygiene, biology, nutrition, and other fields.

In addition, the school—together with the Hawai'i Medical Association and the Hawai'i Consortium for Continuing Medical Education—sponsors continuing medical education for physicians in the state of Hawai'i.

The school provides instruction for five major categories of students:

1. Candidates for the MD degree who are admitted directly by the school's own admissions committee;
2. Candidates for MS degrees in biomedical sciences (with concentrations in cell and molecular biology, physiology, and tropical medicine), public health or in speech pathology and audiology who apply through the Graduate Division of the Mānoa campus;
3. Candidates for the MPH degree who apply through the Graduate Division of the Mānoa campus;
4. Candidates for PhD degrees in biomedical sciences with concentrations in biostatistics-epidemiology, cell and molecular biology, physiology, and tropical medicine who apply through the Graduate Division of the Mānoa campus; and
5. Candidates for undergraduate degrees in speech pathology and audiology or in medical technology, who apply through the undergraduate admissions office.

In addition, three certificates are offered through the school: an undergraduate certificate in aging, an advanced certificate in gerontology, and a post-baccalaureate certificate for medical technology clinical training.

Accreditation

The school is accredited by the Liaison Committee for Medical Education of the Association of American Medical Colleges and the Council on Medical Education of the American Medical Association.

Additionally, all graduate medical education programs in Honolulu hospitals are accredited as University of Hawai'i School of Medicine residency programs. Approximately 240 physicians serve as house staff members in these hospitals under the direction of the medical school faculty.

Affiliations

The school maintains affiliations with the following community hospitals and medical facilities for medical student and resident training: Hawai'i State Hospital; Kaiser Foundation Hospital; Kalihi-Pālana Health Clinic; Kapi'olani Medical Center for Women and Children; Kapi'olani Medical Center at Pali Momi; Kokua Kalihi Valley Health Center; Kuakini Medical Center; Lē'ahi Hospital; The Physician Center; Queen Emma Clinics; Queen's Medical Center; Rehabilitation Hospital of the Pacific; St. Francis Medical Center; St. Francis Medical Center–West; Shriners Hospital for Crippled Children; Straub Clinic and Hospital; Tripler Army Medical Center; Wahiawa-General Hospital; Wai'anae Coast Comprehensive Health Center; and the Veterans Affairs Outpatient Clinic.

Degrees

Bachelor's Degrees: BS in medical technology, BS in speech pathology and audiology

Professional Degree: MD

Master's Degrees: MS in biomedical sciences (cell and molecular biology, physiology, and tropical medicine); MPH and MS in public health; MS in speech pathology and audiology

Doctoral Degrees: PhD in biomedical sciences (biostatistics-epidemiology, cell and molecular biology, physiology, and tropical medicine)

Advising

Premedical advising is conducted by the Student Academic Services Office of the Colleges of Arts and Sciences.

Academic Policies

Undergraduate and graduate students in the School of Medicine must adhere to the academic policies of the University. Medical students are exempted from certain Mānoa

policies and instead must follow academic policies germane to the MD program. Copies are available in the school's Office of Student Affairs and the Learning Resource Room.

Undergraduate Programs

For information on medical technology or speech pathology and audiology, refer to the respective sections of the Catalog.

MD Program

The MD program follows a problem-based curriculum, which was implemented in fall 1989. It includes the following key features: knowledge is acquired in problem-based modules; self-directed learning is fostered in small group tutorials; students are actively involved in the learning process; faculty members function as both facilitators of learning and resource experts; basic sciences are learned in the context of solving clinical problems; no discipline-specific courses are required; and interdisciplinary basic science lectures are integrated around cases. In addition, students are trained to think critically and to evaluate new information and research data. Evaluation is based on competence in a variety of problem-solving exercises. Early clinical and community experiences are also unique features of the curriculum. The curriculum courses are listed under biomedical sciences (BIOM).

Admission Requirements/Application Process

Candidates for MD training must have completed a minimum of 90 credit hours of college-level course work. A baccalaureate degree is strongly recommended.

- Biology (with lab) (8)
- Molecular and Cell Biology (with lab) (4)
- General Chemistry (with lab) (4)
- Biochemistry (4)
- General Physics (with lab) (8)

The science courses should be of the type acceptable for students majoring in the above areas (not survey-level) AND, where indicated, include laboratory experience. Additional enrichment in the biological and social sciences (e.g., immunology, genetics, microbiology, human anatomy, physiology, embryology, psychology, and sociology) are encouraged. Applicants also must be fully competent in reading, speaking, and writing the English language.

Applicants must apply through the American Medical Colleges Application Service (AMCAS). The service permits an applicant to file a single application, which is forwarded to as many participating medical schools as designated. Application request forms may be obtained from a pre-med adviser, any participating medical school, or the Office of Student Affairs after April of each year.

Applicants also must take the nationally administered Medical College Admission Test (MCAT), which deals with knowledge of the physical and biological sciences and skills in verbal reasoning and writing, within three years of expected date of matriculation.

Each entering class of MD candidates is limited to 62 students. Correspondence regarding admissions should be directed to Admissions Office, John A. Burns School of Medicine, 1960 East-West Road, Honolulu, HI 96822 or via e-mail mnishiki@hawaii.edu. Further information may be obtained on the Web at hawaii.med.hawaii.edu. Applications are accepted from June 1 through December 1 for entry the following year.

Graduate Programs

The School of Medicine offers the master's and/or PhD degrees with concentrations in biostatistics-epidemiology, cell and molecular biology, physiology, public health, speech pathology and audiology, and tropical medicine.

Refer to the specific departments for further information. Inquiries should be addressed to the chair of the specific concentration.

Postgraduate Programs

Postgraduate medical education programs in Honolulu hospitals in family practice, geriatric medicine, internal medicine, obstetrics and gynecology, pathology, pediatrics, psychiatry, surgery, orthopedic surgery, and a transitional year are conducted by faculty and accredited as University of Hawai'i School of Medicine residency programs. Approximately 240 physicians are involved in training, which lasts one to seven years. These physicians serve as members of the house staff in the hospitals while studying their chosen specialty.

The school conducts a postgraduate medical education program at Chubu Hospital in Okinawa for graduates of Japanese medical schools.

Certificate Programs

Students majoring in other areas can earn an Undergraduate Certificate in Aging or an Advanced Certificate in Gerontology through the Center on Aging at the School of Medicine.

Undergraduate Certificate in Aging

The undergraduate certificate requires 15 credits of approved gerontology courses in three different departments, three courses at the 300 level and two courses at or above the 400 level.

Advanced Certificate in Gerontology

The Advanced Certificate in Gerontology may be earned by taking 15 credits of course work in gerontology, at least 9 of which are at or above the 600 level. Courses must be in three different fields (e.g. public health, law, social work, sociology, etc.) and must include an interdisciplinary seminar in aging and a field study experience with a related paper. With permission, classified graduate students may double-count 6 credits with their major area of study.

Admission requirements include classified graduate status at UHM or, for unclassified graduate students, a baccalaureate degree from an accredited institution and aging related work experience.

Post-Baccalaureate Certificate for Clinical Training

For students in medical technology, clinical training at affiliated clinical facilities follows graduation. A certificate is awarded at the completion of this training.

Special Programs

Imi Ho'ola Post-Baccalaureate Program

The John A. Burns School of Medicine is actively involved in the recruitment, admission, and retention of students from disadvantaged backgrounds, who are interested in pursuing an MD degree. Imi Ho'ola (Hawaiian for "Those who seek to Heal") is a post-baccalaureate program designed to provide educational opportunities to students from disadvantaged backgrounds capable of succeeding in medical school. Although Imi Ho'ola is not limited to persons of Hawaiian, Filipino, Samoan, Chamorro, and Micronesian descent, a large number of these students in the past have been able to demonstrate that they are from a disadvantaged background.

Each school year, 10 students are selected to participate in this one-year program, and upon successful completion, they matriculate the following year into the John A. Burns School of Medicine. The curriculum emphasizes the integration of concepts and principles in the sciences and humanities and further develops students' communication and learning skills. Eligible individuals are from a disadvantaged socioeconomic and/or educational background who have demonstrated a commitment to serve areas of need in Hawai'i and the Pacific.

Native Hawaiian Center of Excellence

The Native Hawaiian Center of Excellence is a project undertaken by the John A. Burns School of Medicine to address the barriers to health care for native Hawaiians. The mission is to improve the school's ability to train physicians with the commitment and special skills to care for the indigenous peoples of the state. The center offers recruitment initiatives to interest Hawaiian high school and college students in medical careers and prepare them for entry into health professions; development of a student tracking system to identify Hawaiian students at academic risk early in their medical training so that appropriate interventions can be made; a one-year fellowship to recruit additional native Hawaiian faculty for the school; revision of the medical school's curriculum to ensure that all students are exposed to the unique health problems and interpersonal skills involved in dealing with Hawaiian patients; and student research electives in Hawaiian health and medical care.

Hawai'i Area Health Education Center (AHEC)

AHEC supports the two interdisciplinary community-based training programs (Ke Ola for first year students, Quentin Burdick for second year students), travel to and lodging in rural areas for students of all years to perform clinical experiences, and distance learning by video teleconferencing.

AHEC is six-year-old program of the John A. Burns School of Medicine that is funded by the Health Resources and Services Administration. The federal mandate is to improve the diversity, distribution and quality of the health professions workforce. The mission of Hawai'i AHEC: To improve the health of the underserved through education. Activities focus on five primary areas: 1) Health education and recruitment to health professions for students across the state from kindergarten through college; 2) Educating health professions students in rural and underserved areas, often in interdisciplinary teams; 3) Recruitment, retention and continuing education of practicing health professionals in medically underserved areas; 4) Providing community based and community driven health education in over a dozen community learning centers across the state; and 5) Providing video connectivity for health education, communication, and other health care services to rural and underserved areas across the state.

Center on Aging

The Center on Aging was established by the University of Hawai'i Board of Regents in July 1988. Its mission is to stimulate and coordinate gerontological activities on the UH Mānoa campus, to establish gerontology as an academic field of excellence at Mānoa, and to promote collaboration between the University and other organizations concerned with aging.

Center on Aging staff are involved in a number of research and training projects: exploring cultural variations in caregiver, help seeking, perceptions of chronic disease (e.g., cancer, dementia, and diabetes) and death and dying practices; examining volunteer behavior in seniors; tracking client and caregiver satisfaction with homecare services; coordinating specialized training and workshops in gerontology for local and international organizations; and developing and testing educational materials related to elder abuse and neglect, end-of-life care and decision making; and health promotion. These projects are being conducted in collaboration with a number of UH departments (e.g., the School of Law, the School of Nursing and Dental Hygiene, the School of Social Work, and the College of Social Sciences) and community agencies (e.g., the Executive Office on Aging, the Hawaiian Islands Hospice Organization, the St. Francis International Center for Healthcare Ethics, and Papa Ola Lokahi).

Honors and Awards

Alpha Omega Alpha is the honorary society for medical students.

Allied Medical Sciences

Biomedical Science T-101
1960 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8287
Fax: (808) 956-5506

Faculty

R. Casey, PhD—minority education
C. Ha, PhD—biochemistry, minority education
R. Inouye, MA—minority education
D. Little, EdD—educational administration, minority education
N. Judd, PhD—public health, minority education
W. Patrick, PhD—international health education
K. Sakamoto, MS—minority education
P. M. Tim Sing, MD—minority education
S. Tshako, MD—anatomy and reproductive biology
B. Young, MD—psychiatry, minority education

Allied Medical Sciences department offers course work in a number of fields that do not lead to the MD degree. These include medical history, medical technology, and speech pathology and audiology. For a description of these programs, see the appropriate sections.

Anatomy and Reproductive Biology

Biomedical Science T-311
1960 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8287
Fax: (808) 956-5506
Web: hawaiiimed.hawaii.edu

Faculty

*S. Lozanoff, PhD (Chair)—craniofacial biology
*M. Diamond, PhD—sexual behavior and reproduction, neural and hormonal influences on sexuality
B. M. Jones, MS, PT—orthopedic physical therapy
Y. Marikawa, PhD—mammalian embryogenesis, cell differentiation, and body pattern formation
J. L. Rosenheimer, PhD—neurobiology of aging
S. Tshako, MD—medical education
W. S. Ward, PhD—DNA structure, embryogenesis, and sperm biology
*R. Yanagimachi, DSc—mammalian gametes and fertilization, fertility control, gamete and embryo manipulation

Adjunct Faculty

C. D. Boyd, PhD—matrix pathobiology
K. Csiszar, PhD—matrix pathobiology
Z. Urban, PhD—matrix pathobiology

The Academic Program

Anatomy (ANAT) and reproductive biology (REPR) is a discipline that embraces biological structure from the molecular level to the body as a whole. It provides the student with an opportunity to develop a broad base of knowledge in biological structure for subsequent research into specific processes in mammalian development, neurobiology of behavior, endocrinology, and reproduction, including that of farm animals. Students will have access to the other biomedical science disciplines in an integrated curriculum. Collaborative research projects with clinical and basic science faculty offer students unique opportunities for clinically oriented research. Students may work with faculty members who are world renowned in the areas of fertilization, reproductive endocrinology, and neurobiology of behavior.

This interdisciplinary area of concentration is administered by the Cell and Molecular Biology Program in which graduate faculty from several departments participate and contribute to the program.

Information on the Cell and Molecular Biology Program can be found in the "Interdisciplinary Programs" section of this *Catalog*, on the program's Web site (www.hawaii.edu/cmb), or interested applicants can contact the following program chairs:

Dr. Rebecca Cann

John A. Burns School of Medicine
Cell and Molecular Biology Program
1960 East-West Road, Biomed A-209
Honolulu, HI 96822

Dr. Scott Lozanoff

John A. Burns School of Medicine
Department of Anatomy and Reproductive Biology
1960 East-West Road, Biomed T-309
Honolulu, HI 96822

Institute of Biogenesis Research

The Institute of Biogenesis Research (IBR) was established in 1999 following the "Honolulu Technique" cloning technology which provided scientists with a new and valuable tool for researching the molecular processes involved in embryo formation, cell differentiation, aging, and disease. The institute will pursue four major areas of reproduction and development: germ cell research, cloning, transgenesis, and prevention and cure of congenital malformation.

The overall vision of the IBR is to bring together and support an international team of scientists committed to advancing our understanding of the biology of mammalian reproduction and development.

Biochemistry and Biophysics

Biomedical Science T-705

1960 East-West Road

Honolulu, HI 96822

Tel: (808) 956-8490

Fax: (808) 956-9498

Faculty

*N. V. Bhagavan, PhD (Chair)—clinical biochemistry, role of surfactant in pulmonary function, thyroid and cholesterol metabolism, structural studies on human serum albumin

*R. J. Guillory, PhD—bioenergetics, mechanism of mitochondrial oxidative phosphorylation and membrane-dependent energy-linked reactions, structure of contractile proteins

*H. F. Mower, PhD—problems in carcinogenesis in normal and neoplastic systems

Cooperating Graduate Faculty

J. S. Bertram, PhD—carcinogenesis, growth regulation, chemoprevention of cancer

R. V. Cooney, PhD—role of nitrogen oxides in carcinogenesis

M. A. Dunn, PhD—nutritional biochemistry, trace elements

J. Stollberg, PhD—synaptogenesis, localization of membrane constituents

Adjunct Faculty

G. Edlin, PhD—regulation of viruses and bacteria, molecular mechanism of disease, molecular evolution

The Academic Program

Biochemistry (BIOC) and biophysics (BIOP) entail the study of the chemistry and physics of living systems. In these disciplines, students learn how the fundamental compounds present in all cells react in enzyme-catalyzed processes to form the macromolecular assemblies that in turn govern cell growth, cell function, and cell senescence. The understanding of these myriad and complex processes ultimately requires an understanding of the underlying chemical and physical processes. Indeed, molecular biophysics attempts to evaluate, by the methods of physics, biological processes at the molecular level. These disciplines are currently in a time of explosive growth and development. New knowledge is rapidly being discovered; new theories are being proposed and tested; and ever wider application of the principles of biochemistry, biophysics, and molecular biology to the understanding of other biological and medical sciences is occurring.

Students benefit from the study of biochemistry and biophysics in many ways. Productive and fulfilling lifelong careers are available to graduates of master's and doctoral degree programs. Opportunities exist in government, industrial, and academic institutions that can lead to administrative responsibilities and policy-making positions. Teaching positions at the undergraduate and graduate levels are also available.

The study of biochemistry and biophysics provides the student with a broad understanding of life processes that are also fundamental to the understanding of many of the disciplines of biological, agricultural, and medical sciences. It is often an advantage to enter these fields after the completion of a program of study in biochemistry or biophysics.

The Department of Biochemistry and Biophysics at the University of Hawai'i offers the student broad training in the fundamentals of both biochemistry and biophysics. Courses are offered at introductory and advanced levels. Specialty courses that bring the student to the frontiers of the developing subdisciplines are a part of the department's curriculum. Laboratory and research experience is available either through formal courses or through participation in one of the many funded research programs of the department.

Cell and Molecular Biology

Biomedical Science A-209
1960 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8552
Fax: (808) 956-9530

Faculty

- *D. S. Haymer, PhD (Chair)—molecular evolution and developmental genetics
- *J. S. Bertram, PhD—carcinogenesis, growth regulation and chemo-prevention of cancer panic and depression; gender differences in emotional behavior
- *D. C. Blanchard, PhD—ethoexperimental analysis of defense and aggression; preclinical pharmacology of anxiety,
- *G. D. Bryant-Greenwood, PhD—preterm birth in the human, role of relaxins in fetal membrane rupture
- *R. L. Cann, PhD—molecular and evolutionary genetics
- *T. D. Humpreys II, PhD—molecular biology of development
- *D. M. Jameson, PhD—fluorescence spectroscopy; biomolecular dynamics and interactions; ribosomal proteins
- *A. F. Lau, PhD—molecular biology of cancer
- *T. W. Lyttle, PhD—population genetics, cytogenetics
- *M. D. Rayner, PhD—structure-function relationships in voltage-gated ion channels
- *J. F. Scott, PhD—molecular biology of DNA
- *S. E. Seifried, PhD—macromolecular interactions, transcription factor recognition of specific DNA sequences, protein subunit assembly
- *R. K. Wada, MD—molecular oncology, oncogene regulation, tumor differentiation

Affiliate Faculty

- *J. L. Brewbaker, PhD—horticultural genetics
- A. Fleig, PhD—electrophysiology (patch-clamp); calcium signaling in muscle cells; regulation of calcium signaling; cellular neuroimmunology
- R. Penner, PhD—electrophysiology (patch-clamp); intra- and intercellular signal transduction; regulation of calcium signaling; cellular neuroimmunology

Adjunct Faculty

- T. A. Donlon, PhD—human genetics
- A. Fleig, PhD—electrophysiology (patch-clamp); calcium signaling in muscle cells; regulation of calcium signaling; cellular neuroimmunology
- R. Penner, PhD—electrophysiology (patch-clamp); intra- and intercellular signal transduction; regulation of calcium signaling; cellular neuroimmunology

The Academic Program

Faculty in the Department of Cell and Molecular Biology have ongoing research programs in areas such as genetics, cell biology, biochemistry and neurophysiology. The department also provides instruction in the basic principles and concepts of genetics, biochemistry and molecular biology to medical students, graduate students from various disciplines, and undergraduates.

The faculty also participate in the training of PhD and MS graduate students in the interdisciplinary Cell and Molecular Biology Program. This program brings together faculty with expertise in biochemistry, cell biology, cell signaling, developmental biology, genetics, immunology/retrovirology, matrix pathobiology, neurobiology/neurophysiology, plant molecular physiology, and reproduction function for collaborative teaching and research activities. Information on the Cell and Molecular Biology (CMB) Program can be found in the Interdisciplinary Programs section of this *Catalog*, on the CMB Web site (www.hawaii.edu/cmb), or interested applicants can contact the program chair:

Dr. Rebecca Cann
John A. Burns School of Medicine
Cell and Molecular Biology Program
1960 East West Road, Biomed A-209
Honolulu, HI 96822

Ecology and Health

Biomedical Science C-105
1960 East West Road
Honolulu, HI 96822
Tel: (808) 956-5770
Fax: (808) 956-5506

Faculty

- B. A. Wilcox, PhD (Chair)—ecosystem health, integrative health
- H. K. Chang, DrPH—community health development, indigenous health systems
- N. L. Etkin, PhD—medical anthropology
- L. Gollin, PhD—medical anthropology and ethnobotany
- A. Grandinetti, PhD—epidemiology and biostatistics
- R. T. Johnson, EdD—interdisciplinary education
- G. Parkes, PhD—environmental philosophies, psychology and ethics

The Academic Program

The Division of Ecology and Health is fostering an integrated, transdisciplinary, research-based, ecological perspective on health. The role of ecosystems in human health is a critical area of scientific research and education worldwide. The recently established Ecology and Health program addresses the connections between ecosystem health and human well-being.

Faculty are engaged in research and action focused on the well-being of Hawai'i's unique local communities and tropical ecosystems. The active research program addresses the infrastructural factors that sustain community health, seeking to identify the best means for supporting the beneficial factors and remedying those that are detrimental. Research activities involve participation in and support of informal and formal networks in multi-ethnic, low income communities for the purpose of building capacity and improving ecosystem health.

Educational activities are focused on the integration of ecology and health in the MD curriculum, including research opportunities for students to fulfill their 2-year research project requirement, and graduate assistantships for masters and doctoral students in a variety of disciplines. Medical and graduate students have the opportunity to enroll in courses and conduct research under the supervision of division of ecology and health faculty in conjunction with degree program in other departments and schools.

Family Practice and Community Health

The Physician Center at Mililani
95-390 Kuahelani Avenue
Mililani, HI 96789
Tel: (808) 627-3235
Fax: (808) 627-3262

Faculty

N. A. Palafox, MD, MPH (Chair)—family practice and community health
K. A. Bauman, MD, MPH—family practice and community health
S. P. Berry, MD—family practice and community health
P. J. Bohnert, MD—psychiatry
L. E. Buenconsejo, MD—family practice and community health
T. H. Chen, MD—family practice and community health
P. R. Donnelly, MD—family practice and community health
M. E. Kaanoi, MD—family practice and community health
K. K. Kau, MD—family practice and community health
M. LaBotz, MD—family practice, sports medicine
G. Maskarinec, PhD—medical anthropology
J. S. Minami, MD—family practice and community health
M. Myers, PhD—psychology
A. W. Nichols, MD—family practice, sports medicine
R. J. Nitta, MD—family practice and community health
O. Pishchalenko, MD—geriatric medicine
R. D. Reddy, MD—family practice and community health

S. Riklon, MD—family practice and community health
K. M. Withy, MD—family practice and community health
S. Yamada, MD, MPH—family practice and community health

Degree Offered: MD

The Academic Program

The family practice and community health (FPCH) department is a cooperative effort whose faculty members are involved with community partnerships in health professions education. Teaching goals are based on the assumption that primary medical care includes not only high quality, accessible, and acceptable care for episodes of illness, but also a concern for the promotion of a healthy lifestyle and environment for the population served.

Medical-student instruction focuses on basic conceptual tools and practical preceptorships with people providing primary care.

Geriatric Medicine

John A. Burns School of Medicine
347 N. Kuakini Street- HPM-9
Honolulu, Hawai'i 96817

Faculty

P. L. Blanchette, MD, MPH (Chair)—geriatric medicine
J. J. Buzanoski, MD—geriatric medicine
J. D. Curb, MD, MPH—clinical epidemiology
B. Flynn, MD, MPH—geriatric medicine
K. H. Masaki, MD—geriatric medicine
D. Minaai, MD—geriatric medicine
G. Morrison, MD—geriatric medicine
H. Petrovitch, MD—clinical epidemiology
J. Pietsch, JD—law and ethics in geriatric medicine
A. Pishalenko, MD—geriatric medicine
B. L. Rodriguez, MD, PhD—clinical epidemiology
E. Somogyi-Zalud, MD—geriatric medicine
D. Suzuki, MD, MPH—geriatric medicine
M. K. Tanabe, MD—geriatric medicine
L. A. Tom, MD—geriatric medicine
V. G. Valcour, MD—geriatric medicine
S. Williams, MD—geriatric medicine
B. Wong, MD—geriatric medicine

Degree Offered: MD

The Academic Program

Geriatric medicine is dedicated to the care of older people and to healthy aging throughout life, so that the frailties and disabilities common in older years can be prevented. To provide comprehensive care, geriatrics is often interdisciplinary, and clinical instruction takes place in a wide variety of settings, including outpatient, acute hospital, nursing home, retirement, home care and rehabilitation settings. The core of the curriculum includes aspects of internal medicine and pharmacology,

including psychiatry, adult development, family medicine, neurology, urology, gynecology, and rehabilitation medicine.

The Geriatric Medicine Program provides education for: medical students; residents in internal medicine, family practice, general surgery, orthopedics, pediatrics, ob-gyn and psychiatry; fellows in geriatric medicine and geriatric psychiatry; and practicing physicians. The fully accredited Geriatric Medicine Fellowship Program is for physicians who are graduates of either internal medicine or family practice residency programs. The first year of fellowship training is designed to lead to eligibility for the certificate of added qualifications (CAQ) in geriatric medicine. Additional years of fellowship are devoted to research, consultative medicine, medical education, medical administration, and concurrent advance degrees.

The Geriatric Medicine Program is involved in an extensive array of funded research programs, thus providing training and experience in research for students at all levels.

Medical History

Biomedical Science T-101
1960 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8287
Fax: (808) 956-5506

The Division of Medical History (MDHX) examines the general area of medical history, particularly that of the Pacific and Asia. It is strengthened by a growing collection of material in the Hawai'i Medical Library.

Medical Technology

Biomedical Science C-206
1960 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8557
Fax: (808) 956-5506
Web: www.hawaii.edu/medtech/Medtech.html

Faculty

P. L. Taylor, MS (Chair)—medical technology
N. N. Ebisu, BS—medical technology
K. K. Hamamoto, BS—medical technology
D. Y. Teshima, MPH—medical technology
*A. G. Theriault, PhD—clinical chemistry

Degree and Certificate Offered: BS in medical technology,
Post-baccalaureate Certificate for Clinical Training

The Academic Program

Medical technology (MEDT) is a health-care profession in which medical technologists (clinical laboratory scientists) perform laboratory procedures used for the promotion of health and the diagnosis, monitoring, and treatment of diseases. Technical skills needed to carry out the tasks include microscopy, venipuncture, manipulation of various labware, and operation of automated instruments. Results of these procedures are essential to the delivery of quality health care. The field is broad and involves several disciplines: chemistry, hematology, immunohematology (blood banking), immunology, and microbiology.

Medical technology is a constantly evolving profession. The continued development of the health-care industry and the emergence of other career opportunities have sustained the demand for clinical laboratory scientists. Employment opportunities exist in hospitals, clinics, physician's offices, reference laboratories, DNA labs, research, education, forensic medicine, industry, consulting, sales, marketing, veterinary medicine, and many more areas.

Admission Requirements

Courses listed in the first two years of the curriculum are required before admission to the medical technology program. Clinical laboratory scientists perform various procedures which directly impact patient care, so it is important that all applicants be able to perform certain essential functions (technical standards). With appropriate accommodations, if needed, everyone must be able to perform the activities listed below. Additional professional skills are taught in classes after admission.

- Manipulate labware to transfer or prepare reagents and samples (e.g., pipet, charge hemocytometer, prepare blood smear)
- Operate simple instruments according to instructions (e.g., cell counter, centrifuge, spectrophotometer)
- Perform microscopic examinations on various specimens and report the results (e.g., leukocyte differential count, cell morphology, urinary sediments)
- Follow written or verbal directions to perform laboratory tests and report results

Applicants are assessed through performance in MEDT and other courses, an interview, an essay, and personal evaluations. Academic record, interests and aptitude, communication skills, scientific orientation, and personal traits are also considered.

Other Requirements

Medical technology majors are required to have professional liability insurance, which costs about \$40 per year. Also, immunization for Hepatitis B virus is highly recommended.

Advising

Students are encouraged to see a medical technology adviser as soon as possible and prior to each registration period. Appointments can be made by contacting the division office.

Clinical Training

Clinical training at affiliated clinical facilities follows graduation. Positions at our affiliated sites are limited, but there are other accredited facilities in the continental United States. A certificate is awarded at the completion of this training.

Accreditation and Affiliations

The program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences.

Clinical affiliations are with the Blood Bank of Hawai'i, Hawai'i State Department of Health, Diagnostic Laboratory Services, Hilo Medical Center, Kaiser Permanente Medical Center, St. Francis Medical Center, Tripler Army Medical Center, Castle Medical Center, Clinical Laboratories of Hawai'i, Kapi'olani Medical Center, Kaua'i Veterans Memorial Hospital, Kona Community Hospital, Kuakini Medical Center, Maui Memorial Hospital, Straub Clinic and Hospital, Tri-City Medical Center, University Health Services Mānoa, Wahiawa General Hospital, Wai'anae Coast Comprehensive Health Center, and Wilcox Memorial Hospital.

Certification and Licensure

After clinical training, students are eligible to take a national certification exam. In Hawai'i, state licensure is also required.

Undergraduate Study**Bachelor's Degree****Requirements**

- Complete the degree requirements that satisfy the University's General Education Core requirements and program requirements
- Earn a minimum cumulative GPA of 2.0
- Submit by the specified deadline an application for graduation to the Cashier's Office during the semester preceding the awarding of the degree

Curriculum for Medical Technology**First Semester**

- CHEM 161/161L (3/1)
- BIOL 171/171L (3/1)
- ENG 100 (3)
- †MEDT 151 (2)
- Core/Language/Electives

Second Semester

- CHEM 162/162L (3/1)
- PHYS 151/151L (3/1)
- HIST 151 (3)
- MATH 241 (4)
- Core/Language/Electives

Third Semester

- CHEM 272/272L (3/2)
- †MEDT 251 (2)
- PHYS 152/152L (3/1)
- HIST 152 (3)
- Core/Language/Electives

Fourth Semester

- CHEM 274/274L (3/2)
- MICR 351/351L (3/2)
- SP 151 (3) or SP 251 (3)
- Core/Language/Electives

Fifth Semester

- PHYL 301 (4)
- BIOC 441 (4)
- †MEDT 301 (3)
- Core/Language/Electives

Sixth Semester

- PHYL 302 (4)
- †MEDT 471 (4)
- †MEDT 302 (3)
- †MEDT 431 (3)
- Core/Language/Electives

Summer Session

- †MEDT 366 (2)

Seventh Semester

- †MEDT 331 (1)
- †MEDT 451 (3)
- †MEDT 457/457L (3/2)
- †MICR 461/461L (3/2)

Eighth Semester

- †MEDT 464 (3)
- †MEDT 458/458L (3/2)
- †MICR 463/463L (3/2)
- Core/Language/Electives

Post-baccalaureate Study**Certificate for Clinical Training**

- †MEDT 591 (26)

†Note: Grade of C or equivalent is required for courses highlighted with a dagger (†).

Medicine

University Tower, Queen's Medical Center
1356 Lusitana Street, 7th Floor
Honolulu, HI 96813
Tel: (808) 586-2910
Fax: (808) 586-7486
Web: medworld.biomed.hawaii.edu/

Faculty

J. E. Hastings, MD (Chair)—general internal medicine, cardiology
M. A. Antonelli, MD—general internal medicine, rheumatology
R. F. Arakaki, MD—endocrinology
S. Au, MD—neurology
R. D. Bart, MD—neurology
E. F. Bello, MD—infectious disease
R. K. Blaisdell, MD—hematology
J. Brown, MD—infectious disease
C. S. Chan, MD—general internal medicine
D. Chow, MD—general internal medicine, infectious disease
C. S. Hew, MD—general internal medicine
C. M. Higuchi, MD—oncology
J. Jacobs, MD—general internal medicine, family practice
L. Jones, MD—general internal medicine
R. T. Kasuya, MD—general internal medicine, inpatient care
M. K. Mau, MD—endocrinology
J. S. Melish, MD—endocrinology
M. Nagoshi, MD—general internal medicine
I. Nip, MD—general internal medicine
J. Onopa, MD—general internal medicine
G. A. Rediger, MD—general internal medicine
D. Sakai, MD—general internal medicine
I. J. Schatz, MD—cardiology
E. N. Shen, MD—cardiology
B. Shiramizu, MD—pediatrics, hematology, oncology
C. M. Shikuma, MD—infectious disease, AIDS
B. A. Soll, MD—pulmonary medicine
P. Sousa, MD—general internal medicine
K. N. Sumida, MD—hematology
E. K. Tam, MD—pulmonary
S. Y. Tan, MD—endocrinology
A. Tice, MD—general internal medicine, infectious disease
N. Tsai, MD—gastroenterology
M. Watters, MD—neurology
M. Yee, MD—neurology
B. Younozsai, MD—general internal medicine

Degree Offered: MD

The Academic Program

The Department of Medicine (MED) assists the student in integrating learning in the humanities, social sciences, and the physical and biological sciences by providing progressive experiences in clinical medicine. Early attention is given to the student's acquisition of habits of continuing self-education and basic clinical skills. These skills include collection and evaluation of data, clinical problem solving, and consideration and

perceptiveness in dealing with patients, their families, and other members of the health team.

The department directs integrated residency training programs in community hospitals. The close association of students and graduate physicians in these programs affords valuable learning experiences. Research in selected clinical fields, for which facilities are available, is fostered.

Obstetrics, Gynecology, and Women's Health

Kapi'olani Medical Center for Women
and Children
1319 Punahou Street, Room 824
Honolulu, HI 96826
Tel: (808) 956-7457
Fax: (808) 955-2174

Faculty

R. T. Nakayama, MD (Chair)—obstetrics and gynecology
T. C. Aeby, MD—obstetrics and gynecology
M. L. Bartholomew, MD—maternal fetal
S. S. Brizzolara, MD—obstetrics and gynecology
M.E. Carney, MD—gynecology oncology
LA. C. Frattarelli, MD—obstetrics and gynecology
Y. Futatsugi, MD—internal medicine/pediatrics
M. K. Y. Hiraoka, MD—obstetrics and gynecology
G. I. Hirata, MD—maternal fetal
T. T. F. Huang, PhD—reproductive endocrinology, anatomy
L. E. Kamemoto, MD—obstetrics and gynecology
B. Kessel, MD—obstetrics and gynecology/reproductive endocrinology and infertility
D. S. Kim, MD—obstetrics and gynecology
C. K. Y. Kimura, MD—internal medicine/pediatrics
T. S. Kosasa, MD—obstetrics and gynecology/reproductive endocrinology and infertility
G. G. Li, MD—obstetrics and gynecology
J. D. Lowry, MD—family practice
A. F. Lumeng, MD—internal medicine/pediatrics
L. Millar, MD—obstetrics and gynecology, maternal fetal
W. J. Parker, MD—obstetrics and gynecology
S. D. Sharma, MD—obstetrics and gynecology
J. K. Silva, MD—maternal fetal
K. Y. Terada, MD—gynecology oncology
B. K. Uyeno, MD—internal medicine/pediatrics
K. KC. Vu, MD—obstetrics and gynecology/reproductive endocrinology and infertility
N. E. Winn, MD—gynecology
I. Zalud, MD—maternal fetal

Degree Offered: MD

The Academic Program

Instruction in obstetrics and gynecology (OBGN) is divided into four general areas: basic clerkship, student electives, residency training, and continuing medical education. The

main objectives of the basic clerkship during the third year is to give students an overall perspective of the entire field, an in-depth knowledge of women's health care, and an ability to perform those technical skills necessary for the care of women. The elective experiences are developed to allow interested students the opportunity to acquire detailed knowledge and experience in women's health care or within specific areas of care.

The department directs a residency training program for medical graduates who desire specialty training in the field. The MD education program is closely integrated with residency training to maintain communication and learning experience throughout training. The department has an active research program in the clinical area of human reproduction. The department is divided into the following divisions: ambulatory care, education, endocrinology-infertility, fetal-maternal medicine, gynecology, obstetrics, oncology, urogynecology, and research.

Pathology

Biomedical Science D-208
1960 East-West Road
Honolulu, HI 96822
Tel: (808) 956-8860
Fax: (808) 956-5506

Faculty

J. M. Hardman, MD (Chair)—neuropathology and laboratory medicine
Y. Hokama, PhD—immunopathology
B. J. Kaya, MD—neuropathology
S. T. Komura, MD—general pathology
*M. L. Nelson, PhD—environmental influences on growth and development of endocrine systems, clinical anatomy
E. A. Porta, MD—liver disease
K. S. Thompsom, MD—pediatric pathology
*M. Volini, PhD—molecular mechanisms of biological regulatory processes; mechanism, function, and biochemical genetics of enzymes; signal transduction to the mitochondria
H. Y. Yang, MD, PhD—kidney and surgical pathology, electron microscopy

Degree Offered: MD

The Academic Program

Pathology (PATH) is the study of disease. Instruction in pathology is open to undergraduate, graduate, and medical students and residents. All medical students may elect to take PATH 515 as a part of the problem-based learning curriculum. PATH 541 provides essential autopsy experience for all third- and fourth-year medical students, and residents may enroll in one or more of PATH 545, 670, and 699. Instruction in laboratory medicine for the practicing physician, clinical pathology, anatomic pathology, clinical immunology, and pathology of aging, nutrition, and/or alcoholism is offered.

The department directs an integrated residency program in pathology. Residents are based at Kaiser Hospital, Queen's Medical Center, and St. Francis Hospital and participate in the training of medical students and residents alike. Clinical faculty come from all the community hospitals and provide gross and microscopic specimens for demonstration and clinico-pathologic correlations for medical students and residents. In addition, they participate in seminars and give lectures along with the full- and part-time faculty.

Pediatrics

Kapi'olani Medical Center for Women
and Children
1319 Punahou Street, Room 742
Honolulu, HI 96826
Tel: (808) 956-6525
Fax: (808) 949-4232

Faculty

R. C. Rudoy, MD (Chair)—infectious disease
K. M. Ash, MD—neonatology
V. Balaraman, MD—neonatology
T. M. Bane-Terakubo, MD—pediatrics
R. D. Bart, MD—neurology
C. K. Bell, MD—general /child psychology
R. J. Bidwell, MD—adolescent medicine
R. B. Boychuk, MD—critical care/emergency medicine
A. G. Britten, MD—critical care
C. C. Chan-Nishina, MD—pediatrics
M. O. Chang, MD—pediatrics
R. K. S. Chang, MD—critical care
D. C. Chow, MD—pediatrics
D. C. Derauf, MD—pediatrics
D. Easa, MD—neonatology
G. Erdem, MD—infectious disease
F. J. Garcia, MD—emergency medicine
D. W. Glaser, MD—hematology/oncology
A. P. Guerrero, MD—general/child psychiatry
B. M. Halm, MD—emergency medicine
S. L. Hammar, MD—adolescent medicine
C. Hirai, MD—neonatology
A. S. Inaba, MD—emergency medicine
L. K. Iwashi, MD—developmental pediatrics
L. M. Iwamoto, MD—neonatology
S. Kuo, MD—neonatology
D. K. Kurahara, MD—pediatric rheumatology
D. K. M. Kwock, MD—infectious disease
M. S. I. Kyono, MD—pediatrics
W. T. Kyono, MD—hematology/oncology
M. T. Lee, MD—pediatrics
S. W. H. Loo, MD—neonatology
D. Medeiros, MD—hematology/oncology
M. E. Melish, MD—infectious disease
M. S. Michels, MD—pediatrics
M. J. Moore, MD—critical care
D. T. Murai, MD—neonatology

J. E. Musgrave, MD—pediatric nephrology
 G. S. Naguwa, MD—pediatrics
 L. Y. Nakagawa, MD—emergency medicine
 K. T. Nakamura, MD—neonatology
 B. M. Nishikawa, MD—pediatrics
 J. K. Okamoto, MD—developmental/behavioral pediatrics
 M. E. Patrinos, MD—neonatology
 E. C. Pohlson, MD—pediatric surgery
 V. Reddy, MD—pediatric cardiology
 V. L. Schneider, MD—pediatrics
 W. K. T. Shim, MD—pediatric surgery
 B. T. Shiramizu, MD—hematology/oncology
 C. C. J. Sia, MD—pediatrics
 M. Uehara, MD—developmental pediatrics
 P. A. Vanderford, MD—critical care
 R. K. Wada, MD—hematology/oncology
 R. W. Wilkinson, MD—hematology/oncology
 C. M. Wilson, MD—gastroenterology
 A. Winkes, MD—pediatrics
 R. D. Wong, MD—infectious disease
 K. A. Woodruff, MD—hematology/oncology
 F. Y. Yamamoto, MD—allergy/immunology
 K. S. Yamamoto, MD—pediatric rheumatology
 L. G. Yamamoto, MD—emergency medicine
 R. T. Yanagihara, MD—infectious disease

Degree Offered: MD

The Academic Program

Pediatrics (PED) is the specialty of medical science concerned with the physical, emotional, and social health of children from birth to young adulthood. The discipline deals with biological, social, and environmental influences on the developing child and with the impact of disease and dysfunction on development.

The Department of Pediatrics offers specialty training for the medical student, as well as post-MD residency training and subspecialty experience.

Pharmacology

Lē'ahi Hospital
 3675 Kilauea Ave., Rm 16P
 Honolulu, HI 96822
 Tel: (808) 956-8936
 Fax: (808) 956-3165

Faculty

*G. C. Whittow, PhD (Acting Chair)—thermoregulation
 *E. Furusawa, MD, PhD—viral chemotherapy
 *S. Shibata, MD, PhD—cardiovascular, smooth muscle pharmacology

Affiliate Graduate Faculty

C. F. T. Uyehara, PhD—developmental and cardiovascular pharmacology

The Academic Program

Pharmacology (PHRM) is a medical science concerned with the effects of drugs and chemicals on living organisms. The subject embraces a knowledge of the chemistry, actions, absorption, fate, excretion, and uses of drugs. Traditionally, the greatest interest in drugs has been with the health professions. Today, however, a knowledge of pharmacology and the allied field of toxicology is relevant to all segments of society. It is important that the general public acquire a better understanding of the value, limitations, and potentially harmful effects of drugs and chemicals.

The general objectives and functions of the Department of Pharmacology include (a) teaching the discipline to both health professionals and nonprofessionals, (b) training graduate students, (c) conducting scholarly research in the discipline, and (d) participating in community-service activities that require the expertise of pharmacologists.

Physiology

Biomedical Science T-608
 1960 East-West Road
 Honolulu, HI 96822
 Tel: (808) 956-8640
 Fax: (808) 956-9722

Faculty

*G. C. Whittow, PhD (Chair)—thermoregulation
 *J. C. Chen, MD—cardio-pulmonary surgical research
 *J. R. Claybaugh, PhD—body fluid regulation
 *F. G. Duhaylongsod, MD—cardiac-surgical research
 *H. L. Gillary, PhD—human evoked potentials
 *D. A. Lally, PhD—exercise physiology
 *Y. C. Lin, PhD—cardiovascular, hyperbaric physiology
 *R. M. Smith, PhD—free radical biology
 *C. F. T. Uyehara, MD—developmental /cardiovascular pharmacology

Cooperating Graduate Faculty

*C. W. Weems, PhD—reproductive endocrinology

Affiliate Graduate Faculty

G. H. Hartung, PhD—exercise physiology

Degrees Offered: MS in biomedical science (physiology), PhD in biomedical science (physiology)

The Academic Program

Physiology (PHYL) is the study of the function of animals, i.e., how they work. As part of the School of Medicine, the department places emphasis on human physiology in its teaching. Many of the department's courses are needed by students seeking health-related careers, such as dental hygiene, dentistry, medical technology, medicine, nursing, nutrition,

physical therapy, public health, and the social sciences. Graduate students in physiology may elect to conduct research at the molecular or cellular level, on organs such as the lungs, or on the whole animal or person. Higher degrees in physiology prepare students for teaching careers in universities, community colleges, and high schools, as well as for research careers at universities, hospitals, government laboratories, and large pharmaceutical companies. Other students obtain positions in sports-training activities or in health and fitness programs in hospitals or private businesses.

Graduate Study

The PhD and MS Plan A programs require a combination of course work and original research, the latter forming the basis of the student's thesis or dissertation. Both degrees may serve as an introduction to a research career. The MS Plan B program is also offered.

Applicants must submit three letters of recommendation together with either GRE or MCAT scores. All applicants are expected to have adequate backgrounds in biology, chemistry, mathematics, molecular biology, physics. The course requirements of admitted students vary with their degree and specialization, but all candidates for the MS and PhD degrees must take a written qualifying examination.

In addition to laboratories in the Biomedical Sciences building, there are special facilities for research in endocrinology at Tripler Army Medical Center.

Master's Degree

The MS (Plan B) degree serves as training for teaching positions at the high school, community college, or four-year college level. It may also be a prelude to a medical or dental education. The MS concentration in exercise physiology provides adequate preparation for a career in sports medicine and training and in health and fitness programs in hospitals and private businesses.

Requirements

In addition to passing a written qualifying examination, candidates for the MS Plan B degree are required to prepare a written paper and give an oral presentation as well as fulfilling course requirements (total of 30 credits). Candidates for the MS Plan A degree must submit an acceptable outline of their proposed thesis research, submit and defend a thesis, and fulfill all course requirements. The MS Plan A degree requires a combination of course work and original research, the latter forming the basis of the student's thesis. In addition to qualifying students for opportunities available to MS Plan B students, the MS Plan A may serve as an introduction to a research career.

Doctoral Degree

PhD graduates usually obtain postdoctoral positions elsewhere as further preparation for a career in teaching and research at the university level.

Requirements

After they have passed their written qualifying examination, PhD candidates must take a written qualifying examination and an oral comprehensive examination and submit an acceptable outline of their proposed dissertation research. They must also submit and defend their dissertation.

Psychiatry

University Tower, Queen's Medical Center,
4th Floor
1356 Lusitana Street
Honolulu, HI 96813
Tel: (808) 586-2900
Fax: (808) 586-2940

Faculty

N. Andrade, MD (Chair)—general adult psychiatry
I. Ahmed, MD (Vice-Chair)—general adult and geriatric psychiatry; consult-liaison psychiatry
R. Antone—AIDS education
N. Anzai, MD—child and adolescent psychiatry
A. Arensdorf, MD—child and adolescent psychiatry
A. Austria, MD—general adult psychiatry
C. Bell, MD—child and adolescent psychiatry and general pediatrics
T. Bowen, MPH—AIDS education
J. Briskin, MD—general adult and forensic psychiatry
A. Buffenstein, MD—general adult psychiatry
B. Carlton, MD—adult and adolescent psychiatry
W. Char, MD—adult and child psychiatry
D. Ching, MD—child and adolescent psychiatry and general pediatrics
A. Darmal, MD—adult, child and adolescent psychiatry
D. Friar, MD—general adult and addictions psychiatry
S. Gadam, MD—general and geriatric psychiatry
D. Goebert, DrPh—public health and epidemiology
E. Gramlich, MD—general psychiatry
A. Guerrero, MD—child and adolescent psychiatry and general pediatrics
W. Haning, MD—general adult and addictions psychiatry
E. Hishinuma, PhD—behavioral research and statistics
S. Izutsu, PhD—clinical psychology
K. Jones, MD—adult, child and adolescent psychiatry
S. P. Kim, MD—child, adolescent and forensic psychiatry
T. Lee, MD—child and adolescent psychiatry
L. Lettich, MD—general adult, geriatric and addictions psychiatry
C. Lyden, MPH, MBA—AIDS education
L. Matsukawa, MD—general adult psychiatry
D. Matthews, MD—forensic psychiatry
M. McGrath, MD—general adult psychiatry
J. Minville, MD—general and geriatric psychiatry
L. Nahulu, MD—child and adolescent psychiatry
S. Nishimura, MSW—behavioral research
C. Ona, MD—general adult psychiatry
V. Patel, MD—general psychiatry
D. Ponce, MD—child and adolescent psychiatry

E. Roberson, MD—general adult and geriatric psychiatry
 A. Serrano, MD—child and adolescent psychiatry
 D. Smith, MD—general adult and forensic psychiatry
 R. Snead, MD—child and adolescent psychiatry
 J. Streltzer, MD—general adult and addictions psychiatry
 D. Strickland, MD—general and geriatric psychiatry
 J. Takeshita, MD—geriatric and consult-liaison psychiatry
 A. Taniguchi, MD—general adult psychiatry
 D. Thompson, MD—general psychiatry
 W. S. Tseng, MD—general adult psychiatry
 J. Waldron, PhD—AIDS education
 A. Yates, MD—child and adolescent psychiatry
 P. Yoshioka, BS—healthcare finance, planning and administration
 R. Young, MD—adult, child and adolescent psychiatry
 N. Yuen, MD—child and adolescent psychiatry

Degree Offered: MD

The Academic Program

Psychiatry (PSTY) is a branch of medicine that derives its theoretical foundations from the neurosciences, as well as the psychological and social sciences. The investigation of the biological basis of mental illness is one of the most exciting areas of medical research today and is revolutionizing our understanding of mind-body relationships.

The Department of Psychiatry contributes to the overall mission of the School of Medicine by providing leadership in psychiatric training, teaching, research, and services in Hawai'i, Asia, and the Pacific Basin. The department is committed to expanding knowledge within a cross-cultural and bio-psycho-social framework.

Traditional courses have been replaced with the problem-based learning curriculum. Psychiatric issues are addressed throughout the curriculum but are particularly emphasized in the second year during the brain and behavior sub-unit of Unit IV and in the third year during the Unit VI Psychiatry Clerkship.

Public Health Sciences and Epidemiology

Biomedical Science D-204
 1960 East-West Road
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 E-mail: ogsas@hawaii.edu
 Web: www.hawaii.edu/ogsas

Faculty

*F. D. Miller, MS, MPH, PhD (Acting Chair)—epidemiology
 *D. A. Asuncion, MPH—social behavioral health sciences/Center on Aging
 *G. Baruffi, MD, MPH—maternal and child health
 *K. L. Braun, MPH, DrPH—social behavioral health sciences/Center on Aging

M. Cheang, MPH, DrPH—social behavioral health sciences/Center on Aging
 *J. S. Grove, MS, PhD—biostatistics
 A. W. Guillory, MS, PhD—maternal and child health
 A. Imrie, PhD—epidemiology
 T. Juday, PhD—epidemiology
 H. S. Karel, MPH, PhD—social behavioral health sciences/Center on Aging
 *A. R. Katz, MD, MPH—epidemiology
 *J. Maddock, MA, PhD—social epidemiology
 *C. Nigg, PhD—epidemiology
 *G. N. Ouye, MPH—social behavioral sciences/Center on Aging
 *W. K. Patrick, MBBS, MPH, PhD—international health
 B. L. Rodriguez, MD, MPH, PhD—epidemiology
 V. Tanji, MSLS—librarian
 *F. Untalan, MSW, MPH, DSW—maternal and child health and social work
 *C. Waslien, MSc, PhD—PH nutrition
 *A. Zir, MPH—social behavioral health sciences/Center on Aging

Cooperating Graduate Faculty

J. Douglas, PhD—microbiology
 K. Glanz, MPH, PhD—Cancer Research Center of Hawai'i
 M. T. Goodman, MPH, PhD—epidemiology
 C. Gotay, MPH, PhD—Cancer Research Center of Hawai'i
 L. Kolonel, MD, MPH, PhD—Cancer Research Center of Hawai'i
 L. LeMarchand, MD, MPH, PhD—epidemiology
 G. Maskarinec, MD, MPH—Cancer Research Center of Hawai'i
 A. Nomura, MD, DrPh—Cancer Research Center of Hawai'i

Degrees and Certificates: MPH, MS in public health, PhD in biomedical sciences biostatistics-epidemiology

The Academic Program

Epidemiology

Epidemiology is the study of the distribution and determinants of health and disease in human populations. Epidemiology provides clues to their causes and their modes of transmission and acquisition. Epidemiologic methods, including biostatistical methods, are essential for evaluating the effectiveness of disease control measures. Epidemiology is thus the science of public health.

The master's program generally requires two years of combined study and field work but may vary depending on academic background, experience and academic goals of the student. The curriculum provides both breadth and depth. It instills knowledge and skills in epidemiologic methods, biostatistics, the collection and analysis of epidemiologic data, and the epidemiology of chronic and infectious diseases. Each student will have an academic adviser and committee with whom the student will work closely in scheduling and completing the academic requirements of the program.

Students are required to take advanced level training in chronic and infectious disease epidemiology, advanced biostatistics, and research design. There is opportunity for students to choose from epidemiology electives in the following

areas: nutrition, genetics, environment, aging, AIDS, cancer and cardiovascular diseases. Course work in specialized statistical applications is also available. Students participate in on-going epidemiological research programs throughout the university during their fieldwork assignment or thesis research.

The curriculum includes a core of required basic and public health offerings that cover such topics as environmental health, health care delivery and organization, health education, and health behavior. The courses provide background and breadth in public health. A capstone paper and presentation during the final term integrates the MPH experience. The MS degree follows a similar but more research-oriented curriculum and requires the completion of a thesis.

Gerontology

Never before in human history have so many individuals lived so long. This phenomenon has implications for individuals, who experience a greater range of biological, psychological, and social changes over a lengthening life span. It also has implications for families, communities, and societies that are influenced by, and must adjust to, a growing number and proportion of older adults. Students learn about biological and social theories of aging, interventions that can increase the likelihood of successful aging, and skills required for planning and evaluating gerontology problems.

The MPH in gerontology general requires two academic years of combined study and field work, but this may vary depending on academic background and experience of the student. The curriculum includes courses in public health foundations (epidemiology, biostatistics, social and behavioral determinants of health, health policy, and environmental health), needs assessment, program planning, and evaluation, along with courses in gerontology. Elective courses are available in other departments (e.g., law, nursing, psychology, social work, sociology) as well as in public health. Course assignments provide opportunities to apply knowledge, to practice skills, to enhance computer literacy, and to improve oral and written communications. Opportunities to participate in university-based and community-based research and service programs are provided.

Gerontology students complete a 240-hour field practicum, a culminating seminar, a final scholarly paper, a portfolio of work, and an oral examination. Students with extensive background and/or training may waive and/or double-count selected courses. Each student will have an academic adviser and committee to guide the scheduling and completion of the academic requirements of the program.

Advising

Information, applications, and initial advising about degree programs in public health are available from the assistant dean for student services at the Office of Graduate Student Academic Services, Biomedical Science D-204, 1960 East-West Road, Honolulu, HI; tel: (808) 956-8267; fax: (808) 956-9174; e-mail: ogsas@hawaii.edu; Web site: www.hawaii.edu/ogsas.

Graduate Study

Applicants will be expected to have the academic background, experience, interests and commitment for professional training in epidemiology. The academic preparation should include courses in biology, microbiology, immunology, and chemistry as well as course work covering calculus. Experience in an applied health related field or biomedical research is preferred.

Master's Degree

MPH students follow a Plan B (non-thesis) program. MS students follow a Plan A (thesis) degree program.

MS Requirements

- Minimum of 30 credit hours for epidemiology, 18 or more in courses numbered 600–798
- One graduate seminar
- Foundation courses
- 6 credit hours of thesis research (PH 700)
- Other courses as designated by the student's thesis committee
- Final oral examination conducted by the thesis committee

Most students will exceed the 30-credit-hour minimum to meet their educational objectives.

MPH Requirements

- Minimum of 30 credit hours for epidemiology or 34–40 credit hours for gerontology, 18 or more in courses numbered 600–798
- One graduate seminar
- Required and core courses
- Other courses as designated by the student's program committee
- Field training experience (PH 791)
- Final competency assessment

Most students will exceed the 30-credit-hour minimum to meet their educational objectives.

Doctoral Degree in Biomedical Sciences (Biostatistics-Epidemiology)

Programs of study leading to the doctor of philosophy in biomedical sciences (not public health) are administered by faculty in the Department of Public Health Sciences and Epidemiology and other departments in the School of Medicine. The concentration of biostatistics-epidemiology is based in the Department of Public Health Sciences and Epidemiology.

Candidates who successfully complete the doctoral program in biostatistics-epidemiology will be able to teach and to provide consultative service in basic aspects of both epidemiology and biostatistics. In addition, they will be able to conduct independent research in their areas of concentration.

Applicants must have an acceptable master's degree in biostatistics, epidemiology, or closely related fields or a degree providing comparable background. The Graduate Record

Examination (General Test) and three letters of recommendation are required for application.

A prospective applicant is urged to communicate with a faculty member in his or her area of interest or with the program's chair and to be accepted as an applicant by a faculty member prior to admission. The faculty member involved will serve as an interim adviser upon the individual's admission into the PhD program.

All candidates take a qualifying examination during their first year of enrollment to ascertain aptitude, strengths, and weaknesses in their basic preparation. The test results will be used in determining subsequent course work. This will be followed by further course work, a comprehensive examination, and dissertation research. Candidates should refer to the *University of Hawai'i at Mānoa Catalog* for procedural and substantive details.

A few teaching and research assistantships are available for degree candidates. In addition, there are a limited number of tuition waivers. East-West Center fellowships are available for qualified candidates.

Honors and Awards

Joseph E. Alicata Award in Public Health
Elmer J. Anderson Professional Travel Award
Koseki Award for Excellence in Community Service
Pauline Stitt Outstanding Student Award

Speech Pathology and Audiology

1410 Lower Campus Road
Honolulu, HI 96822
Tel: (808) 956-8279
Fax: (808) 956-5482

Faculty

*J. T. Yates, PhD (Chair)—audiology
*C. Canady, PhD—speech-language pathology
C. Fleming, MS—speech-language pathology
*S. Harned, PhD—speech-language pathology
E. Hirohata, MS—audiology
K. Hirohata, MS—speech-language pathology
*E. Isaki, PhD—speech-language pathology
C. Kikuta, MS—speech-language pathology
J. K. Oshiro, MS—speech-language pathology
*K. Pugh, PhD—audiology
P. Seymour, MS—speech-language pathology
B. Ward, MS—speech-language pathology
*R. Weirather, PhD—speech-language pathology
*L. Weiss, PhD—speech-language pathology

Cooperating Graduate Faculty

A. Peters, PhD—linguistics

Adjunct Faculty

K. Campbell, MS—audiology

D. Craven, MA—speech-language pathology
D. Kau, MS—audiology
P. Mashima, MS—speech-language pathology
L. Nakashima, MS—deaf education

Degrees Offered: BS in speech pathology and audiology, MS in speech pathology and audiology

The Academic Program

Speech pathology and audiology (SPA) are interrelated disciplines that deal with disorders of speech-language and/or hearing. Audiology is the study of human hearing and the diagnosis and treatment of hearing-related disorders. Speech-language pathology is the study of human communication and its developed or acquired disorders. Through these two disciplines students have the opportunity to deal with a wide variety of disabilities and disorders affecting people of all ages. Speech pathologists and audiologists treat children and adults in public and private practice in a wide variety of settings. A recent report by the federal government projected the combined fields of audiology and speech pathology as one of the fastest growing of the next decade.

The program for speech pathology and audiology at the University of Hawai'i is recognized nationally for its quality and is accredited in both areas. It is one of the few programs in the United States featuring preparation in a multilingual/multicultural environment.

Accreditation

The Division of Speech Pathology and Audiology is accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association in Speech Pathology and Audiology.

Advising

Students considering the major may call the Division of Speech Pathology and Audiology to schedule an appointment with an adviser.

Undergraduate Study

Bachelor's Degree

Students pursuing a BS degree in speech pathology and audiology should enroll in the Colleges of Arts and Sciences to complete Mānoa's General Education Core curriculum and other specific requirements during their first two years of residence. Upon completion of at least 54 credit hours with a minimum GPA of 2.6, the student should apply to the Division of Speech Pathology and Audiology, School of Medicine, by filing a College and Curriculum Transfer Request form. This form may be filed at any time except during registration periods. For students applying after completion of more than 54 credit hours, the minimum required GPA will be increased.

Students in any UH community college should obtain program outlines from the Division of Speech Pathology and

Audiology to familiarize themselves with the pre-SPA requirements so they can complete them during their first two years.

Requirements

- A minimum of 124 credit hours
- 60 credit hours of non-introductory courses
- 15 credit hours in courses dealing with normal development of speech, hearing, and language
- 6 credit hours in linguistics (including LING 410 and 470)
- 3 credit hours in mathematics
- 4 credit hours in zoology
- 4 credit hours in physics
- 3 credit hours in inferential statistics
- At least one speech course dealing primarily with public speaking or discussion and practice in these areas
- 9 credit hours in psychology beyond the basic course

Required specialized courses for the undergraduate major are ordinarily taken in sequence. By taking introductory courses in the summer session, the student may accelerate completion of the required program.

Junior Year

- Semester I: SPA 300, 301, and 320
- Semester II: SPA 302, 303, and 321

Senior Year

- Semester I: SPA 402, SPA 404, SPA 412
- Semester II: SPA 414, SPA 415, and SPA 421

If qualified, students may complete 1 or more credit hours of practicum in audiology.

Graduate Study

Master's Degree

The department offers the MS degree in speech pathology and audiology, with a specialization in either speech-language pathology or audiology, or a dual concentration of these professional disciplines. Candidates for the MS degree must present a minimum of 30 undergraduate credit hours in the area of study. Background preparation should include basic courses in speech-language pathology, clinical methodology, audiology, testing of hearing, habilitation and rehabilitation of hearing, speech and hearing science, clinical practicum, and a minimum of 15 credit hours relating to normal development of speech, hearing and language. If a course in statistics is not part of the undergraduate record, one must be completed as part of the graduate program.

For admission as a regular classified graduate student, applicants must present (a) a baccalaureate degree from an accredited institution of higher learning, (b) a minimum GPA of 3.0 in the major and/or in all courses taken during the final four semesters or six quarters of undergraduate preparation, (c) adequate, appropriate undergraduate preparation, and (d) satisfactory performance on Graduate Record Exam.

If undergraduate deficiencies are present, students with a minimum cumulative GPA of 3.0 may be considered for

admission as conditional graduate students upon application to the Graduate Division. This status can be changed to regular when all deficiencies are removed with at least a B average in all courses taken. Students with the best academic records and with limited or no undergraduate deficiencies will be considered for admission first.

Students who do not meet the general admission requirements or who have extensive undergraduate deficiencies may also choose to enroll as post-baccalaureate unclassified students until admission standards are met. Foreign students are not eligible for post-baccalaureate unclassified status. If an unclassified student completes the first 12 credit hours in SPA with a GPA of less than 3.0, no further registration will be permitted.

Each student will have a preliminary conference with an adviser prior to initial enrollment in courses. This evaluation will include a thorough analysis of previous academic preparation to determine the plan of study, including the removal of undergraduate deficiencies if they exist. Recommendations concerning admission to candidacy for fully qualified students will be made at the end of the first semester of study. The student's adviser will determine action to be taken in this regard. A general examination may be required upon completion of the first semester of study (minimum 12 credit hours).

Requirements

Both Plan A (thesis) and Plan B (non-thesis) are available for graduate study. The plan to be followed is determined by the student and his or her advisory committee. The decision is based upon the specific interests of the individual student and future educational and occupational objectives.

Under Plan A, 38 credit hours in course work, a thesis (SPA 700—6 credit hours), and a final oral examination on the thesis subject are required. Plan B requires satisfactory completion of 44 credit hours of course work, including SPA 695 or 696 in which a research study is completed. A seminar appearance is also required for Plan B. For both Plan A and Plan B, a final written comprehensive examination in which the student will be examined on his or her course of study is required.

The median time required for completion of this program by an individual admitted with no undergraduate deficiencies is two years.

Continued enrollment and completion of the master's program require both satisfactory academic progress to maintain minimum Graduate Division GPA standards and demonstrated clinical proficiency in clinical practicum in speech-language pathology and audiology.

Each classified and unclassified graduate student is personally responsible for knowing any additional information and regulations contained in the *Catalog* and the informational circular available through the Division of Speech Pathology and Audiology. If questions arise, the student's adviser should be consulted.

These programs are designed so that students who complete either Plan A or Plan B will meet the academic requirements for the Certificate of Clinical Competence in speech-language pathology, audiology, or both, as established by the American Speech-Language-Hearing Association (the national certifying authority). Students must complete all academic and practical

training requirements for national certification, as well as departmental requirements, to qualify for the master's degree. Following graduation, students may qualify for national certification by taking and passing an examination in their area(s) and successfully completing a nine-month clinical fellowship in their area(s) of training. Upon certification (and, in most states, licensure), an individual may secure employment and/or engage in private practice in his or her area(s) of training.

Admission to courses requires graduate standing, except for certain senior students in their last semester of undergraduate study, and permission of the graduate chair. All graduate courses in the division require instructor's consent.

The Speech and Hearing Clinic is operated by the Division of Speech Pathology and Audiology of the John A. Burns School of Medicine. Staff members and supervised student clinicians provide diagnostic and therapeutic services without charge to children, University students, and other members of the community.

Surgery

University Tower, Queen's Medical Center
1356 Lusitana Street, 6th Floor
Honolulu, HI 96813
Tel: (808) 586-2920
Fax: (808) 536-1140

Faculty

D. Takanishi, Jr., MD (Chair)—general surgery/surgical oncology
A. H. S. Cheung, MD—transplant surgery
M. B. Ghows, MD—anesthesiology
P. Halford, MD—general surgery
T. J. Kane III, MD—orthopaedic surgery
W. M. L. Limm, MD—transplant surgery
S. Lozanoff, PhD—anatomy
J. Machi, MD, PhD—general surgery
G. O. McPheeters, MD—general surgery
M. M. Mugiishi, MD—general surgery
R. H. Oishi, MD—general surgery
F. D. Parsa, MD—plastic surgery
E. C. Pohlson, MD—pediatric surgery
A. B. Richardson, MD—orthopaedic surgery
S. J. Steinemann, MD—general surgery/surgical critical care
J. H. Wong, MD—surgical oncology
L. L. Wong, MD—transplant surgery
L. M. F. Wong, MD—transplant surgery
M. Yu, MD—surgical critical care

Degree Offered: MD

The Academic Program

Surgery emphasizes the use of interventional techniques to treat injury and disease. The educational program encompasses the pathology, pathophysiology, diagnosis, treatment and perioperative management of surgical disease and trauma.

The department provides instruction to medical students in all surgical disciplines, as well as the related fields of anesthesiology, radiology, and emergency medicine. It directs general surgical and orthopedic residency programs, as well as a surgical critical care fellowship. Research and continuing medical education programs are provided.

Tropical Medicine and Medical Microbiology

Lē'ahi Hospital
3675 Kilauea Avenue, 3rd Floor
Honolulu, HI 96816
Tel: (808) 732-1477
Fax: (808) 732-1483
E-mail: sandrac@hawaii.edu
Web: hawaii.med.hawaii.edu

Faculty

*K. Yamaga, PhD (Interim Chair)—immunological mechanisms of diseases
*S. P. Chang, PhD—immunology, molecular biology, molecular approaches to vaccine development
*A. R. Diwan, PhD—medical virology: chemotherapy, vaccines
W. L. Gosnell, PhD—host parasite interactions, malaria, TB immunology
*G. S. N. Hui, PhD—parasitology, immunology, cell biology
*K. J. Kramer, PhD—parasitology, epidemiology, leptospirosis, HIV serodiagnosis
*L. Tam, PhD—malaria and pox antigens, HIV serodiagnosis

Cooperating Graduate Faculty

R. D. Allen, PhD—ultrastructure and cell biology
M. E. Melish, MD—staphylococcal infection and toxins, clinical infectious disease, Kawasaki syndrome
V. R. Nerurkar, PhD—pathogenesis and etiology of infectious diseases, molecular virology and epidemiology
F. D. Pien, MD—clinical microbiology, diagnostic bacteriology and parasitology, efficacy of antimicrobial agents
R. C. Rudoy, MD—clinical aspects of viral and bacterial diseases
E. K. Tam, MD—inflammation, immunologic mechanisms of pulmonary diseases, genetic and environmental determinants of asthma

Degrees Offered: MS in biomedical science (tropical medicine), PhD in biomedical science (tropical medicine)

The Academic Program

The Department of Tropical Medicine and Medical Microbiology emphasizes the study of major infectious diseases caused by bacterial, parasitic, and viral agents prominent in Hawai'i and other tropical regions, especially in Asia and the Pacific Basin. All aspects of infectious diseases, such as basic studies at the cellular and molecular level and the immunological and epidemiological features of the diseases, are undertaken.

Collaborative research is promoted with individuals from departments within the medical school (e.g., Pediatrics, Medicine, Public Health Sciences, and Epidemiology), within the university system (e.g., Microbiology, Molecular Biosciences and BioEngineering, Pacific Biomedical Research Center), and within the non-university scientific community (e.g., State Department of Health and the Hawai'i Biotechnology Company).

The department is loosely arranged around four subdisciplines of medical microbiology: bacteriology, immunology, parasitology, and virology. However, there is a great deal of interaction and collaboration among the subdisciplines. Graduate students in tropical medicine may specialize in one of these fields, but all are expected to develop a basic knowledge of all aspects of infectious disease microbiology. The program offers students the opportunity to acquire a variety of experiences in a wide range of biological sciences (cell biology, biochemistry, epidemiology, molecular biology, biostatistics, etc.), as well as in their specific field of interest, along with vigorous training in scientific methodology. Such a program provides students with the background to take advantage of numerous professional options in the biological sciences. In this respect, the tropical medicine program provides learning opportunities in a range of biological disciplines available in few university departments.

Graduate Study

The department offers programs leading to the MS Plan A, MS Plan B, and PhD in tropical medicine, within the broader field of biomedical sciences, in the following areas of specialization: medical bacteriology, immunology, parasitology, and virology. The general purpose of the program is to prepare students for creative leadership in the field of tropical medicine.

Applicants to the program must meet established Graduate Division requirements and have a baccalaureate degree in biology or related fields. Other majors may be acceptable if applicants have sufficient strength in biological science courses. Candidates are expected to have completed one and a half years of course work in life sciences, including microbiology; two years in chemistry, including organic and biochemistry; one year in physics; and one year in mathematics, including calculus. Exceptional students who do not meet all the above requirements may be accepted on a probational basis at the discretion of the graduate committee of the department and the Graduate Division. Admission to candidacy for a graduate degree is contingent upon the applicant's satisfactorily completing the necessary courses to correct any deficiencies. Official scores of the GRE General Test and the subject test (biology) and two letters of recommendation are required of all applicants.

The MS and PhD degrees are recognized Western Intercollegiate Commission for Higher Education (WICHE) regional

graduate programs. Residents of Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, Washington, and Wyoming are eligible, upon admission, to enroll at resident tuition rates.

Master's Degree

Graduates with a master's degree have gone on to careers in science education at the secondary and college level, technical and research positions in universities, government agencies and biotechnology companies, or have continued on in PhD and MD training programs at other universities.

Requirements

A minimum of 30 credit hours is required for master's Plan A and Plan B. For Plan A, students must complete 9 credit hours of thesis research and 21 credit hours in courses numbered 600–699. For Plan B, students must complete a minimum of 30 credit hours in courses numbered 600–699. A general examination, oral or written, is required before a student is advanced to candidacy for the MS degree. The final oral (Plan A) or oral and written (Plan B) examination, is given at least three weeks before the end of the term during which the degree is conferred. The student will be required to demonstrate a basic knowledge of the various fields of tropical medicine.

Doctoral Degree

Graduates with a PhD degree have pursued professional research, teaching, and administrative careers at various academic institutions, state and federal government agencies, international health agencies, and biotechnology companies.

Requirements

There are no course credit requirements for the doctoral degree. Nonetheless, candidates may be advised or required to enroll in courses if, in the opinion of their advisory committee, these courses are essential to preparation for the examinations required of all candidates. A reading knowledge of a foreign language considered by the department graduate committee to be pertinent to the student's area of interest is recommended but not required of a PhD candidate. Requirements consist of qualifying, comprehensive, and final examinations and a written dissertation. The purpose of a qualifying examination is to determine whether to encourage a student to proceed in a doctoral program and to assist the student in planning a program of study. Through a comprehensive examination the student must satisfactorily demonstrate to the members of the examination committee that he or she has a broad knowledge and basic understanding of tropical medicine in general and of the chosen minor fields. A final examination in defense of the dissertation is required of all PhD candidates.

School of Nursing and Dental Hygiene



Administration

Webster 402
2528 McCarthy Mall
Honolulu, HI 96822
Tel: (808) 956-8522
Fax: (808) 956-3257
Web: www.nursing.hawaii.edu/

Dean: Rosanne Harrigan
Interim Associate Dean: Robert Anders

General Information

The School of Nursing and Dental Hygiene offers programs to prepare students for careers in nursing and dental hygiene primarily for the state of Hawai'i and the Pacific Basin.

The Department of Nursing offers programs leading to the bachelor of science, master of science and PhD in nursing degrees and a post-master's certificate in nursing. The undergraduate nursing program provides two options: (a) the bachelor of science degree pathway, which admits students in the sophomore year in nursing, following completion of a minimum of 40 credit hours of the General Education Core requirements and nursing prerequisite courses in the Colleges of Arts and Sciences, and (b) the RN to BS pathway, which allows entry after completion of the AS degree or diploma in nursing.

The program leading to the master of science in nursing degree prepares the student for advanced practice nursing in primary care, psychiatric-mental health nursing or clinical systems management. The program leading to the PhD in nursing prepares visionary scholars who are capable of conducting culturally appropriate clinical scholarship and teaching in nursing educational programs.

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The Department of Dental Hygiene offers the bachelor of science in dental hygiene.

Mission

The School of Nursing and Dental Hygiene supports the mission of the University of Hawai'i at Mānoa: to provide an environment in which faculty and students can discover, examine critically, preserve, and transmit the knowledge, wisdom, and values that will help ensure the survival of the present and future generations with improvement in the quality of life. The school is committed to the following:

1. Educating qualified men and women in the disciplines of nursing and dental hygiene;
2. Using learning approaches that are appropriate to the needs of students and facilitating achievement of health outcomes within the diverse communities of the state of Hawai'i and the Pacific Basin;
3. Advancing knowledge through research; and
4. Designing and implementing nursing and dental hygiene services.

Accreditation

The nursing program is accredited by the Hawai'i State Board of Nursing, the National League for Nursing Accrediting Commission,¹ and the Commission on Collegiate Nursing Education². The dental hygiene program is accredited by the Commission on Dental Accreditation, American Dental Association.

1 National League for Nursing Accrediting Commission, 61 Broadway - 33rd Floor, New York City, NY 10006. Phone: (800) 669-1656

2 Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC, 20036-1120, Ph: (202) 887-6791.

Degrees and Certificates

Bachelor's Degrees: BS in dental hygiene, BS in nursing

Master's Degree: MS in nursing

Doctoral Degree: PhD in nursing

Certificate: Post-Master's Certificate in Nursing

Dental Hygiene

Hemenway 200B
2445 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8821
Fax: (808) 956-5707

Faculty

C. Kuba, RDH, MEd (Chair)—dental hygiene
A. Akamine, RDH, BEd—dental hygiene
J. Ebert, DDS—periodontology
P. Fujimoto, RDH, DDS—oral pathology
D. Fukuda, RDH, MPH—dental hygiene
J. Omori, RDH, MPH—dental hygiene
A. Ogawa, RDH, DMD—dental radiology
W. Wakai, RDH, DMD—dental materials
L. Wong, DDS—oral histology
L. Yamada, DDS—periodontology

Degree Offered: BS in dental hygiene

The Academic Program

Dental hygiene (DH) is the study of the integrated services rendered to patients by a licensed dental hygienist. Students majoring in dental hygiene can become licensed professionals who offer preventive, educational, and therapeutic services for the control of oral diseases and the promotion of optimum oral health.

The dental hygiene program at the University of Hawai‘i at Mānoa is the only one in the state. It offers the educational preparation required by dental hygienists to provide oral health care and education to the people of Hawai‘i, the continental United States, and the Pacific.

Students completing the bachelor of science in dental hygiene qualify for admission to the national and state board dental hygiene examinations for licensure to practice dental hygiene under the supervision of dentists in dental offices and in public health and other dental hygiene settings.

The bachelor of science in dental hygiene maximizes the opportunity for students to continue their education. It offers professional training to broaden and deepen knowledge and skills, as well as a foundation for personal and professional development and opportunities for admission to graduate work.

Accreditation

The dental hygiene program is accredited by the Commission on Dental Accreditation, American Dental Association.

Advising

Students interested in the dental hygiene program are encouraged to arrange a counseling session with dental hygiene faculty members.

Honors and Awards

Dental Hygiene Faculty Award

An outstanding dental hygiene student who has maintained high scholarship and made contributions to the department is recognized by the faculty of the Department of Dental Hygiene at graduation.

Sigma Phi Alpha

Alpha Kappa Chapter of Sigma Phi Alpha is the national dental hygiene honor society at the University of Hawai‘i. Senior dental hygiene students who rank high in scholarship and character and exhibit potential qualities for future growth are recommended by faculty members for election to membership.

Undergraduate Study

Admission Requirements

Applicants to the dental hygiene program must meet the Mānoa campus admission requirements described in the *Catalog*. Evaluations are made on scholastic background, i.e., high school performance, SAT scores, and college performance. Interviews are conducted to assess interpersonal and communication skills and interest in dental hygiene.

Students not accepted into the program are provided counseling on alternative options.

Health Certification and Other Requirements

Upon entrance into the program, students must have the following:

1. CPR certification (Health Provider level BLS Course)
2. Health clearance of immunization:
 - Documented immunity to rubella, rubeola, mumps, varicella, and hepatitis B as demonstrated by titer,
 - Documented immunity to polio as demonstrated by either titer or certification from health care provider,
 - Health care provider certification of diphtheria/tetanus shot within the last ten (10) years, and
 - TB clearance
3. Health Insurance
4. Malpractice insurance of \$1 million per incident/\$3 million aggregate

Students enrolled in dental hygiene clinical courses have the potential for exposure to communicable diseases and may sustain injuries in the clinical setting. Limited emergency care will be rendered on site. Students are financially liable for all care received, including emergency room charges.

Certifications and requirements must be kept current for the duration of program enrollment.

Financial Consideration

Significant costs (e.g. professional education fee; purchase of instruments, supplies, uniforms, and books; examination fees, etc.) not related to tuition and housing are associated with dental hygiene education. The additional cost over a period of three years in the dental hygiene program is approximately \$12,000. Students are encouraged to make appropriate financial arrangements.

Application Procedures

High school applicants must submit the University of Hawai'i at Mānoa (UHM) Admissions Application form directly to the Office of Admissions and Records. College transfer applicants from other college/university must submit the UHM Admissions Application form and official transcripts directly to the Office of Admissions and Records. UHM College transfer applicants must submit a Department of Dental Hygiene Application/Information form, College and Curriculum Transfer Request form, and official transcripts. Only complete applications will be reviewed by the Dental Hygiene Admissions Committee.

Application Deadline

Applications to the Bachelor of Science in Dental Hygiene program are accepted from December 1 through April 1 for fall admission.

Varied Schedules

Dental hygiene students are expected to participate in clinical experiences at various scheduled times. Therefore, students must make time and arrangements to accommodate an irregular academic schedule.

Preparation for Graduation

Students are advised to check with a faculty adviser at least one semester before the scheduled graduation date to confirm that all requirements will be met.

An application for graduation must be submitted with a degree fee to the Cashier's Office (Queen Lili'uokalani Center for Student Services, Rm. 001). This should be done during the first three weeks of the semester in which the student intends to graduate.

Continued Registration

The minimum academic requirements of the University apply to all dental hygiene students. In addition, students must maintain a minimum GPA of 2.0 for all registered credit hours in dental hygiene courses by the end of the second semester and each semester thereafter to continue registration in the dental hygiene program.

BS in Dental Hygiene

Students must complete the following:

- General Education Core requirements (see the Mānoa General Education Core and Graduation Requirements section within this Catalog)
- Pre-major requirements
- Dental Hygiene major requirements
- Other major requirements and electives

Pre-Major Requirements

- BIOC 241 Fundamentals of Biochemistry (3)
- ENG 100 Expository Writing (3)
- FSHN 185 The Science of Human Nutrition (3)
- MICR 130 General Microbiology (3) and MICR 140 Microbiology Lab (2)
- PHYL 103/103L Human Physiology and Anatomy/Lab (5/1)
- PSY 100 Survey of Psychology (3)
- SOC 100 Introduction to Sociology (3)
- SP 151 Personal and Public Speech (3)

Major Requirements

- DH 231 Oral Anatomy and Tooth Morphology (2)
 - DH 231L Oral Anatomy and Tooth Morphology Lab (2)
 - DH 238 Basic Dental Hygiene I (2)
 - DH 238L Basic Dental Hygiene I Lab (1)
 - DH 239L Basic Dental Hygiene I Lab (1)
 - DH 240 Basic Dental Hygiene II (2)
 - DH 240L Basic Dental Hygiene Lab/Clinic (1)
 - DH 241L Basic Dental Hygiene Lab/Clinic (1)
 - DH 242L Basic Dental Hygiene Lab/Clinic (1)
 - DH 250 General and Oral Histology and Embryology (2)
 - DH 251 General and Oral Histology and Embryology (1)
 - DH 281 Dental Radiography (2)
 - DH 281L Dental Radiography Lab/Clinic (1)
 - DH 361 Health Education and Promotion (2)
 - DH 366 General and Oral Pathology (2)
 - DH 367 General and Oral Pathology (1)
 - DH 369 Dental Materials (1)
 - DH 369L Dental Materials Lab/Clinic (1)
 - DH 370 Expanded Functions in Dental Hygiene (2)
 - DH 370L Expanded Functions Lab/Clinic (1)
 - DH 375 Clinical Dental Hygiene I (2)
 - DH 375L Clinical Dental Hygiene I Clinic (1)
 - DH 376L Clinical Dental Hygiene I Clinic (1)
 - DH 377L Clinical Dental Hygiene I Clinic (1)
 - DH 378L Clinical Dental Hygiene I Clinic (1)
 - DH 380 Clinical Dental Hygiene II (2)
 - DH 380L Clinical Dental Hygiene II Clinic (1)
 - DH 381L Clinical Dental Hygiene II Clinic (1)
 - DH 382L Clinical Dental Hygiene II Clinic (1)
 - DH 389 Pain Control and Local Anesthesia in Dentistry (2)
 - DH 390 Periodontology I (2)
 - DH 391 Periodontology II (2)
 - DH 473 Community Health (3)
 - DH 475 Advanced Clinical Dental Hygiene I (2)
 - DH 475L Advanced Clinical Dental Hygiene I Clinic (1)
 - DH 476L Advanced Clinical Dental Hygiene I Clinic (1)
 - DH 477L Advanced Clinical Dental Hygiene I Clinic (1)
 - DH 478L Advanced Clinical Dental Hygiene I Clinic (1)
 - DH 480 Advanced Clinical Dental Hygiene II (2)
 - DH 480L Advanced Clinical Dental Hygiene II Clinic (1)
 - DH 481L Advanced Clinical Dental Hygiene II Clinic (1)
 - DH 482L Advanced Clinical Dental Hygiene II Clinic (1)
 - DH 483L Advanced Clinical Dental Hygiene II Clinic (1)
- (List continued on next page.)*

- NURS 310 Psychosocial Nursing Concepts (3) or equivalent
- NURS 439 Professional Nursing Management (3) or equivalent
- NURS 441 Introduction to Nursing Research (3) or equivalent
- PHRM 201 Introduction to General Pharmacology (2)
- PSY 210 Statistical Techniques (3) or equivalent

Nursing

Webster 330
2528 McCarthy Mall
Honolulu, HI 96822
Tel: (808) 956-8523
Fax: (808) 956-5296

Faculty

*A. Sloat, PhD(Chair)—maternal-child
*J. Inouye, PhD (Graduate Chair)—psychiatric mental health
*R. Anders, DrPH—administration, mental health
*M. J. Amundson, PhD—psychiatric mental health, administration
K. Baltazar, MSN—psychiatric mental health
J. Boyd, MS—nurse practitioner
J. Brencick, PhD—psychiatric mental health
L. Caldwell, MSN—utilization management
*J. Casken, PhD—administration, public health
C. D. Ceria, PhD—adult health, administration
C. K. Ching, MS—psychiatric mental health
T. Cummings-Adamski, MS—gerontology
V. C. Date, BSN—learning center
*L. Flannelly, PhD—psychiatric mental health
N. Fujise, MS—adult health
S. Garr, MSN—nurse practitioner, maternal-child
C. P. Gazmen, MS—adult health
A. Goodbody, MSN—nurse practitioner
*R. Harrigan, EdD (Dean)—nurse practitioner
*D. Ishida, PhD—adult health
*J. Itano, PhD—oncology/nursing education
L. Jensen, MS—advanced nurse educator grant
*J. Kadohiro, MS, DrPH—administration, community health
*M. Kataoka-Yahiro, DrPH—parent-child
*B. Kooker, DrPH—maternal-child/informatics
A. Leake, MS—nurse practitioner
J. Lemon, MSN—psychiatric mental health
M. Lynch, MSN—psychiatric mental health
*L. Magnussen, EdD—maternal-child
E. Magpantay-Monroe—utilization management
*M. McCubbin, PhD—family/public health nursing
P. Menon, PhD—environmental and occupational health
S. Morris-Pruitt, MS—adult health
F. Nichols, PhD—women's health
V. Niederhauser, DrPH—nurse practitioner
*T. Olson, PhD—psychiatric mental health
*C. Pierson, PhD—nurse practitioner
C. Ratliffe, MS—administration, parent-child
K. Richardson, MSN—maternal-child

B. Saiki, MS—psychiatric mental health
*J. Shoultz, DrPH—community health, adult health
S. Silverman, MS—nurse practitioner
*N.L. Smith, PhD—nurse practitioner
K. Thompson, MS, MPH—maternal-child, nurse practitioner
*C. Trotter, DrPH—psychiatric mental health
*A. Tse, PhD—parent-child
J. Uyehara, MSN—maternal-child
*A. Verderber, PhD—higher education, nurse practitioner
*J. Vogler, DrPH—parent-child
*C. Wang, PhD—adult health
T. Wheeler, MSN—psychiatric mental health
*L. White, MD—pediatrics, medicine
L. Wong, MSN—adult health
D. Wright, MSN—psychiatric mental health

Clinical Faculty

R. Abbott, PhD—biostatistics
N. Atmospera-Walch, MPH—health education
R. Bentz, MSNC—family practice, emergency nursing
K. Boyer, MN—family nurse practitioner, women's health
W. Brandman, MSN—psychiatric, mental health
E. Brandt, BA—massage therapy
R. Brumblay, MD—emergency medicine
P. Burns, MS—family nurse practitioner
B. Cannan, MS—administration, gerontology
J. Carlson, PhD—psychology
R. Carmichael, MS, MPH—family nurse practitioner
S. Chandler, MSN—family practice
C. Chemtob, PhD—psychology, post traumatic stress disorder
G. Chock, MS—women's health
C. Collura-Burke, DO—general medicine
B. Cox, PhD—psychiatric, mental health
J. Cruce, MS—family nurse practitioner
D. Davids, MS—medical-surgical
L. Davis, PhD—research
D. Derauf, MD, MPH—preventive medicine, community medicine
S. Espina, MS—family nurse practitioner
A. Ettipio, MS—informatics
K. Farley, MS—family nurse practitioner, quality management
D. Fochtman, MN—pediatric nurse practitioner, oncology
L. Fujita, MS—adult care
M. Graham, MSN—medical administration
M. Harris, MS—adult health
J. Hickey, MA—nursing administration, medical/surgical nursing
F. Hodge, DrPH—public health, diabetes, cancer, native health
J. Humphry, MD—diabetes, chronic disease management
M. Ichiyama, MS—neurology
R. Igarashi, MS—mental health
T. Imada, RN, MS—oncology
R. Jensen, RN, MS—psychiatric, mental health
S. Jones, MS—administration
B. Kelii, MS—family nurse practitioner
D. Knight, MS—pediatric nurse practitioner
E. Kretzer, MS—family nurse practitioner, complementary care
J. Labbe, MS—family nurse practitioner, care of homeless

S. Lebamoff, MD—general practice
 C. Linden, MD—family practice, HIV disease
 C. Ling, MN—family nurse practitioner
 C. Loo, MD, MS, MGA—dermatologist
 C. Lopez, MS—administration
 L. Lorenzo, MS—family nurse practitioner, gerontological nurse practitioner
 C. Ma, PharmD—pharmacy, oncology
 P. Mallet, MS—administration
 B. Mamaclay, MS—pediatric nurse practitioner
 B. Mathews, MS—psychiatric, mental health
 M. McEldowney, MS—psychiatric, mental health
 N. Moser, MN—gerontological nursing
 K. Moss, LMT—massage therapy
 D. Motoyama, RN, MS—adult health
 S. Myhre, RN, MS—women’s health
 R. Newmann, MS—family nurse practitioner, HIV illness
 J. Noone, MSN—family nurse practitioner
 A. Novak, MS—mental health
 V. Nylen, MPH—psychiatric, mental health
 J. Okamoto, MD—developmental behavioral pediatrics
 S. Orr, MS—administration
 H. Osterlund, RN, MS—pain management
 R. Pabo, APRN—family nurse practitioner
 L. Pascua, MD—general pediatrics
 M. Patrinos, MD—neonatal-perinatal medicine, pediatrics
 P. Pearsall, PhD—psychology, psychoneuroimmunologist
 R. Poyzer, MPH—home care, administration
 C. Prince, PhD—epidemiology
 A. Ramos, MSN—pediatric nurse practitioner
 V. Raquipo, MN—child/family, clinical nurse specialist
 A. Razzuk, MD—surgery
 R. Ricardo, MD—pediatrics
 C. Schempp, DNSc—critical care, health promotion, HIV/AIDS, quantitative methodology
 D. Schmidt, MS—maternal child nursing
 J. Shishido, MBA—database management, health informatics, telemedicine
 M. Staackmann, MA—complementary care
 R. Stewart, MS—administration
 R. Sussman, MD—emergency/urgent care
 C. Takemoto-Gentile, MD—family and geriatric medicine
 S. Takiguchi, MS—clinical nurse specialist, respiratory diseases, research
 B. Tanner, MS—pediatric nurse practitioner, community health
 K. Taoka, MN—oncology
 R. Teichman, MD, PhD—family practice, urgent care
 L. Thomas, MSN—psychiatric, mental health
 G. Tiwanak, RN, MBA—information services
 C. Trotter, DrPH—community psychiatric/mental health nursing, rural mental health
 P. Urso, MS—adult and family health
 K. Wainwright, MPH—administration, hepatitis
 A. Yasunaga, MS—family nurse practitioner, correctional nursing
 G. Yip, MSN—nursing administration, clinical systems analysis
 V. Yontz, PhD—community health
 K. Young, MPH—women’s health nurse practitioner
 L. Zick-Mariteragi, MS—family nurse practitioner

Degrees and Certificate Offered: BS in nursing, MS in nursing, PhD in Nursing and Post-Master’s Certificate in Nursing

The Academic Program

The Department of Nursing’s undergraduate program provides two options: (a) the bachelor of science degree pathway, which admits students in the sophomore year in nursing following completion of a minimum of 40 credit hours of general education and nursing prerequisite courses in the Colleges of Arts and Sciences, and (b) the RN to BS pathway, which allows entry after the completion of the AS degree or diploma program in nursing.

The program leading to the master of science (MS) in nursing degree prepares the student for advanced practice nursing. The MS options prepare the nurse for advanced practice in adult, family, gerontology, child health, women’s health, psychiatric-mental health, or clinical systems management. The master’s program provides the foundation for doctoral study.

The Department of Nursing offers the Post-Master’s Certificate in Nursing for nurses who already have a master’s degree in nursing but wish to acquire expertise in another specialty.

The PhD in nursing prepares scholars who are capable of conducting culturally appropriate clinical scholarship to improve the health of a diverse society and to teach in nursing educational programs, especially those with minority student populations.

Distance Education

When funding is available, the baccalaureate, masters, and PhD programs are offered as a distance education program for the professional advancement of registered nurses. Admission requirements, curriculum, and course descriptions for the programs are the same as those of the Mānoa campus. The programs are designed with part-time students in mind.

For further information, contact the school’s Office of Student Services at (808) 956-8939. All policies and procedures that apply to Mānoa students apply to students enrolled in distance learning opportunities.

Student and Faculty Awards

Each graduating class recognizes an outstanding faculty educator and graduating students who have made significant contributions in service, leadership, and professionalism. Academic excellence is also recognized by an award to the student with the highest grade point average.

Accreditation

The nursing programs are accredited by the Hawai‘i State Board of Nursing, the National League for Nursing Accrediting Commission¹, and the Commission on Collegiate Nursing Education².

¹ National League for Nursing Accrediting Commission, 61 Broadway - 33rd Floor, New York City, NY 10006, Phone: (800) 669-1656

² Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC, 20036-1120, Ph: (202) 887-6791

Undergraduate Study

Advising

Office of Student Services
Webster 201
Honolulu, HI 96822
Tel: (808) 956-8939

Academic advising is available in the school's Office of Student Services. Potential applicants to the program should attend a program information session prior to scheduling an individual meeting with the adviser. Students in need of advising should call for appointments. All undergraduate nursing students are required to meet with the adviser regarding their progress toward the chosen degree.

Preparation for Graduation

Students are advised to check with the academic adviser to make sure that all requirements are met at least one semester before the scheduled graduation date.

An application for graduation must be submitted with a degree fee to the Cashier's Office (Queen Lili'uokalani Center for Student Services, Room 001). This should be done during the first three weeks of the semester the student intends to graduate.

Diplomas

Diplomas for graduate and undergraduate students can be obtained from the Office of Admissions and Records, Queen Lili'uokalani Center for Student Services, Room 001, 10 weeks after graduation. A request to mail the diploma may be filed at the Office of Admissions and Records.

National Council Licensure Examination (NCLEX-RN)

Upon graduation from the bachelor of science program, students have their names submitted to the Board of Nursing, which qualifies them to take the NCLEX-RN exam. The school's Office of Student Services is available to assist with the application process. Application forms are available from the Hawai'i State Board of Nursing, as well as the Office of Student Services. There are no specific filing deadlines.

Students who wish to take nursing licensing boards in another state must contact that state's board of nursing directly. Addresses of state boards of nursing are available from the Hawai'i Board of Nursing, (808) 586-3000 or via the Web at www.ncsbn.org.

Student Organizations

For career and leadership development, it is important for students to become active in student and professional organizations. There are several student organizations at Mānoa.

Student Nurses Organization

All undergraduate nursing students can participate in the Student Nurses Organization (SNO). The organization provides an opportunity for students to develop professional identity and leadership skills. Students express their interests and opinions in an open forum. This student organization

makes recommendations regarding policies to the various committees within the School of Nursing and Dental Hygiene. The Student Nurses Organization is responsible for the coordination of various volunteer and fundraising activities of nursing students. It also offers an opportunity for students to socialize with each other and create mentoring relationships.

National Student Nurses' Association

The National Student Nurses' Association (NSNA) acts as the voice of nursing students on the national level. NSNA contributes to nursing education in order to provide the highest-quality health care. It helps nursing students keep in touch with fundamental and current professional interests and become active, responsible, and professional nurses. NSNA is part of the American Nurses' Association; the Hawai'i Student Nurses' Association is the local chapter of the NSNA.

Sigma Theta Tau

Sigma Theta Tau is the international honor society in nursing that promotes excellence in academic scholarship, research, and clinical nursing. Students must be nominated to become a member. The Gamma Psi Chapter is the Mānoa chapter of the honor society.

Bachelor's Degree

Pre-nursing students enroll in the Colleges of Arts and Sciences to complete General Education Core and pre-nursing requirements. Completion of these courses provides the foundation for professional nursing courses. After satisfactory completion of the pre-nursing courses, students are eligible for admission to the Department of Nursing. Upon admission to the School of Nursing and Dental Hygiene, students register for the upper division nursing courses, which focus on both the theoretical and practice dimensions of professional nursing.

The undergraduate nursing program also offers a degree path open to registered nurses who have graduated from an associate degree or diploma program outside the UH system. A transfer agreement between Mānoa and the UH Community College Associate of Science in Nursing programs provides a seamless transition from the UH Community College to Mānoa.

Admission Requirements

To qualify for admission to the Department of Nursing, applicants must complete the following pre-nursing requirements:

1. Admission to the University of Hawai'i at Mānoa;
2. Minimum GPA of 2.5;
3. A minimum grade of C in the following prerequisite courses: CHEM 151 and 152; ENG 100 or ELI 100; MICR 130 and 140L; PHYL 141/141L, 142/142L; and 6 credits in global and multicultural perspectives; and 3 credits in symbolic reasoning (math or statistics); PHRM 203 (for spring admission); and
4. For the Generic Curriculum, acceptable scores on the NET (Nursing Entrance Exam) or NLN Pre-Admission Exam, or SAT scores. For students who must take TOEFL, the acceptable verbal score will be used.

5. For the RN to BS Pathway, graduation from one of the following: NLNAC accredited associate degree program in nursing or a University of Hawai'i System Colleges nursing program; non-NLNAC accredited associate degree nursing program plus passing scores on the Acceleration Challenge Examination (ACE II); or hospital diploma school plus passing scores on the Acceleration Challenge Examination II (ACE II).

Students are advised to carefully review the course descriptions and prerequisites for the lower division courses.

Application Procedures

Applicants are advised to attend one of the twice monthly orientation sessions at the School of Nursing and Dental Hygiene or meet with the academic adviser before submitting an application. For more information, please call the Office of Student Services.

Two separate application forms—the University of Hawai'i System Application Form to the University of Hawai'i at Mānoa and the School of Nursing and Dental Hygiene application form—must be submitted before an applicant can be considered for admission to the School of Nursing and Dental Hygiene.

Students enrolled as classified day students at UH Mānoa during the semester immediately preceding the semester of desired entry must complete the college and curriculum transfer request form, which can be obtained from the Office of Student Services, Webster 201.

Applicants must also submit a photocopy of grades to the Office of Student Services if enrolled in courses at any community college or other university during the semester immediately preceding the semester of entry into the school.

Application Deadlines

The deadlines are March 1 for the fall semester and October 1 for the spring semester. All documents must be received by the Office of Student Services no later than the deadline dates.

Special Requirements

Upon entrance into the program, students must have the following:

1. CPR certification (Health Provider level BLS Course*);
2. Health clearance of immunizations including tetanus within 10 years, polio and mumps, complete hepatitis-B vaccine series; laboratory evidence (titer) of immunity to rubella, rubeola and varicella; and TB clearance;
3. Health insurance; and
4. Malpractice insurance of \$1 million per incident/ \$3 million aggregate (to be provided by the School of Nursing and Dental Hygiene at minimal cost).

*Health Provider level BLS Course curriculum and testing include modules of Heartsaver adult, pediatric obstructed airway, and pediatric one rescuer and two rescuer CPR.

ALL special requirements must be cleared before registration for the new semester by presenting **photocopies** of CPR certification (card), health insurance policy, titer results, vaccinations, TB clearance, and the health certification form to

the Office of Student Services. Students with prerequisite deficiencies may not register for or attend clinical courses.

Students must take a tuberculosis screen test annually or chest x-ray as required. Nursing students who have not taken a TB skin test within the last twelve (12) months must take the two step TB test. CPR certification must be renewed every two years.

Students are also required to have health insurance. A student medical insurance plan is offered through UHM. For information, call University Health Services, (808) 956-8965.

Students in nursing programs are exposed to selected health risks related to the environment of their learning experiences. Clinical labs are held in medical centers, clinics, and in various community locations.

Most agencies will render emergency care at the clinical site, but students are financially liable for all care received, including emergency room charges.

Varied Schedules

Nursing students are expected to participate in clinical experiences in many community agencies at variously scheduled times. Therefore, students must make time and transportation arrangements to accommodate an irregular academic schedule.

Continued Registration

All undergraduate students accepted as majors in the nursing program may register for nursing courses. Students must attain a grade of at least C in all "critical" nursing courses (identified by * in curriculum one next page) to continue registration for the following semester.

Students may be dismissed from the program for failing to maintain academic and clinical experience standards of the School of Nursing and Dental Hygiene. Students wishing to return to the program must file a petition to continue, available at the Office of Student Services, Webster 201, by the specified deadline (see the School of Nursing and Dental Hygiene Student Handbook).

BS in Nursing (Generic Curriculum)

The bachelor of science in nursing degree prepares beginning-level generalist professional nurses to deliver care to individuals in a variety of health-care settings, meet the state requirements for eligibility to take the National Council Licensure Examination—Registered Nurse (NCLEX-RN), and obtain a sound basis for graduate study in nursing.

After satisfactory completion of the pre-nursing courses, students are eligible to apply for admission to the Department of Nursing. Upon admission, students register for the upper division courses. The upper division curriculum focuses on both the theoretical and practical dimensions of professional nursing.

To qualify for a BS in nursing, all undergraduate students must complete curriculum requirements with a grade of C or higher and a minimum cumulative GPA of 2.0.

Semester 1

- *NURS 330/330L Professional Nursing I/Lab (2/3)
- *NURS 310 Psychosocial Nursing Concepts (3)
- *PHRM 203 General Pharmacology (3)
- Arts, Humanities & Literature #1 (3)
- Social Science #1 (3)

Semester 2

- *NURS 331/331L Professional Nursing II/Lab (2/3)
- *NURS 311 Pathophysiologic Nursing Concepts (3)
- FSHN 475 Nutrition for Health Professionals (3)
- Arts, Humanities & Literature #2 (3)

Semester 3

- *NURS 370/370L Adult Health Nursing I/Lab (2/3)
- *NURS 371/371L Psychiatric–Mental Health Nursing/Lab (3/2)
- *Nursing elective (2)
- Social Science #2 (3)

Semester 4

- *NURS 372/372L Maternal Newborn Nursing/Lab (2/3)
- *NURS 373/373L Child Health Nursing/Lab (2/3)
- Hawaiian, Asian, Pacific designated course (3)
- Oral Communications (3)

Semester 5

- *NURS 470/470L Adult Health Nursing II/Lab (2/3)
- *NURS 471/471L Community Health Nursing/Lab (2/3)
- *NURS 441 Introduction to Nursing Research (3)
- Ethics (3)

Semester 6

- *NURS 475/475L Complex Nursing Practice/Lab (2/5)
- *NURS 439 Professional Nursing Management (3)
- *NURS 486 Professional Issues and Trends (2)
- *Nursing elective (2)

*Courses that require a grade of C or better or "credit."

Nursing Electives

4 credit hours of elective courses chosen from the following:

- NURS 305 Women and Health (3) (Cross-listed as WS 305)
- NURS 340 Ethical Legal Aspect Health Care (3)
- NURS 341 Alternative Nursing Interventions (3)
- NURS 342 Health Care/Nursing in Japan in Comparison with the United States (3)
- NURS 343 Gerontology: Its Nursing Implications (3)
- NURS 344 Nursing in Multicultural Milieu (3)
- NURS 345 The Brain (3)
- NURS 346 The Reflective Clinician (2)
- NURS 347 Pharmacobehavioral Aspects of Substance Use/Abuse (3)
- NURS 348 Nursing Care of HIV Infected Client (2)
- NURS 349 Introduction to Pain Management (2)
- NURS 350 Chronic Illness in Children and Adolescents (V)

- NURS 361 Health Education and Promotion (2)
- NURS 410 Case Management in Managed Care (2)
- NURS 411 NCLEX Review (2)
- NURS 412 Fund of Occupational Health Hazards (2)
- NURS 420 Cooperative Education in Nursing (V)
- NURS 430 Hazardous Materials (3) (cross-listed as ENBI 420 and GEOG 420)
- NURS 437 Rural Health Teams
- NURS 472 Introduction to Critical Care Concepts (2)
- NURS 491 Seminar in Perioperative Nursing I
- NURS 491L Perioperative Nursing Clinical I
- NURS 492 Seminar in Perioperative Nursing II
- NURS 492L Perioperative Nursing Clinical II

BS Curriculum for Registered Nurses**(RN to BS Pathway)**

The School of Nursing and Dental Hygiene undergraduate nursing curriculum offers an upper division degree path for those with an associate degree in nursing from within the University of Hawai'i system. This curriculum is also open to registered nurses who have graduated from associate degree or diploma programs outside the University of Hawai'i system. The upper division courses build on the knowledge, skills, socialization, and experience in the discipline of nursing and the General Education Core requirements. Emphasis is on critical thinking and the integration of new information and competencies. The RN to BS pathway offers nursing content not included in the AS degree curriculum.

Registered nurses interested in furthering their formal education by earning a BS in nursing but who have graduated from a diploma school or non-NLN accredited associate degree program are encouraged to apply to the School of Nursing and Dental Hygiene. These nurses are required to take the National League for Nursing Acceleration Challenge Exams (NLN ACE) and complete the prerequisite lower division courses prior to entry into the upper division nursing major.

The track requires 64 credits of General Education Core and nursing prerequisite courses. Thirty (30) upper division nursing credits are granted for prior nursing education. Thirty-one (31) additional upper division nursing credits are required a grade of C or higher in all nursing courses.

Semester 1

- Nursing Elective (3)
- NURS 310 Psychosocial Nursing Concepts (3)
- NURS 330/330L Professional Nursing I/Lab (2/3)
- Social Science #1 (3)
- Arts, Humanities & Literature #1 (3)

Semester 2

- NURS 311 Pathophysiologic Nursing Concepts (3)
- Statistics (3)
- FSHN 475 Nutrition for Health Professionals (3)
- Hawaiian, Asian, Pacific designated course (3)*
- Arts, Humanities & Literature #2 (3)

Semester 3

- NURS 471/471L Community Health Nursing/Lab (2/3)
- NURS 441 Introduction to Nursing Research (3)
- Oral Communication (3)*
- HIST 152 Civilization (3)
- Social Sciences #2 (3)*

Semester 4

- NURS 439 Professional Nursing Management (3)
- NURS 475/475L Complex Nursing Practice/Lab (2/5)
- NURS 486 Professional Issues and Trends (2)
- Ethics (3)*

*The changes in these requirements pertain to students admitted to the UH System beginning Fall 2001. Please see the adviser if you have questions.

Graduate Study**Master's Degree**

Using a community-based approach, the master of science in nursing program prepares nurses for advanced practice.

Primary Health Care Options

The advanced practice nursing option in primary health care prepares nurses to practice as nurse practitioners in adult, family, or gerontology. Post-master's certificates are also available in these specialties as well as women's health and child health. The curriculum prepares students with the skills to deliver care in a changing health care system and job market, and to further develop in the professional discipline of nursing.

Specialty advisers from the graduate faculty will assist students in developing individualized programs of study and in monitoring progress toward program completion. All specialties require at least 4 semesters of full-time study. Part-time study can also be arranged. Thesis (Plan A) and non-thesis (Plan B) are both available.

The total number of credits required varies depending on clinical specialty. Core courses include: NURS 605, NURS 620, NURS 630, NURS 639, and a health policy course selected from an approved interdisciplinary listing of courses. Clinical specialty courses include: NURS 612, NURS 613, NURS 621, NURS 629, NURS 643, NURS 733, and twelve credits of NURS 675. Additional courses are required for each clinical specialty and may include: NURS 633, NURS 634, NURS 635, NURS 636, NURS 637, NURS 641, NURS 642, and NURS 695. Graduates of these options are eligible to take national certification exams in the area of specialty. The number of supervised clinical hours required is a minimum of 540 or twelve credit hours of NURS 675. Students, additionally, may select a thesis option for six credits.

Psychiatric Mental Health Options

The advanced practice psychiatric/mental health specialization offers a clinical nurse specialist preparation that focuses on the expanded role of the psychiatric mental health advanced practice nurse in the health care system. The focus is on

psychosocial and biological knowledge for the core specialization with practice in primary, acute, chronic, and population-based care. The total number of credits required for graduation range from 39 to 45 (if the thesis option is selected). The core courses are NURS 620 Methods and Measurements in Nursing Research, NURS 630 Information Systems in Health Care, NURS 639 Disciplinary Knowledge, and a health policy course. Twenty-seven credits are required for the specialty area concentration: NURS 611 Mental Health Assessment and Diagnosis, NURS 612 Advanced Health Assessment, NURS 615 Mental Health Nursing I, NURS 618 Biobehavioral Concepts, NURS 622 Mental Health Nursing II, NURS 623 Psychopharmacology, NURS 632 Therapeutic Modalities, NURS 645 Advanced Practice Mental Health Practicum I, NURS 646 Advanced Practice Mental Health Practicum II, and NURS 675 Advanced Practice Clinical. A minimum of 500 supervised clinical hours is required. Students may select a thesis for an additional six credits. A post-master's certificate option is also available in this area.

Clinical Systems Management

A clinical systems management area of focus is also offered. The clinical systems management curriculum provides the student with the content and practical experience needed to succeed in an administrative position in today's competitive marketplace. The curriculum prepares professional nurses for entry and mid-level positions in the management of clinical systems.

Academic advisers selected from the graduate faculty will assist students with the development of individualized programs of study and monitor progress towards degree. This specialty area requires at least three semesters of full-time study and leads to a master of science degree. Thesis and non-thesis options are available.

The total number of credits required for graduation is 36. Core courses (12 credits) are NURS 620 Methods and Measurements in Nursing Research, NURS 630 Information Systems in Health Care, NURS 639 Disciplinary Knowledge, and a health policy course. Eighteen credits are required for the clinical systems management area of concentration: NURS 662 Management and Leadership of Clinical Systems, NURS 663 Clinical Systems Management I, NURS 664 Clinical Systems Practicum, NURS 665 Clinical Economics and Finance, NURS 774 Clinical Systems Management II, NURS 775 Capstone Field Study. One 3 credit course in human resources management plus an elective are also required. Twelve contact hours of clinical practice per week are required in the final semester. Students may select a thesis option for an additional six credits.

RN to MS Program (with non-nursing baccalaureate)

The RN to MS Program (with non-nursing baccalaureate) targets registered nurses (RNs) who are graduates of an NLN accredited associate degree or diploma and have a baccalaureate degree in an area other than nursing. The following baccalaureate nursing courses are required prior to enrolling in the master's program: NURS 439 Management, NURS 441 Nursing Research, NURS 471/L Community

Health Nursing, and FSHN 475 Nutrition. The admission progression, and graduation requirements are the same as for options within the master's program.

Admission Requirements

To be admitted, applicants must meet the requirements of both the Graduate Division and the Graduate Student Affairs Committee of the School of Nursing and Dental Hygiene. Requirements for the School of Nursing and Dental Hygiene include the following:

1. A baccalaureate degree with a major in nursing from an NLNAC or CCNE-accredited program;
2. A minimum cumulative GPA of 3.0 in undergraduate nursing courses;
3. Statistics course;
4. A basic research course or equivalent; and
5. Interview with a specialty adviser.
6. For international students, TOEFL scores must be 580 or above.

Documentation Requirements

1. A curriculum vitae or résumé;
2. Two completed reference forms (one from a former faculty member and one from an agency supervisor); and
3. A sample of professional writing or a well written one- or two-page paper discussing an issue relating to nursing, health, or clinical practice.

Special Requirements

Upon entrance to the program, students must have the following:

1. Current Hawai'i licensure to practice professional nursing;
2. A current CPR certificate from an approved American Heart Association Basic Cardiac Life Support (health provider level BLS course);
3. Liability and malpractice insurance with a minimum coverage of \$1 million per incident, \$3 million aggregate (coverage is purchased through the school);
4. Immunizations including tetanus within 10 years, polio and mumps, complete hepatitis-B vaccine series; laboratory evidence (titer) of immunity of rubella, rubeola, and varicella; and TB clearance; and
5. Health insurance.

Students with deficiencies may not register or attend clinical courses.

Admission Procedures

Two separate application forms must be completed: the Graduate Division application form and the School of Nursing and Dental Hygiene application form. The Graduate Division application form and, official transcripts, must be sent directly to:

Graduate Division Admissions Office
University of Hawai'i at Mānoa
2540 Maile Way, Spalding 353B
Honolulu, HI 96822

The School of Nursing and Dental Hygiene application form is available in the Office of Student Services, Webster 201. The completed form and all other admission materials must be sent directly to:

School of Nursing and Dental Hygiene
Office of Student Services
2528 McCarthy Mall, Webster 201
Honolulu, HI 96822

Completed applications are first screened by the Graduate Division Admissions Office; only applications of students who meet the minimum requirements are forwarded to the School of Nursing and Dental Hygiene for comprehensive review by the School's Graduate Faculty. The School then makes a recommendation to the Graduate Division to either admit the student or deny admission.

Applications are accepted for both fall and spring semesters. The application forms and supporting documents must be received at the designated offices by March 1 for fall and October 1 for spring.

Post-Master's Certificate

After completing an MS degree program, students may select to enroll in the post-master's certificate option. This certificate permits students with an MS in nursing to pursue clinical course work in a second nursing specialty.

PhD Degree

The PhD in nursing program prepares scholars who are capable of conducting culturally appropriate clinical scholarship to improve the health of a diverse society and teaching in nursing educational programs, especially those with minority student populations.

Academic advisers will be selected from the graduate faculty based on students' area of research interest. The program requires 46 credits of post-master's course work plus a dissertation. Two core areas make up the program of study: (1) Knowledge Development and Clinical Scholarship and (2) Nursing Education. Electives and support courses make up the remainder of the course work. The PhD program requires a minimum of two years of full-time study plus one year to complete the dissertation. Part-time study is also available. The part-time pathway will be individualized based on how quickly the student is able to progress.

The nursing education component of the program prepares students to teach in nursing programs with a diverse student body. The nursing education courses (8 credits) are NURS 745 Creative Learning Strategies for Adults, NURS 747 Curriculum Development, and NURS 748 Supervised Practicum in Teaching.

The knowledge development and clinical scholarship component of the program prepares students to conduct culturally appropriate research in nursing. Substantive nursing content is acquired through the disciplinary knowledge sequence of courses. In the clinical scholarship sequence,

students develop skills in methods, design, and measurement in both quantitative and qualitative approaches. The knowledge development and clinical scholarship courses (26 credits) are NURS 739 Advanced Nursing Science, NURS 741 Quantitative Methods and Measures, NURS 742 Qualitative Methods and Measures, NURS 751 Evidence Based Nursing Practice I, NURS 761 Evidence Based Nursing Practice II, NURS 777 Nursing Research Practicum I, NURS 778 Research Practicum II, and two advanced statistics courses to meet the specific research focus of the student.

Electives and support courses, such as NURS 650 Complementary and Traditional Care, comprise an additional 12 credits for a total of 46 credits of course work.

The master's courses have been designed to allow seamless progression from MS to PhD. Since BS graduates are eligible for admission to the MS program, graduates of the UHM Department of Nursing also have a seamless progression from the BS to the PhD.

Admission Requirements

Applicants must meet the requirements of both the Graduate Division and graduate admissions committee of the School of Nursing and Dental Hygiene. Requirements for the School of Nursing and Dental Hygiene include the following:

- 1) BS or MS from an NLNAC or CCNE accredited program;
- 2) GPA of 3.0 or above;
- 3) Interview with the graduate faculty; and
- 4) Positive recommendation from the graduate student affairs committee.
- 5) For international students, TOEFL scores must be 580 or above.

Documentation Requirements

- 1) Curriculum vitae or résumé;
- 2) Three references; and
- 3) A scholarly paper.

Requirements for Clinical Scholarship

- 1) Current Hawai'i RN or APRN license;
- 2) Current CPR certificate from an approved American Heart Association Basic Cardiac Life Support;
- 3) Liability and malpractice insurance;
- 4) Immunizations and other procedures;
- 5) Health insurance.

Application Procedures

Two separate application forms must be completed: the Graduate Division application and the School of Nursing and Dental Hygiene PhD program application form. The Graduate Division application form and official transcripts must be sent directly to:

Graduate Division Admissions Office
University of Hawai'i at Mānoa
2540 Maile Way, Spalding 353B
Honolulu, Hawai'i 96822

The School of Nursing and Dental Hygiene PhD program application form is available in the Office of Student Services, Webster 201. The completed form and all other admission materials must be sent directly to:

School of Nursing and Dental Hygiene
Office of Student Services
2528 McCarthy Mall, Webster 201
Honolulu, HI 96822

Completed applications are first screened by the Graduate Division Admissions Office. Only applications of students who meet the University's minimum requirements are forwarded to the School of Nursing and Dental Hygiene for comprehensive review by the school's graduate faculty. The school then makes a recommendation to the Graduate Division to either admit the student or deny admission.

Applications are accepted for the fall semester only. The application forms and supporting documents must be received at the designated office by March 1.

School of Ocean and Earth Science and Technology



Administration

Pacific Ocean Science and Technology 802
1680 East-West Road
Honolulu, HI 96822
Tel: (808) 956-6182
Fax: (808) 956-9152
Web: www.soest.hawaii.edu/

Dean: C. Barry Raleigh
E-mail: raleigh@soest.hawaii.edu

Interim Associate Dean: Patricia A. Cooper
E-mail: cooper@soest.hawaii.edu

General Information

The School of Ocean and Earth Science and Technology (SOEST) was established in 1988. It combines and integrates the Departments of Geology and Geophysics, Meteorology, Ocean and Resources Engineering, and Oceanography, as well as the Hawai'i Institute of Geophysics and Planetology, the Hawai'i Institute of Marine Biology, and the Hawai'i Natural Energy Institute. The Sea Grant and Space Grant College Programs, the Hawai'i Undersea Research Laboratory, and the Joint Institute for Marine and Atmospheric Research, all jointly supported by state and federal funds, are also part of SOEST. In 1997 the International Pacific Research Center was

established in SOEST under the U.S.-Japan Common Agenda. The center is jointly supported by the state, Japanese, and federal funds. In addition, SOEST includes the Marine Option Program.

Although the Department of Ocean and Resources Engineering offers several undergraduate courses, baccalaureate degrees are not offered in this area. The Department of Oceanography offers the BS in global environmental science. Undergraduate students may also pursue ocean-related interests by means of the undergraduate certificate program administered by the Marine Option Program (see the "Certificate Programs" section). Baccalaureate degree programs are offered in the Department of Geology and Geophysics and the Department of Meteorology. Those with long-range plans for graduate work in oceanography or ocean and resources engineering should prepare themselves with an undergraduate course of study that will satisfy the entry requirements for admission to these graduate programs. Information on entrance and degree or certificate requirements for all SOEST graduate programs (MS and PhD in geology and geophysics, meteorology, ocean and resources engineering, and oceanography; and certificates in Graduate Maritime Archeology and History and Graduate Ocean Policy) is in this *Catalog*. Candidates for advanced degrees and the graduate certificate programs apply through the Graduate Division of the University. The school has developed a number of interdisciplinary courses at both the undergraduate and the graduate levels, which are listed under OEST within the "Courses" section of the *Catalog*.

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Mission

The mission of SOEST is to make the University of Hawai'i a leading center in ocean and earth science and technology. Scientists of SOEST intend to understand the subtle and complex interrelations of the seas, the atmosphere, and the Earth in order to learn how to preserve the quality of our lives and to bring to Hawai'i an enrichment of intellect and culture along with technological advances well suited to the needs of these islands. To that end, the objectives of SOEST are as follows:

1. Enhance educational opportunities in ocean and earth science and technology for the people of Hawai'i, the nation, and the Pacific Basin;
2. Accelerate the growth of the University of Hawai'i at Mānoa to preeminence in research and development in ocean and earth science and technology;
3. Build the strength of the University for public service and outreach in the Pacific Basin; and
4. Provide a foundation for economic interaction and development of marine-related industries within the state of Hawai'i.

Degrees and Certificates

Bachelor's Degrees: BA in geology, BS in geology and geophysics, BS in meteorology, BS in global environmental science

Master's Degrees: MS in geology and geophysics, MS in meteorology, MS in ocean and resources engineering, MS in oceanography

Doctoral Degrees: PhD in geology and geophysics, PhD in meteorology, PhD in ocean and resources engineering, PhD in oceanography

Certificate Program: Graduate Ocean Policy Certificate

Advising

For general information about the school and its programs, contact the associate dean's office at POST 802, 1680 East-West Road; tel. (808) 956-9109 or Leona Anthony, Student Services Specialist at (808) 956-8763.

For information on specific degree programs, contact the appropriate departments. For information on certificate programs, contact the Marine Option Program (see the "Certificate Programs" section).

Undergraduate Programs

Candidates for the BA degree in geology, the BS degree in geology and geophysics, the BS degree in meteorology, and the BS degree in global environmental science, apply through the undergraduate Admissions Office.

School Requirements

To be entitled to a bachelor's degree offered by the school, students must fulfill these requirements.

1. Basic course work as specified by their degree programs.
2. Completion of requirements for the major, including presentation of goldenrod form to the Student Academic Services Office.
3. Completion of 60 credit hours in non-introductory level courses (i.e., courses numbered 300 and above) or 200-level courses that have an explicit college-level course prerequisite.
4. GPA of 2.0 (C average) for all University of Hawai'i at Mānoa registered credits.
5. GPA of 2.0 (C average) for all courses applied to the major requirements.
6. A degree audit at the Student Academic Services Office in the semester preceding the award of the degree.
7. Application for graduation at the Student Academic Services Office in the semester preceding the award of the degree.

Bachelor of Arts and Bachelor of Science Degrees

Basic Requirements

1. Courses in written communication and in world civilizations as required by the UH Mānoa General Education Core (see the "Mānoa General Education and Graduation Requirements" section of this Catalog).
2. Three semester courses chosen from the three humanities groups in the General Education Core (see the "Mānoa General Education and Graduation Requirements" section of this Catalog).
3. Three semester courses from three different departments in the social sciences group in the General Education Core (see the "Mānoa General Education and Graduation Requirements" section of this Catalog).
4. At least one course in biological sciences chosen from natural sciences group one in the General Education Core (see the "Mānoa General Education and Graduation Requirements" section of this Catalog).

Support science requirements from mathematics, chemistry, and physics vary with degree programs. The following are the minimum required courses (consult departmental adviser for further details).

- Mathematics
 - MATH 241 (BA)
 - MATH 242, 242L (BS, geology and geophysics)
 - MATH 244 (BS, meteorology)
- Chemistry
 - CHEM 161/161L, 162/162L
 - CHEM 171/171L (mandatory for meteorology)
- Physics
 - PHYS 151/151L and 152/152L (BA)
 - PHYS 170/170L and 272/272L (BS)
 - (BS majors may enroll in PHYS 151/151L, 152/152L with permission of departmental adviser)

Note that introductory chemistry and mathematics courses have placement tests.

Students who have not completed a high school course equivalent to pre-calculus should take MATH 140 during the summer session prior to their first semester. All BA and BS degree candidates should consult with the departmental adviser before registering.

Major Requirements

See appropriate departments for specific major requirements leading to a bachelor of arts or a bachelor of science degree.

Graduate Programs

See appropriate departments for specific major requirements leading to MS and PhD degrees.

Certificate Program

Ocean Policy

The wise use and careful stewardship of the ocean require people with multidisciplinary and interdisciplinary advanced education in the natural and social sciences. This program offered by the School of Ocean and Earth Science and Technology, in collaboration with several other colleges and schools, is designed for classified graduate students, law students, and community professional practitioners who wish to complement their existing degree or curriculum. An advisory committee assists each student in custom-designing a 21-credit (minimum) program that draws on marine-related courses in law, geography, agricultural and resource economics, oceanography, costal management, civil and ocean and resources engineering, geology and geophysics, meteorology, botany and zoology, and includes an interdisciplinary seminar and two practica (one each in natural science and social science). For further information and applications, contact the Department of Oceanography, tel (808) 956-7633; e-mail: ocean@soest.hawaii.edu.

Instructional and Research Facilities

Hawai'i Institute of Geophysics and Planetology

The Hawai'i Institute of Geophysics and Planetology (HIGP) conducts geological, geochemical, geophysical, and oceanographic and atmospheric laser and passive remote sensing research, as well as remote sensing research in earth, space, and marine sciences. Programs embrace research and advanced training in marine geology and geophysics, marine geochemistry, materials science and high-pressure geophysics, oceanic biology, evolution of the solar system, seismology and solid earth geophysics, planetary geology, volcanology, and petrology. The institute maintains various specialized facilities in support of its research endeavors. HIGP includes the Hawai'i Space Grant College, which runs a wide variety of education and fellowship programs at the K-12, undergraduate, and professional levels and also provides outreach to the Hawai'i community.

Hawai'i Institute of Marine Biology

The Hawai'i Institute of Marine Biology (HIMB) provides facilities and services for faculty members, graduate and undergraduate students and visiting scholars for research and education in marine biology and related topics. The core faculty, plus many from other UH departments, study the life processes of marine organisms including plants, animals, and microbes. Research at HIMB covers a broad range of topics including coral reef biology and ecology, the behavior physiology and sensory systems of marine mammals, tropical aquacul-

ture, the behavior of reef fishes, shark ecology and sensory systems, fish endocrinology, pollution and management of marine ecosystems, coastal biogeochemical processes, fisheries, and bioengineering and genetics.

HIMB is unique in that it has new, state of the art, molecular biology laboratories and immediate access to the reef, Kāne'ōhe Bay, and deep ocean waters. It is located on Coconut Island in Kāne'ōhe Bay (on the east coast of O'ahu) providing a unique setting for graduate-level topics courses and field-trip demonstration opportunities. Kāne'ōhe Bay is filled with healthy coral reefs. The 24 acre island, located within a 30 minute drive distance from the Mānoa campus, is surrounded by a 64 acre coral reef dedicated to scientific research. Facilities at the marine laboratory include research vessels and skiffs, protected harbors, a pelagic fish laboratory; Hawaiian fish ponds, aquaria and tanks; a flow-through seawater system; remote environmental monitoring capabilities; reef microcosm systems; a wide array of computerized analytical and acoustic equipment; a floating marine mammal research complex; and the Barbara Pauley Pagen Library and classrooms.

Hawai'i Natural Energy Institute

The Hawai'i Natural Energy Institute (HNEI) was established by the state Legislature in 1974 as a research institute at the University to provide leadership, focus, and support for natural energy research, development, and demonstration. HNEI works closely with the federal, state, and county governments; private industry; the utilities, community and international organizations; and individuals to initiate and complete renewable energy and ocean resources activities. HNEI attracts government and industrial funds for basic research, demonstration projects, feasibility studies, and field evaluation programs.

Hawai'i Undersea Research Laboratory

The Hawai'i Undersea Research Laboratory (HURL) was established in 1980 by a cooperative agreement between the National Oceanic and Atmospheric Administration (NOAA) and the University of Hawai'i. HURL is one of six National Undersea Research Centers sponsored by NOAA's National Undersea Research Program (NURP). HURL operates the *Pisces IV* and *Pisces V* research submersibles and the *RCV-150* remotely-operated vehicle to conduct marine research to oceanic depths of 2,000 meters. These underwater vehicles are operated from HURL's dedicated support ship, the 222-foot *R/V Ka'imikai-o-Kanaloa*. Extensive data are archived and available to the scientific and academic community for biology, geology and marine chemistry research from submersible dives dating back to 1980. Principal research projects conducted are those aligned with the mission of NOAA.

James K. K. Look Laboratory

The James K. K. Look Laboratory of Oceanographic Engineering (established 1966), part of the Department of Ocean and Resources Engineering, conducts research on ocean engineering problems related to structures in and physical characteristics of the coastal zone and open ocean, and it provides service to researchers on problems related to ocean

resources and the calibration of wind-measuring instruments. The Look Laboratory is also used for instruction of courses involving field measurements of ocean characteristics and hydraulic scale models. Facilities at Look Laboratory include two- and three-dimensional hydraulic scale model spaces, an in-ocean test range, a wet chemistry and biology laboratory, photobioreactors for the Marine Bioproducts Engineering Center (MarBEC) and supporting electronics and machine shops.

Joint Institute for Marine and Atmospheric Research

The Joint Institute for Marine and Atmospheric Research (JIMAR) was formed in 1977 under a memorandum of understanding between the NOAA and the University of Hawai'i. The principal research interests of JIMAR are tsunamis, equatorial oceanography, climate, fisheries oceanography, and tropical meteorology.

International Pacific Research Center

The International Pacific Research Center was established in 1997 under the U.S.-Japan Common Agenda for Cooperation in Global Perspective. Its mission is to provide an international, state-of-the-art research environment to improve understanding of the nature and predictability of climate variability in the Asia-Pacific sector, including regional aspects of global environmental change.

Pacific Mapping Program

The Pacific Mapping Program (PMP) was established in 1990 to facilitate the exploration and development of the Pacific Islands Exclusive Economic Zone (EEZ). It was initially funded by the U. S. Geological Survey (USGS), the National Ocean Service/National Oceanic and Atmospheric Administration (NOS/NOAA), and the Pacific International Center for High Technology Research (PICHTR). It is a self-contained research facility with the state-of-the-art computer hardware and software to conduct research, service and graduate education in ocean mapping and marine geographic information systems (GIS). The principal research interests of the PMP are shallow water mapping, GIS, remote sensing and data integration.

Sea Grant College Program

The Sea Grant College Program promotes research, education, and extension services directed to the improved understanding, management, and wise use of marine and coastal resources of the state, region, and nation. Research, conducted by faculty in the University of Hawai'i statewide system, includes aquaculture, commercial biotechnology, ecosystem-based management of fisheries and coral reefs, sustainable tourism, coastal water quality, coastal habitats, shoreline processes, and natural hazards. Research results are disseminated to marine agencies, the marine industry, and the general public through Sea Grant's extension service and communications program. Sea Grant also provides marine educational benefits through traineeships and fellowships in the state and

region's schools and university system; an increasing cadre of better-trained and informed faculty and staff; and employment of Sea Grant-trained graduates and postgraduates by universities, marine industries, and state and federal agencies. Hawai'i Sea Grant has strong linkages with the 30 Sea Grant programs across the nation and operates programs throughout the Pacific.

Space Grant College Program

The Space Grant College Program is a wide-ranging community educational program supported by the National Aeronautics and Space Administration (NASA) that promotes studies in scientific fields related to space. These fields include astronomy, geology, meteorology, oceanography, mathematics, physics, engineering, computer science, and life sciences. Affiliate campuses are UH Hilo, all seven Community Colleges, Hawai'i Pacific University, and the University of Guam. Some of the programs supported by Space Grant include an Undergraduate Fellowship Program (approximately 20 students per semester are supported); the Future Flight Program for teachers, school students and their parents; teacher workshops; undergraduate remote-sensing class; an undergraduate telescope facility; maintenance of several World Wide Web sites including "Planetary Science Research Discoveries"; and outreach to state and federal agencies related to the use of satellite and aircraft remote-sensing data. A significant goal of the program is to encourage interdisciplinary studies and research and to train future generations of space scientists in the physical sciences. Students, teachers, and researchers in Hawai'i are encouraged to contact the Mānoa Space Grant office at (808) 956-3138 to learn more about the opportunities.

Geology and Geophysics

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Tel: (808) 956-7640
Fax: (808) 956-5512
Web: soest.hawaii.edu/GG/
E-mail: lanthony@soest.hawaii.edu

Faculty

- *P. Wessel, PhD (Chair)—marine geophysics
- *J. M. Becker, PhD—geophysical fluid dynamics, nonlinear dynamics
- *P. Cooper, PhD—seismology
- *F. K. Duennebie, PhD—seismology, marine geophysical instrumentation
- R. A. Dunn, PhD—marine geophysics
- *A. I. El-Kadi, PhD—groundwater hydrology
- *P. F. Fan, PhD—sedimentary and geothermal mineralogy, geology of Asia
- *C. H. Fletcher, PhD—coastal processes
- *L. N. Frazer, PhD—theoretical seismology
- E. J. Gaidos, PhD—geobiology, planetary science
- *M. O. Garcia, PhD—igneous petrology, volcanology

*C. R. Glenn, PhD—sedimentology, diagenesis, paleoceanography
 J. E. Hammer, PhD—physical volcanology
 *B. F. Houghton, PhD—physical volcanology
 G. T. Ito, PhD—marine geophysics and geodynamics
 P. D. Lee, MS—paleontology
 *J. J. Mahoney, PhD—geochemistry
 *S. J. Martel, PhD—engineering geology, geomechanics
 *R. Moberly, PhD—marine geology, sedimentology
 *G. F. Moore, PhD—exploration seismology, tectonics
 *B. N. Popp, PhD—isotopic biogeochemistry
 *C. B. Raleigh, PhD—seismology, rock mechanics
 G. E. Ravizza, PhD—paleoceanography
 D. K. Ross, PhD—igneous petrology, geochemistry
 *K. H. Rubin, PhD—isotope geochemistry, age dating
 *J. M. Sinton, PhD—igneous petrology, marine geology
 *K. J. Spencer, PhD—geochemistry, instrumentation
 *B. Taylor, PhD—plate tectonics, geology of ocean margin basins

Cooperating Graduate Faculty

T. B. Appelgate, PhD—marine geology and geophysics, seafloor mapping and plate tectonics
 J. Bell, PhD—planetary geosciences
 M. G. Bevis, PhD—crustal motion geodesy, GPS, geodynamics
 K. A. W. Crook, PhD—sedimentology, tectonics, geoscience policy
 E. H. DeCarlo, PhD—marine geochemistry, marine resources
 M. H. Edwards, PhD—marine geology and geophysics
 L. Flynn, PhD—remote sensing of fires and volcanoes
 G. J. Fryer, PhD—seismology, computer modeling, marine geophysics
 P. B. Fryer, PhD—marine geology, petrology, tectonics
 M. D. Fuller, PhD—paleomagnetism, geomagnetism
 A. J. Harris, PhD—volcanology, remote sensing
 M. A. Garcés, PhD—infrasound, wave propagation, volcanology
 B. R. Hawke, PhD—planetary geosciences
 E. Herrero-Bervera, PhD—paleomagnetism, geomagnetism
 R. N. Hey, PhD—marine geophysics and tectonics
 B. H. Keating, PhD—paleomagnetism
 K. Keil, DrRerNat.—meteorites, planetary geosciences
 L. S. L. Kong, PhD—seismology
 L. W. Kroenke, PhD—marine geology and geophysics
 B. R. Lienert, PhD—geophysics
 P. G. Lucey, PhD—planetary geosciences
 F. Mackenzie, PhD—sedimentary geochemistry, sedimentology
 M. H. Manghnani, PhD—high-pressure geophysics, mineral physics
 F. Martinez, PhD—marine geophysics
 T. B. McCord, PhD—planetary surfaces, remote sensing
 F. W. McCoy, PhD—marine geology, sedimentology
 L. C. Ming, PhD—high-pressure mineralogy
 P. J. Mouginiis-Mark, PhD—planetary science, remote sensing
 S. K. Rowland, PhD—planetary geosciences
 J. E. Schoonmaker, PhD—marine geology and geochemistry
 E. R. D. Scott, PhD—planetary geosciences
 S. K. Sharma, PhD—raman and IR spectroscopy in geochemistry
 G. J. Taylor, PhD—planetary geosciences

D. M. Thomas, PhD—geothermal and volcanic geochemistry
 R. Wilkens, PhD—rock and sediment properties, bore-hole research
 C. J. Wolfe, PhD—seismology, marine geophysics

Affiliate Graduate Faculty

D. Clague, PhD—marine geology, volcanology
 A. L. Clark, PhD—economic geology, resources
 J. Gradie, PhD—planetary sciences
 C. J. Johnson, PhD—resource systems
 K. T. M. Johnson, PhD—marine geology and geophysics
 J. P. Kauahikaua, PhD—volcanology
 J. P. Lockwood, PhD—volcanology
 J. K. Morgan, PhD—sediment mechanics, convergent margin processes, numerical modeling of granular materials
 P. G. Okubo, PhD—geophysics
 S. Self, PhD—volcanology, petrology
 G. H. Sutton, PhD—seismology, marine geophysics
 D. A. Swanson, PhD—volcanology
 C. R. Thornber, PhD—geochemistry, volcanology
 G. W. Tribble, PhD—geochemistry, coral reef geology
 D. A. Walker, PhD—seismology
 C. G. Wheat, PhD—low-temperature geochemistry

Degrees Offered: BA in geology, BS in geology and geophysics, MS in geology and geophysics, PhD in geology and geophysics

The Academic Program

Geology and geophysics (GG) are important branches of the geosciences, which encompass the scientific study of Earth and other bodies in our solar system. Thus, the scope of the geosciences is extremely broad, and includes important ties to meteorology and oceanography. The Earth and other planets are highly dynamic; geoscientists study the internal and surface changes that occur to decipher the fundamental causes of these changes. In turn, these studies shed light on the origin and evolution of Earth processes, the other planets, and, indeed, the entire solar system. The range of interest in the Earth and planetary sciences is from submarine volcanism to understanding our environment, from coastal erosion and sea level change to past oceanic, biotic, and climatic changes, from the origins of life to monitoring the earthquakes of active volcanoes, and from the composition of meteorites and Mars to the distribution of petroleum and water resources. The geosciences offer a richness in variety and unrivaled opportunity for multidisciplinary research on problems of great intellectual and practical importance.

Geology and geophysics have much to offer students curious about humankind's place in nature. Undergraduate majors can look forward to expanding opportunities in the private and public sectors (e.g., the environment, hydrogeology). Such jobs offer incredible variety, the opportunity to work outdoors, and many opportunities for travel. Prospective undergraduates are strongly encouraged to build communication skills and a solid background of understanding

in chemistry, physics, and mathematics as these disciplines are essential for solving the basic question about how Earth and other planets work. Students with graduate degrees (both MS and PhD) can look forward to interesting research careers in industry, government, or in colleges and universities. The intellectual rewards of basic geosciences research are comparable to such other exciting fields as biomedical research, particle physics, and cosmology. Geosciences have many exciting frontiers and challenges for the future including learning to predict earthquakes and volcanic eruptions, discovering the history of Mars, understanding the forces that move the surface plates of Earth, and unraveling the history of Earth's surficial processes both on land and in its oceans.

At the University of Hawai'i at Mānoa, the department offers outstanding programs of study at the graduate and undergraduate levels. The faculty is large (about 29 teaching and research faculty and about 36 additional graduate faculty) and diverse, so there are strong programs in all major subdisciplines. The geographic location in the midst of the Pacific Ocean and the rich geologic setting provide a natural focus for research programs in seismology, volcanology, marine geology and geophysics, planetary science, sedimentology, hydrogeology, geochemistry, paleoceanography, meteorites, and many other fields. The quality of the school's research vessels, submersibles, and analytical and computing facilities reflects its commitment to the excellence in field studies, and well as in theoretical and modeling studies. The quality of the faculty, research facilities, and opportunities is difficult to match.

Advising

Students contemplating a major or minor in geology and geophysics should visit an undergraduate adviser at the earliest opportunity. Inquire at the department's student services office, POST 701C.

Undergraduate Study

BA in Geology

Requirements

The BA degree in geology is appropriate for students interested in the study of the Earth but who do not necessarily intend to pursue graduate work or employment in traditional geology fields. It is more flexible than the BS program and is suitable for students who are considering, for example, a double major, teaching, or not considering employment as a professional geologist.

The BA degree requires completion of 124 credit hours of coursework, the equivalent of four years of full-time work. The BA program requires 35 credits in the geology and geophysics curriculum. This includes one introductory level GG course with a lab, seven non-introductory GG courses, and a one-credit research seminar (GG 410). A minimum of 6 credits of approved upper division science electives is also required; these courses can be in geology and geophysics or in other natural sciences, mathematics, or engineering. Students are encouraged

to consider taking a mainland summer field course as an elective. Required support mathematics and science classes include physics, chemistry, biological sciences, and one semester of college calculus; these total 20-21 credits and should be taken as early as possible.

Geology and Geophysics Courses

- Required Courses (29 credits)
 - GG 101 Dynamic Earth or GG 103 Geology of the Hawaiian Islands (3)
 - GG 101L Dynamic Earth Laboratory (1)
 - GG 200 Geological Inquiry (4)
 - GG 301 Mineralogy (4)
 - GG 302 Igneous and Metamorphic Petrology (3)
 - GG 303 Structural Geology (3)
 - GG 305 Geological Field Methods (3)
 - GG 308 Earth History (3)
 - GG 309 Sedimentology and Stratigraphy (4)
 - GG 410 Research Seminar (1)
- Upper Division Science Electives (6 credits)
 - GG 300 Volcanology (3)
 - GG 312 Geomathematics (3)
 - GG 313 Geological Data Analysis I (3)
 - GG 325 Fundamentals of Geochemistry (3)
 - GG 399 Directed Reading (V)
 - GG 401 Introduction to Mineral Physics (3)
 - GG 402 Hawaiian Geology (3)
 - GG 407 Energy and Mineral Resources (3)
 - GG 420 Quaternary Geology (3)
 - GG 423 Marine Geology (3)
 - GG 425 Environmental Geochemistry (3)
 - GG 426 Sedimentary Isotope Geochemistry (3)
 - GG 430 Geology and Mineral Resources of Asia (3)
 - GG 444 Plate Tectonics (3)
 - GG 450 Geophysical Methods (4)
 - GG 451 Earthquakes (3)
 - GG 454 Engineering Geology (3)
 - GG 455 Hydrogeology (4)
 - GG 460 Geological Remote Sensing (3)
 - GG 466 Planetary Geology (3)
 - GG 491 Teaching Geology (4)
 - GG 499 Undergraduate Thesis (3)
- Support Courses (20-21 credits)
 - General Chemistry (CHEM 161, 161L, 162, 162L)
 - Calculus I (MATH 241)
 - College Physics (PHYS 151, 151L, 152, 152L)
 - Biological Science (a 3-credit course listed under the University's General Education and Core requirements)

BS in Geology and Geophysics

Requirements

The BS degree in geology and geophysics is strongly recommended for students who intend to pursue graduate work or employment in geology or geophysics. The BS degree provides substantial grounding in computational and analytical

skills needed for a practicing geologist. It places added emphasis on applications of chemistry, physics, and mathematics to studying the Earth.

The BS degree requires completion of 124 credit hours of coursework, the equivalent of four years of full-time work. The BS program requires 47 credits in the geology and geophysics curriculum. This includes one introductory level GG course with a lab, ten non-introductory GG courses, a one-credit research seminar (GG 410), and nine credits of electives in GG. With advice and consent of an undergraduate adviser, courses in other natural sciences, mathematics, or engineering may be substituted as electives. Students are encouraged to consider taking a mainland summer field course as an elective. Required support mathematics and science classes include physics, chemistry, biological sciences, and two semesters of college calculus; these total between 24 and 25 credits and should be taken as early as possible.

Geology and Geophysics Courses

- Required Courses (39 credits)
 - GG 101 Dynamic Earth or GG 103 Geology of the Hawaiian Islands (3)
 - GG 101L Dynamic Earth Laboratory (1)
 - GG 200 Geological Inquiry (4)
 - GG 301 Mineralogy (4)
 - GG 302 Igneous and Metamorphic Petrology (3)
 - GG 303 Structural Geology (3)
 - GG 304 Physics of Earth and Planets (4)
 - GG 305 Geological Field Methods (3)
 - GG 308 Earth History (3)
 - GG 309 Sedimentology and Stratigraphy (4)
 - GG 313 Geological Data Analysis I (3)
 - GG 325 Fundamentals of Geochemistry (3)
 - GG 410 Research Seminar (1)
- Upper Division GG Electives (9 credits)
See the Upper Division Science Electives listing under the BA program.
- Support Courses (24-25 credits)
 - General Chemistry (CHEM 161, 161L, 162, 162L)
 - Calculus I and II (MATH 241 and 242, 242L)
 - General Physics (PHYS 170, 170L, 272, 272L) or College Physics (PHYS 151, 151L, 152, 152L)
 - Biological Science (a 3-credit course listed under the University's General Education and Core requirements)

Minor

Requirements

The minor requires GG 101 (or 103), 101L, 200, and 11 credits of non-introductory courses at the 300-level or higher. A "C" average is required in these courses. The minor is flexible and can provide either an introductory survey of geology or emphasize areas of particular interest to the student. A student

interested in a minor in geology and geophysics should consult with an adviser from the department to tailor a plan best suited to the student's interest.

Graduate Study

Admission Requirements

All applicants must take the GRE General Test. All students are urged to have completed a course in a computer programming language before entrance. U.S. applications are due by January 15 for admission in the fall semester or by September 1 for the spring semester. International applications are due January 1 and August 15, respectively.

Undergraduate deficiencies will be listed on the basis of the student's transcripts and intended field of study. Courses may be added to the list or removed from it as a result of questioning during the preliminary conference and the general examination. Course GG 611 is intended for students entering from a non-geoscience field to prepare them for graduate studies in geosciences.

Master's Degree

Intended candidates will be accepted from undergraduate majors in the natural sciences, mathematics, and engineering, and they normally would be expected to have completed at least one year each of college mathematics, geology, physics, and chemistry. Adequacy of each applicant's additional preparation will depend on the particular branch of geology and geophysics being pursued. At the time of application the student should state the field in which he or she intends to study

Requirements

For MS students, the graduate studies committee of the department will determine suitability of Plan A (thesis) or Plan B (non-thesis) at the preliminary conference. Virtually all students are required to follow Plan A. Plan A requires a minimum of 30 credits, including 6 credits of GG 700 Thesis Research and at least 24 credits of course work (up to 6 course work credits may be in GG 699). Plan B requires a minimum of 30 credit hours of course work and a final exam.

Doctoral Degree

Students wishing to bypass the MS degree and advance directly into PhD candidacy must pass a qualifying examination during the second semester in residence.

Requirements

PhD candidates are accepted with either a BS or MS degree. Students without an MS must pass a qualifying examination given at the beginning of their second semester in residence. All PhD candidates must pass a comprehensive examination no later than at the end of the fourth semester of residence for students without an MS degree or at the end of the second semester of residence for students with an MS degree. The

comprehensive exam includes oral and written parts that cover in-depth subjects in the student's field of interest and also the breadth of several areas in this and other departments that bear on the field. A final examination in defense of the dissertation is required. Space and aid for the program are limited, so each student's progress will be reviewed annually.

Areas of Interest

The four areas of interest listed below are active fields of research in the department. For each, a brief description and the required undergraduate preparation is listed. Students with backgrounds other than these may be accepted in a field if their records and recommendations are good, but advancement to candidacy may be delayed. A complete statement of the courses and other work in each field necessary for the MS or to prepare for the PhD comprehensive examination will be given to the entering student.

The department can provide further information on research opportunities and financial aid in each of the areas of interest.

Geophysics and Tectonics. This program takes advantage of the University of Hawai'i's mid-Pacific setting to investigate a wide variety of geodynamic, tectonic, and geophysical phenomena that operate over a broad range of scales. Studies in geophysics and tectonics at the University of Hawai'i are interdisciplinary and include experimental and theoretical developments, field-based observations, and computer simulations. Together, they provide students with a background that combines both geology and geophysics for technical and professional work at industrial, governmental, and academic institutions. Current research areas include:

Plate Kinematics and Evolution. Studies of rift propagation and plate break-up; initiation and evolution of continental margins and back-arc basins; relative and absolute motion of plates; thermo-mechanical properties of oceanic lithosphere; mantle flow and the driving forces of plate tectonics.

Seismology. Theory and analysis of seismic waves from active and passive sources; ocean-bottom geophysical instrumentation (HUGO); multichannel seismic imaging of subduction zones, accretionary prisms, and submarine volcano flanks.

Geophysical Fluid Dynamics. Mantle flow and plume-plate interaction; plate generation and rheology from mantle flow; ocean/shore dynamics and nonlinear waves.

Rock Fracture Mechanics. Coupled field, theoretical, and laboratory analyses of the mechanics of fault growth, rock fracture, dike propagation, landslides, and crustal deformation; these topics are relevant to plate tectonics, structural geology, and engineering geology.

Entrance may be through majors in geophysics, geology, mathematics, physics, or engineering. Students need a background in geology (which can be obtained in graduate school) together with supporting mathematics and physics.

Marine and Environmental Geology. The Marine and Environmental Geology program (MEG) is focused on the dynamic physical, biological and chemical interactions that characterize earth surface environments. The program provides instructional and research opportunities in a wide range of topics related to tropical insular environments. Because of our unique geographic location and diverse ethnic population, Hawai'i is an excellent natural laboratory to study the interaction of humans with natural environmental systems. Special areas of emphasis include carbonate geology, coastal geology, geomechanics, groundwater hydrology, paleoclimatology, marine biogeochemistry, and sedimentology/stratigraphy. Although much of our research is done within the Hawaiian Islands, we also study other Pacific islands, Asia, and modern environments around the world. The MEG program consists of three main areas of research:

Coastal Geology. Hawai'i's beaches and reefs are world-renowned for their beauty. Understanding the processes which shape them will help us to preserve their splendor; this is an important motivation for research in this field. Volcanic islands provide platforms for reef community development and a unique chronicle of past sea level changes. Studies in this program have a particular emphasis on nearshore processes, coastal sedimentation and erosion, remote sensing of reefs, geologic history of Hawaiian reefs, Pacific basin sea level history, and submarine landslides. Research also focuses on carbonate petrology and petrography to derive clues to past environmental changes as well as post-depositional geochemical changes to island limestones.

Deep-Sea Sedimentary Environments. Hawai'i's central location within the Pacific allows easy access to a wealth of deep-sea environments, where sediments record the history of changes in ocean chemistry and productivity and their relationships to tectonic movements and climate change. Deep-sea studies are focused on micropaleontology, paleoceanography, organic isotope biogeochemistry, marine authigenesis, carbonate sedimentology and the physical properties of sediments and crustal rocks.

Hydrogeology of Tropical Volcanic Islands. Almost all types of hydrologic environments are found in the Hawaiian Islands, ranging from near-desert conditions with annual rainfalls of less than 25 cm to Mt. Waialeale on Kaua'i, which is one of the wettest gauged spots on Earth with annual rainfall of over 10 m, and from sea level tropical rain forests to snow and permafrost conditions at the top of Mauna Kea at 4.2 km above sea level. Human activities related to tourism and agriculture introduce additional complexities into this delicately balanced environmental system. This unique setting presents important opportunities to study groundwater transport and contaminant fate processes, groundwater modeling, and the hydrogeology of Pacific islands and atolls.

Many research efforts in this program involve participation in several marine expeditions each year. Graduate students in our program are encouraged to participate in these voyages as a part of their career training. The program is multidisciplinary with cooperating faculty and courses from several other

departments including civil engineering, soil sciences, oceanography and geography. The diverse research and teaching interests of the faculty make it possible to tailor graduate degree work to fit the needs and desires of the student.

Typically an undergraduate major in geology or one of the other natural sciences along with basic courses in physics, chemistry, and mathematics would be sufficient for entrance. The student should be prepared to commence or continue course work in (1) structural or tectonic geology (2) exploration geophysics, and (3) any one or more of sedimentology, paleontology, geochemistry, and petrology, as applied to marine research. The student should be prepared for additional work in whatever combination of geology, geophysics, civil engineering, and geochemistry is appropriate for his or her optimum development.

Volcanology, Geochemistry, and Petrology. The University of Hawai'i is uniquely situated to study all major aspects of volcanic systems. Active Hawaiian volcanoes are natural laboratories of intraplate volcanism and hydrothermalism; eroded fossil volcanic systems on the older islands provide windows into deeper volcanic structures; and Hawai'i is at the center of the Pacific "Ring of Fire." Also, we study submarine volcanoes with our research vessel, and we remotely monitor volcanoes on Earth and other planets from ground-based and space-borne observatories. The Hawai'i Center for Volcanology is housed at SOEST; it includes scientists from the USGS Hawaiian Volcano Observatory and the Center for the Study of Active Volcanoes at UH Hilo, facilitating collaborative projects to monitor active volcanoes. Additionally, the Volcanology, Geochemistry, and Petrology (VGP) program has a wide range of modern, well-equipped analytical laboratories that provide data on the chemical composition and physical properties of igneous materials. Current research areas include:

Ocean Spreading Center Processes. Petrologic, geochemical and isotopic variations along and across mid-ocean ridges and back-arc basin spreading centers; geometry and dynamics of mantle flow, melt generation and magma chambers beneath spreading centers; near axis seamount genesis; hot spot-spreading center interactions; magmatic systems at propagating rifts; geochronology of submarine volcanism, elemental fluxes from erupting mid-ocean ridge volcanoes.

Physical Volcanology. The rise, degassing and fragmentation of magma in conduits; transport and deposition from volcanic plumes and pyroclastic density currents; flood basalts and the eruption and emplacement of lavas; caldera volcanoes and ignimbrites; volatile degassing and retention in magma chambers; environmental impact and social consequences of eruptions; origin of dike complexes and rift zones; and volcanic processes on extraterrestrial bodies.

Intraplate Volcanism and Volcano Monitoring. Petrologic, geochemical, isotopic, and geologic evolution of Hawaiian and other oceanic islands and seamounts; petrologic, seismic, and geodetic monitoring of magmatic systems at active Hawaiian volcanoes, including a fiber optic-linked observatory on Loihi Seamount; satellite monitoring of volcanic hazards and

eruption clouds; remote-sensing observation of extraterrestrial volcanoes. Relationship of hot spots to flood basalt and oceanic plateau formation; geochemistry of active hydrothermal systems.

In addition to basic courses in chemistry, physics, and mathematics, the well-prepared student would have had training in mineralogy, optical mineralogy, petrology, structural geology, and, in some cases, geological field methods and remote sensing techniques.

Planetary Geoscience and Remote Sensing. The principal objective of this program is to study the geology and composition of objects (planets, asteroids, moons, and meteorites) in the solar system in order to understand their origin and evolution. It involves research in planetary and terrestrial geology, cosmochemistry, planetary astronomy, and scientific instrumentation. Current research areas include:

Meteoritics and Cosmochemistry. Research on extraterrestrial materials (from asteroids, the Moon, and Mars) focuses on the vast array of processes that formed and modified planets and asteroids. Central themes of our research are: (1) processes in the solar nebula (2) alteration processes in asteroids (3) the effects of shock on mineralogy, textures, and isotopic systems (4) igneous processes, and (5) planetary crustal compositions and evolution.

Inner Planets and the Moon. Several HIGP faculty are involved in a number of remote sensing and petrology projects that have as their focus deriving a better understanding the composition of the crust and mantle of the Moon, which is crucial to understanding lunar origin and differentiation. Mars has numerous large volcanoes that have a similar morphology to Kilauea and Mauna Loa volcanoes in Hawai'i. New high resolution images and topographic data from the Mars Global Surveyor mission allow us to quantify the eruption processes on Mars, based on the knowledge of volcanism in Hawai'i.

Outer Planet Satellites. One group of planetary scientists is doing extensive research on the compositions of the outer planets' satellites. They are studying the surface compositions of the icy moons of Jupiter using data from the Galileo spacecraft and laboratory experiments. The research has implications for the nature of primitive bodies in the solar system and the possibility for life in icy satellites. This group is also heavily involved with the Cassini mission to Saturn and its moons.

Terrestrial Remote Sensing. Several faculty within HIGP are involved with the analysis of volcanic thermal anomalies, using spacecraft (Landsat 7, Terra, GOES), aircraft, and ground observations. These data allow studies of the flux of lava through volcanic systems and evaluation of eruption precursors. Similar work on thermal anomalies focuses on the study of forest fires. Data from the GOES geostationary satellite are made available on the HIGP web site (hotspot1.pgd.hawaii.edu/goes/). Remote sensing studies of volcanoes also include the use of radar interferometry to measure the deformation of volcanoes, crucial for understanding magma emplacement and volcanic tectonics.

Instrument Development. The Hawai'i Institute of Geophysics and Planetology has a many years of experience in developing instruments for use in studying global problems in earth and planetary science. One group is developing hyperspectral thermal infrared imagers for use in lithologic mapping. A new instrument is also in the planning stage, potentially for flight on the International Space Station. Another group is developing a synthetic aperture sonar system. A third group built the HIGP Acoustic Wide Angle Imaging Instrument, Mapping Researcher 1 (HAWAII MR1).

Typically, an undergraduate major in geology, astronomy, physics, or engineering along with basic courses in chemistry, physics, and mathematics would be sufficient for entrance. The student should be prepared to commence or continue course work in whatever combination of geology, geophysics, geochemistry, planetary science, spectroscopy, or remote sensing is appropriate to optimum development in the field.

Global Environmental Science

Marine Science 205C

1000 Pope Road

Honolulu, HI 96822

Tel: (808) 956-7932

Fax: (808) 956-9225

E-mail: ges@soest.hawaii.edu

Web: www.soest.hawaii.edu/oceanography/GES/

Faculty

- F. T. Mackenzie, PhD (Program Coordinator)—geochemistry, biogeochemical cycling, global environmental change
- J. M. Becker, PhD—geophysical fluid dynamics, nonlinear waves and stability, coastal processes, general ocean circulation
- R. R. Bidigare, PhD—bio-optical oceanography, pigment biochemistry, plankton metabolism
- S. Businger, PhD—mesoscale and synoptic meteorology
- A. D. Clarke, PhD—physical and chemical properties of aerosol in remote troposphere, aircraft studies of aerosol in free troposphere
- J. P. Cowen, PhD—microbial geochemistry, particle aggregation dynamics, hydrothermal systems
- E. H. DeCarlo, PhD—aquatic chemistry; metals and their anthropogenic inputs, transformations, fate and transport
- S. Dollar, PhD—biogeochemistry, nearshore processes and effects of human activity on the coastal zone
- A. El-Kadi, PhD—hydrogeology, modeling groundwater systems
- R. C. Ertekin, PhD—hydrodynamics, computational methods, offshore and coastal engineering, oil-spill spreading, fishpond circulation
- P. J. Flament, PhD—surface ocean layer dynamics, mesoscale circulation structures of the ocean, remote sensing of the sea surface
- C. H. Fletcher, PhD—quaternary and coastal marine geology, sea-level history, coastal sedimentary processes
- P. Fryer, PhD—marine geology, petrology, tectonics
- M. O. Garcia, PhD—volcanology, igneous petrology, geochemistry
- T. W. Giambelluca, PhD—interactions between the atmosphere and the land surface, including influences of land use and land cover change on climate and surface hydrology and effects of global climate change on hydrologic processes and terrestrial ecology
- C. R. Glenn, PhD—paleoceanography, marine geology, sedimentology, sediment diagenesis
- E. G. Grau, PhD—environmental physiology and comparative endocrinology of fish
- R. W. Grigg, PhD—ecology and paleoecology of coral reefs, precious corals
- B. J. Huebert, PhD—air pollution, climate change, atmospheric aerosols, global elemental cycles
- M. C. Jarman, LLM—environmental law, administrative law, ocean and coastal law, legal writing; the public trust doctrine, land use, the intersection of indigenous peoples' rights and environmental law, and community empowerment through the law
- D. E. Konon, PhD—international trade, microeconomics, computational economics
- M. R. Landry, PhD—zooplankton, population dynamics, marine ecosystem modeling
- E. A. Laws, PhD—phytoplankton ecology, aquatic pollution, aquaculture
- Y. H. Li, PhD—marine geochemistry, environmental pollution
- K. Lowry, PhD—design, planning and evaluation of ocean and coastal management programs. Experience in Hawai'i, Indonesia, Sri Lanka, Philippines and Thailand
- R. Lukas, PhD—physical oceanography, interannual and decadal climate variability
- D. Luther, PhD—observational physical oceanography, circulation variability and dynamics, mesoscale fluctuations, waves in the ocean
- J. J. Mahoney, PhD—isotope geochemistry of oceanic and continental crust and mantle
- A. Malahoff, PhD—submarine volcanic processes and the geophysical monitoring of submarine volcanoes, processes of formation of ocean floor minerals
- S. J. Martel, PhD—engineering and structural geology
- G. M. McMurtry, PhD—geochemistry, geology and geophysics
- C. Measures, PhD—trace element geochemistry, hydrothermal systems, elemental mass balances
- P. Menon, PhD—environmental and occupational health standards
- M. A. Merrifield, PhD—physical oceanography; coastal circulation; sea level variability; current flows and mixing in the vicinity of coral reefs, islands and seamounts
- J. N. Miller, MS—marine and land environmental management, environmental assessment
- G. F. Moore, PhD—marine geophysics, structural geology
- M. J. Mottl, PhD—hydrothermal processes, geochemical cycles
- P. Mouginiis-Mark, PhD—volcanology from space, remote sensing of natural hazards
- P. K. Muller, PhD—ocean circulation, waves and turbulence
- B. N. Popp, PhD—isotope biogeochemistry, organic geochemistry

- J. N. Porter, PhD—atmospheric science, use of satellites to study aerosol and cloud forcing, ship measurements of aerosol and cloud optical properties
- R. L. Radtke, PhD—fisheries oceanography, migrations and history
- M. A. Ridgley, PhD—resource management and human-environment system analysis
- J. Roumasset, PhD—environmental economics and sustainable growth
- K. Rubin, PhD—isotope geochemistry, chronology
- F. J. Sansone, PhD—suboxic/anoxic diagenesis in sediments, hydrothermal geochemistry, lava-seawater interactions, trace gas geochemistry
- T. Schroeder, PhD—mesometeorology, tropical meteorology
- S. K. Sharma, PhD—atmospheric instrumentation and remote sensing; Lidar, Raman, and infrared spectrometry and fiber-optic environmental sensors
- C. R. Smith, PhD—seafloor ecology, deep-ocean food webs, sediment geochemistry
- S. V. Smith, PhD—global biogeochemistry; carbon, nitrogen, and phosphorus cycling, particularly in the coastal zone; behavior of the global carbon cycle
- K. J. Spencer, PhD—stable isotope geochemistry, petrology, environmental geochemistry
- M. E. Tiles, PhD—logic, history, and philosophy of mathematics, science, and technology
- J. S. Tribble, PhD—sedimentary geochemistry and diagenesis
- H. K. Van Tilburg, MA—nautical archaeology, maritime history, submerged cultural resource management
- B. Wang, PhD—atmospheric and climate dynamics
- D. W. Woodcock, PhD—vegetation and climate, paleoenvironmental reconstruction, use of fossil wood as a paleoenvironmental indicator, and the terrestrial carbon cycle

Degree Offered: BS in global environmental science

The Academic Program

Global environmental science is a holistic, scientific approach to the study of the Earth system and its physical, chemical, biological, and human processes. It is a bold new academic program designed to educate leaders and citizenry to become wise stewards of our planet. Global environmental science focuses on the global reservoirs of hydrosphere (water, primarily oceans), biosphere (life and organic matter), atmosphere (air), lithosphere (land, sediments, and rocks), and cryosphere (ice); their interfaces; and the processes acting upon and within this interactive system, including human activities. In the course of their scientific studies, global environmental science students are able to investigate natural as well as economic, policy, and social systems and their response and interaction with the Earth system. Global environmental science has important ties to the more classical sciences of geology and geophysics, meteorology and climatology, oceanography, and ecology as well as to the social sciences. Thus, the scope of global environmental science is extremely

broad. This breadth is reflected in the interdisciplinary nature of the faculty, which is primarily drawn from numerous departments and research institutions within the School of Ocean and Earth Science and Technology.

Global environmental science has much to offer the student who is interested in the environment and the effect of humans on the environment. The skills developed in global environmental science can be brought to bear on local, regional, and global environmental issues. Many of the critical environmental problems confronting humankind involve large-scale processes and interactions among the atmosphere, oceans, biosphere, cryosphere, shallow lithosphere, and people. Some of the problems derive from natural causes; others are a result of human activities. Some of the issues that global environmental science students deal with are: climatic changes from anthropogenic inputs to the atmosphere of CO₂ and other greenhouse gases; human interventions and disruptions in the biogeochemical cycles of carbon, nitrogen, phosphorus, sulfur, trace metals, and other substances; emissions of nitrogen and sulfur oxide gases and volatile organic compounds to the atmosphere and the issues of acid deposition and photochemical smog; depletion of the stratospheric ozone layer and associated increase in the flux of ultraviolet radiation to Earth's surface; increasing rates of tropical deforestation and other large-scale destruction of habitat, with potential effects on climate and the hydrologic cycle; disappearance of biotic diversity through explosive rates of species extinction; global consequences of the distribution and application of potentially toxic chemicals in the environment and biotechnology; interannual and interdecadal climate variability, e.g., El Niño/Southern Oscillation; eutrophication; water and air quality; exploitation of natural resources with consequent problems of waste disposal; earthquakes, tsunamis, and other natural hazards and prediction; and waste disposal: municipal, toxic chemical, and radioactive. In all cases, the student is encouraged to understand and appreciate the social, economic, and ultimately the policy decisions associated with these and other environmental issues.

Specifically with respect to learning objectives, the students develop competency in understanding how the physical, biological, and chemical worlds are interconnected in the Earth system. They obtain skills in basic mathematics, chemistry, physics, and biology that enable them to deal with courses in the derivative geological, oceanographic, and atmospheric sciences at a level higher than that of qualitative description. In turn, these skills enable the students to learn the subject matter of global environmental science within a rigorous context. The students develop an awareness of the complexity of the Earth system and how it has changed during geologic time and how human activities have modified the system and led to a number of local, regional, and global environmental issues. They become competent in using computers and dealing with environmental databases and with more standard sources of information in the field. They are exposed to experimental, observational, and theoretical methodologies of research and complete a senior research paper in environmental studies using

one or more of these methodologies. Field work is encouraged for the senior thesis and, depending on the topic chosen by the student, can be carried out at the Hawai'i Institute of Marine Biology's Coconut Island facility, E. W. Pauley Laboratory, and associated He'eia ahupua'a or elsewhere.

The ultimate objective of the global environmental science program is to produce a student informed in the environmental sciences at a rigorous level who is able to go on to graduate or professional school; enter the work force in environmental science positions in industry, business, or government; enter or return to teaching with knowledge of how the Earth system works; or enter the work force in another field as an educated person with the knowledge required to become a wise environmental steward of the planet.

Advising

Students contemplating a major in global environmental science should visit the program coordinator at the earliest opportunity. Inquire at the global environmental science office, Marine Science 205C; tel. (808) 956-7932, fax (808) 956-9225; e-mail: ges@soest.hawaii.edu

BS in Global Environmental Science Requirements

Aside from core University requirements, the global environmental science program has core requirements of two basic types: basic sciences and derivative sciences. The former provides the foundation to understand and appreciate the latter in the context of basic skills in mathematics, biology, chemistry, and physics. Both global environmental science core requirements provide the necessary cognitive skills to deal with the higher academic level courses within the global environmental science curriculum. These include required foundation courses in global environmental science and coupled systems courses. It is within this latter category of course work that the formal course program will be tailored to the individual student's needs. For example, we anticipate that most students will follow closely a natural science track of study, perhaps concentrating on the terrestrial, marine, or atmospheric environment. However, because of the human dimensions issues involved in the subject matter of environmental change, some students may wish to expand their academic program into the social sciences that bear on the issues of global change.

Core University Requirements (69 credit hours total; 56 credit hours exclusive of science and mathematics)

Maximum of 69 credit hours of core requirement course work minus 13 credit hours of mathematics and natural sciences equals 56 credit hours of work, up to 15 credit hours of which can also be in science provided that these hours (or others elsewhere in the curriculum) meet the writing intensive requirement. This leaves 68 to 83 hours of science and mathematics for a 4-year program.

Core Basic Sciences Requirement (39 hours)

- BIOL 171/171L, 172/172L
- CHEM 161/161L, 162/162L
- MATH 241, 242/242L, 243 (or GG 312), 244 (or ECON 321)
- PHYS 170/170L, 272/272L

Core Derivative Sciences Requirement (10 hours)

- GG 101/101L
- MET 200
- OCN 201

The global environmental science core requirement represents 49 hours of work. This requirement plus the University General Education Core requirement of 41 to 56 hours leaves 19 to 34 credit hours for other courses for a 4-year program. This is equivalent to six to eleven 3-credit courses that can be taken from the foundation and coupled systems courses and from senior research.

Foundation Course Requirements (17 hours)

- GEOG 411 Human Dimensions of Global Environmental Change
- OCN 310/310L Global Environmental Change
- OCN 363 Earth System Sciences Databases
- OCN 401 Biogeochemical Systems
- PHIL 315 (OCN 315) Modeling Natural Systems

Coupled Systems Courses (Examples)

- AREC 432 Natural Resource Economics
- ASTR 240 Foundations of Astronomy
- BIOC 241 Fundamentals of Biochemistry
- BIOL 265 Ecology and Evolutionary Biology
- BIOL 360 Island Ecosystems
- BIOL 410 Human Role in Environmental Change
- ECON 321 Introduction to Statistics
- ECON 358 Environmental Economics
- ECON 638 Environmental Resource Economics
- GEOG 300 Climatology
- GEOG 402 Agricultural Climatology
- GEOG 405 Water in the Environment
- GG 301 Mineralogy
- GG 309 Sedimentology and Stratigraphy
- GG 324 Low temperature and Environmental Geochemistry
- GG 455 Hydrogeology
- GG 466 Planetary Geology
- MET 302 Atmospheric Physics
- MET 303 Introduction to Atmospheric Dynamics
- OCN 320 Aquatic Pollution
- OCN 330 Mineral and Energy Resources of the Sea
- OCN 331 Living Resources of the Sea
- OCN 620 Physical Oceanography
- OCN 621 Biological Oceanography
- OCN 622 Geological Oceanography
- OCN 623 Chemical Oceanography
- PHIL 316 Science, Technology, and Society
- PLAN 310 Introduction to Planning

- SOC 412 Analysis in Population and Society
- SOIL 304 Fundamentals of Soil Science
- SOIL 430 Soil Chemistry
- SOIL 461 Soil Erosion and Conservation

The student may also wish to take additional courses in fundamental physics, chemistry, biology, or mathematics. Global environmental science currently has three optional tracks (or combination of electives):

1. Marine science and environment: In this track, the student concentrates his/her studies in marine/ocean science and the application of their work to environmental problems related to the ocean. The student is encouraged to take as many oceanography courses as practical and to have a senior thesis problem that is related to ocean studies. It is within this track that a student's program can be designed so that the student is able to apply to graduate school in oceanography.
2. Policy/economics and environment: this track enables the student, after satisfying the GES science core, to concentrate further course work and the senior thesis in environmental economics, policy, and law. This is probably the best route for a student to take who is going directly into the work place or is simply interested in becoming a wise environmental steward of the planet.
3. Climate and environment: this track enables the student to concentrate academic studies and the senior thesis topic on the interactions between climate and the environment, on human impacts on climate, and the causes of climatic change. The student is encouraged to take coupled systems courses in meteorology and climatology.

Majors should consult with their adviser as early as possible to devise a curriculum suited to their particular goals.

Senior Research Paper (3-6 hours)

- OCN 499 Undergraduate Thesis

Each student is required to complete a senior thesis based on research conducted with one or more chosen advisers.

Meteorology

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E-mail: met-info@soest.hawaii.edu
Web: lumahai.soest.hawaii.edu

Faculty

- *T. A. Schroeder, PhD (Chair)—mesometeorology - severe local storms, flash flood meteorology, interactions of island with synoptic environments

- *G. M. Barnes, PhD—mesometeorology, hurricanes, and boundary layer meteorology
- *S. Businger, PhD—mesoscale and synoptic meteorology, satellite meteorology, storm structure and dynamics
- *Y. L. Chen, PhD—mesoscale meteorology, heavy rainfall
- *P. S. Chu, PhD—climate variability and natural hazards, tropical cyclones, climate prediction
- *P. A. Daniels, PhD—physical meteorology, atmospheric pollution, wind-energy meteorology, instrumentation
- *K. P. Hamilton, PhD—dynamical meteorology and climate dynamics
- *F. F. Jin, PhD—atmospheric dynamics, numerical weather prediction
- *T. Li, PhD—climate dynamics and coupled atmosphere-ocean modeling
- *D. E. Stevens, PhD—atmospheric dynamics
- *B. Wang, PhD—climate dynamics, geophysical fluid dynamics, and tropical meteorology
- *S. P. Xie, PhD—large scale ocean-atmosphere interaction, climate dynamics
- *J. Zhao, PhD—atmospheric chemistry and aerosols

Cooperating Graduate Faculty

- A. D. Clarke, PhD—marine aerosols, biogeochemical cycles, optical properties
- B. J. Huebert, PhD—atmospheric chemistry
- J. Porter, PhD—satellite and ground-based optical sensing of atmospheric aerosols

Affiliate Graduate Faculty

- P. G. Black, PhD—aircraft analysis of hurricanes
- Y. H. (Bill) Kuo, PhD—mesometeorology
- W. C. Lee, PhD—radar and mesoscale meteorology
- F. D. Marks, ScD—tropical cyclones
- J. O. Roads, PhD—mesoscale model applications

Degrees Offered: BS in meteorology, MS in meteorology, PhD in meteorology

The Academic Program

Meteorology (MET) is the study of phenomena in the Earth's atmosphere. These phenomena include the daily weather and climate. Students pursuing the BS in meteorology receive preparation for professional employment in meteorology and are qualified for employment in the federal meteorological agencies. The meteorology major must be well-grounded in the fundamentals of mathematics and physics. Thus BS graduates are qualified to pursue graduate studies both in meteorology and other applied sciences, such as oceanography or computer sciences. Graduate degrees prepare students to pursue research careers both with government and in academia.

The meteorology program at the University of Hawai'i at Mānoa is unique in its focus on tropical meteorology. The tropics comprise 50 percent of Earth's surface and exert critical controls on the global atmosphere. BS students receive comprehensive training in tropical weather analysis and forecasting. Graduate students often pursue thesis research in

tropical meteorology, some study topics that take advantage of Hawai'i's unique natural laboratory. Some students pursue graduate thesis research with funding from the National Weather Service, whose Honolulu Weather Forecast Office is housed in the same building as the meteorology department. Meteorology faculty cooperate actively with physical oceanography faculty through the Joint Institute for Marine and Atmospheric Research in the study of air-sea interaction and climate variability. Students also have access to both research databases and cooperative employment opportunities at the Joint Typhoon Warning Center, Pearl Harbor.

Affiliations

The University of Hawai'i is an active member of the University Corporation for Atmospheric Research.

Advising

The department has one undergraduate adviser, who may be contacted through the department office (808) 956-8775. Graduate students are assigned individual faculty advisers by the graduate chair after their preliminary conference.

Undergraduate Study

Bachelor's Degree

Requirements

- Students must complete 124 credit hours, including:
- General Education Core (see the "Mānoa General Education and Graduation Requirements" section of this Catalog).
 - MET 101L and 200
 - 21 credit hours in meteorology courses numbered 300 and above, including MET 302, 303, 305, and 402; and MET 412 or 416 (Students planning careers with federal meteorological agencies should take both 412 and 416.)
 - 15 additional credit hours from physical and mathematical sciences (e.g., engineering, geography, geology and geophysics, information and computer sciences, mathematics, oceanography, physics, and soil science) including (but not limited to) MET 405, 406, and 600; MET 412 or 416; AGRN 661; CEE 424 and 626; GEOG 300, 302, 402, and 412; GG 412 and 455; ICS 211, 311, and 442; MATH 311, 371, 373, 402, 403, and 405; OCN 620; OEST 310; PHYS 274/274L and 400; and HIST 394 or 395
 - CHEM 171/171L
 - ICS 111/111L
 - MATH 243 and 244 (Students planning careers with federal meteorological agencies should take MATH 405.)
 - PHYS 170/170L and 272/272L

Minor

Requirements

- Students must complete 15 credit hours of non-introductory courses, including:
- MET 200, 302, and 303

- 6 credits of electives from MET 305, 405, 406, 412, 416, and OEST 310

Graduate Study

The department offers MS and PhD degrees. Through courses in dynamic, synoptic, and physical meteorology, students develop a strong foundation in tropical meteorology, the department's special field, and are prepared to do research in the atmospheric sciences.

Candidates should have a thorough preparation in physics (with calculus), chemistry, and mathematics through differential equations. Undergraduate courses in dynamic and synoptic meteorology are expected, but they can be taken in the first year.

All students in the program must complete two seminar courses of MET 765 (Alpha) involving active participation as speaker and listener.

Master's Degree

Requirements

At the master's level, only Plan A (thesis) is available, requiring a minimum of 24 credit hours of course work and 6 credit hours of thesis. A minimum of 18 credit hours, exclusive of research methods must be earned for the MS degree. All students must complete MET 600, 610, 620, and a synoptic analysis course (MET 412 or MET 416) with a minimum GPA of 3.0 for those courses. A thesis examination is required.

Doctoral Degree

The PhD student exhibits a higher level of independence and originality of thought than that required of the MS student.

Requirements

In order to acquire and demonstrate a breadth of knowledge in atmospheric science, each student is required to pass at least eight graduate level courses with a grade of B or higher in the fields of dynamic, synoptic, physical, and tropical meteorology. At least four of these courses must be taken at the Mānoa campus.

The comprehensive examination is taken after the completion of these eight courses, but no later than the student's 24th month in the PhD program. The purpose of this exam is to ascertain the student's comprehension of the broad field of study (meteorology) so that he/she is well prepared for PhD research. The first part is a set of written exercises composed by the student's committee members. The student writes the exam on a single day. Within three to seven days after the written exam, the student sits for the oral portion with his/her committee.

No later than 12 months after successful completion of the comprehensive examination, the student is required to submit a written research proposal to the dissertation committee. The committee must approve the proposal by a majority vote.

In addition to meteorology courses listed in this Catalog, students may take courses in related disciplines such as engineering, information and computer sciences, geography,

mathematics, oceanography, and physics, with the concurrence of the academic adviser.

Ocean and Resources Engineering

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2540 Dole Street
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Tel: (808) 956-7572
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E-mail: admin@oe.soest.hawaii.edu
Web: oe.soest.hawaii.edu

Faculty

- *K. F. Cheung, PhD (Chair)—coastal and offshore engineering, hydrodynamics, computational methods, water wave mechanics, sediment transport
- *R. C. Ertekin, PhD—naval architecture, offshore engineering, hydrodynamics, computational methods
- G. Pawlak, PhD—coastal mixing processes, fluid dynamics, sediment transport
- *H. J. Krock, PhD—environmental engineering, mixing and transport, water quality, ocean thermal energy conversion, hydrogen
- J. Yu, PhD—bioreaction/reactor engineering, marine bioproducts, marine environmental engineering

Cooperating Graduate Faculty

- J. M. Becker, PhD—general ocean circulation
- K. A. W. Crook, PhD—sedimentology
- B. D. Greeson, PhD—offshore engineering
- R. H. Knapp, PhD—structural engineering
- A. Malahoff, PhD—ocean resources engineering
- S. H. Masutani, PhD—ocean resources engineering
- M. A. Merrifield, PhD—coastal and near-shore processes
- J. C. Radway, PhD—marine resources
- H. R. Riggs, PhD—structural engineering
- J. R. Smith, PhD—marine survey
- J. C. Wiltshire, PhD—marine minerals

Affiliate Graduate Faculty

- G. Nihous, PhD—ocean resources engineering
- D. Rezachek, PhD—ocean energy and engineering design
- J. van Ryzin, PhD—mechanical and ocean engineering
- D. Vithanage, PhD—coastal engineering, nearshore circulation

Degrees Offered: MS in ocean and resources engineering, PhD in ocean and resources engineering

The Academic Program

Ocean and resources engineering (ORE) is the application of ocean science and engineering design to the challenging conditions found in the ocean environment. Wave and current motion and forces, high pressure, and temperature variations, as well as chemical and biological effects, are among the

considerations that set ocean and resources engineering apart from conventional land-based engineering. Ocean and resources engineering in the tropical, mid-ocean location of Hawai‘i has the advantage of year-round access to explore research subjects related to oceanic island coastal processes, ocean energy development, deep-ocean mining, ocean instrumentation, ocean transportation, large floating platforms, and marine bioproducts.

Ocean and resources engineering, as an integral part of the School of Ocean and Earth Science and Technology, allows the complete coverage of questions involving ocean processes. Not only can the problem be defined scientifically, but engineering solutions can be devised.

Career opportunities for graduates in ocean and resources engineering exist in various areas. Depending on the student’s individual interest, employment may be sought with industry, government, or universities. Government positions are usually with the U.S. Army Corps of Engineers, the U.S. Naval Facilities Command, or with state, city, or county public works departments. Jobs in private industry are with large oil companies, shipyards, consulting and contracting firms, environmental services firms or laboratories, offshore mining companies, large systems design companies and bioproducts firms. Graduates with the PhD degree in ocean and resources engineering have found jobs in research-oriented positions in higher education, government, and the private sector.

Accreditation

The master’s program in ocean and resources engineering is accredited by the Accreditation Board of Engineering and Technology (ABET).

Preliminary Conference

Upon entering the ocean and resources engineering program, students are assigned a faculty adviser generally according to the option or area of interest selected by the student. Initial conference participants review the academic background of the student and advise the student on which courses are required and what, if any, deficiencies must be made up.

Graduate Study

The graduate program in ocean and resources engineering is intended to channel the student’s previous engineering or scientific experience to ocean-related work. Students may pursue their studies in coastal engineering, offshore engineering, or ocean resources engineering.

Departmental interests in the coastal area include design of coastal and harbor structures, beach and surf parameters, near-shore and estuary hydrodynamics, hydraulic and numerical modeling, sediment transport, and tsunami wave studies.

In the offshore engineering area, analysis and design of fixed and floating structures, submersible and semi-submersible platforms, offshore ports, mooring systems, ship and platform motions in waves, and stability in waves are addressed.

In the ocean-resources engineering area, ocean thermal energy conversion (OTEC), ocean mining, wave energy

extraction, ocean living resources, waste disposal in the ocean, marine bioproducts and environmental response are addressed.

Master's Degree

The MS program in ocean and resources engineering is aimed at training professional engineers.

Admission Requirements

An intended candidate for the master's program is expected to have a bachelor's degree in engineering, applied mathematics, physics, or applied sciences.

In order to satisfy ABET requirements, candidates with degrees other than in engineering will be required to make up deficiencies in engineering. All students must satisfy minimum requirements, consisting of one year of college-level mathematics and basic science, one and one-half years of engineering topics, and a general education component that complements the technical content of the curriculum.

Generally the student's first semester is devoted to basic courses in the field of ocean and resources engineering; then, the student specializes in coastal, offshore, or ocean-resources engineering.

Degree Requirements

The MS degree in ocean and resources engineering may be earned under either Plan A (thesis) or Plan B (non-thesis).

Generally the student's first semester is devoted to basic courses in the field of ocean and resources engineering; then, the student specializes in coastal, offshore, or ocean-resources engineering. At least 24 credit hours must be earned in advanced courses numbered 600 and above. No more than 5 credit hours of 400-level courses can be counted toward the MS degree requirements.

Thirteen credits of core courses are required of all students in ocean and resources engineering, and a minimum of 12 credit hours must come from the list of courses identified as basic courses for the option area chosen by the student. As part of the course work requirements, the students must be competent in at least one scientific programming language.

One credit of seminar is included in the core requirement. Students may attend 15 seminars of their choice in areas related to ocean and resources engineering. They register before the semester in which they plan to fulfill this requirement. The remaining credits are to be chosen so as to form a coherent plan of study.

During the first semester of full-time enrollment, the student must take an examination (general exam) to qualify for admission to candidacy. During the last semester of residence, an oral examination (final exam) is given. This consists of a presentation of the thesis or Plan B paper and provides the faculty with an opportunity to test the student's understanding of the chosen field and ability to integrate theory and design at the master's level. The general and final examinations may be repeated once. The general exam must be taken earlier than the semester in which the final exam is taken.

Plan A (Thesis) Requirements

The thesis option requires a minimum of 30 credit hours, including 6 credit hours of thesis and a minimum of 24 credit

hours of course work. No more than 2 credit hours of directed reading (699) may be used to fulfill the minimum requirements. The thesis can be scientifically and/or technologically oriented and requires independent work by the student. A verbal presentation and defense of the thesis are part of the final exam. The subject of the thesis must receive prior faculty approval.

Plan B (Non-thesis) Requirements

The non-thesis option requires a minimum of 30 credit hours of course work. Students are required to write and submit a paper on a technical subject prepared under faculty guidance. An oral presentation of the paper is part of the final exam. The subject of the paper must receive prior faculty approval.

Doctoral Degree

A student pursuing the doctoral program is required to achieve a broad understanding of the principal areas of ocean and resources engineering, as well as a thorough understanding of a specific area. The student may give proof of mastering the subject matter in a selected area by passing a number of related courses offered in the department, as specified by the graduate faculty, or by examination of the material contained in these various courses.

Admission Requirements

Students seeking admission to the doctoral program should normally have an MS degree in engineering, applied mathematics, physics, or applied sciences. Exceptionally well-qualified students with a BS degree in these disciplines may petition to be admitted to the PhD program directly. Applicants must submit the GRE General Test score. Submission of the relevant subject test score is recommended.

All students must satisfy minimum requirements, consisting of one year of college-level mathematics and basic science, one and one-half years of engineering topics, and a general education component that complements the technical content of the curriculum.

Requirements

The student must satisfy the minimum course work requirements or equivalence of an MS degree in ocean and resources engineering, which consists of 13 credits of core courses and 12 credits of basic courses in the major area chosen by the student. As part of the course work requirements, the student must be competent in at least one scientific programming language.

All intended candidates for the PhD degree must take a qualifying examination.

After being advanced to candidacy, all students must take a comprehensive examination, which will cover the student's general preparation in the area of specialty and pertinent minor fields. The results of the examination will determine whether the candidate will be allowed to pursue the dissertation.

The dissertation topic must be approved by the doctoral committee. After the dissertation is completed, it will be reviewed by the committee and a final oral examination will

follow. The oral examination includes an oral presentation, announced University-wide, of the dissertation by the candidate.

The qualifying and comprehensive examinations may each be repeated only once. The final examination may not be repeated, except with approval of the graduate faculty involved and the dean of the Graduate Division.

Oceanography

Marine Science 205
1000 Pope Road
Honolulu, HI 96822
Tel: (808) 956-7633
Fax: (808) 956-9225
E-mail: ocean@soest.hawaii.edu
Web: www.soest.hawaii.edu/oceanography

Faculty

- *C. Measures, PhD (Chair)—trace element geochemistry, elemental mass balance, geochemical effects of dust deposition
- *M. J. Atkinson, PhD—coral reef biogeochemistry, solid-state sensor technology
- *R. Bidigare, PhD—bio-optical oceanography, pigment biochemistry, biogeochemical cycling
- *A. D. Clarke, PhD—marine aerosols, biogeochemical cycles, precipitation chemistry
- *J. P. Cowen, PhD—deep-sea hydrothermal vent biogeochemistry, microbial geochemistry, particle aggregation
- *E. H. DeCarlo, PhD—geochemistry of marine mineral deposits, fundamental chemistry of scavenging processes at the aqueous particle interface, hydrothermal processes
- *E. Firing, PhD—equatorial circulation, ocean currents and current profiling methods
- *P. J. Flament, PhD—dynamics of the surface layer, mesoscale structures, remote sensing
- *R. Grigg, PhD—coral reef ecology, paleoceanography, fisheries management
- *B. J. Huebert, PhD—atmospheric chemistry
- *D. M. Karl, PhD—microbiological oceanography, oceanic productivity, biogeochemical fluxes
- *M. R. Landry, PhD—zooplankton ecology, population dynamics, marine ecosystem modeling
- *E. A. Laws, PhD—phytoplankton ecology, aquatic pollution, aquaculture
- *Y. H. Li, PhD—marine geochemistry, marine pollution studies
- *R. Lukas, PhD—equatorial circulation, air-sea interaction and climate
- *D. S. Luther, PhD—observational physical oceanography
- *F. Mackenzie, PhD—geochemistry, sedimentology, greenhouse effect, biogeochemical cycles and global environmental change
- *L. Magaard, DrRerNat—physical oceanography, oceanic waves and turbulence
- *A. Malahoff, PhD—geological and geophysical oceanography, submarine volcanism, hydrothermal and mineral formation processes

- *J. P. McCreary, Jr., PhD—equatorial dynamics, coupled ocean-atmosphere climate models, ecosystem modeling
- *G. McMurtry, PhD—marine sediment geochemistry, marine mineral formation and resources, submarine hydrothermal processes, radiochemistry
- *M. A. Merrifield, PhD—coastal and near-shore processes, internal waves and mixing
- *M. J. Mottl, PhD—submarine hydrothermal processes, geochemical cycles, sea-water–sea-floor chemical interaction
- *P. Muller, DrRerNat—theoretical physical oceanography, analysis and interpretation of geophysical data
- K. Ruttensburg, PhD—sedimentary and water column geochemistry, organic geochemistry approaches
- *B. Qiu, PhD—numerical modeling
- K. Ruttensburg, PhD—sedimentary and water column geochemistry, organic geochemistry approaches
- *F. J. Sansone, PhD—gas geochemistry, reef and sediment diagenesis, hydrothermal geochemistry and lava-seawater interactions
- *C. R. Smith, PhD—benthic biological oceanography, bioturbation, deep-sea carbon flux
- *S. V. Smith, PhD—mass balance in ecosystems, dynamics of calcification and community metabolism
- G. Steward, PhD—marine bacteria and viruses, microbial genomics, molecular ecology and biogeochemical cycles
- *J. S. Tribble, PhD—sedimentary geochemistry and diagenesis, sedimentation and diagenesis at accretionary plate margins

Cooperating Graduate Faculty

- S. Atkinson, PhD—ecophysiology of marine mammals, conservation biology
- W. L. Au, PhD—marine bioacoustics and echolocation
- J. M. Becker, PhD—geophysical fluid dynamics, coastal processes, general ocean circulation
- K. A. W. Crook, PhD—sedimentology, tectonics, geoscience policy
- R. C. Kloosterziel, PhD—geophysical fluid dynamics
- B. Popp, PhD—isotope biogeochemistry
- J. R. Sibert, PhD—population dynamics, fisheries, modeling
- L. M. Tupas, PhD—marine microbial ecology, isotope geochemistry of dissolved particulate organics
- J. C. Wiltshire, PhD—geology and geochemistry of marine mineral deposits, marine mining and processing, minerals policy issues, research-submersible technology

Affiliate Graduate Faculty

- G. T. Mitchum, PhD—tropical ocean dynamics
- D. W. Moore, PhD—geophysical fluid dynamics, equatorial oceanography
- F. Mitsudera, PhD—dynamics of western boundary currents and jets, marginal seas, geostrophic turbulence and eddies
- J. J. Polovina, PhD—larval recruitment, dynamics of exploited populations, fisheries, satellite remote sensing
- L. M. Rothstein, PhD—physical oceanography, analytical modeling of equatorial ocean dynamics

Degrees Offered: MS in oceanography, PhD in oceanography

The Academic Program

Oceanography (OCN) is the study of the physics, chemistry, and geology of the ocean and the ecology of organisms that live within the sea. Physical oceanography is concerned with ocean circulation, waves, tides, upwelling, air-sea interactions, and the effect of the oceans on climate. Chemical oceanographers study the distribution of dissolved substances in the ocean and the mechanisms, both natural and anthropogenic, that control their form and abundance. Geological oceanography includes the study of sea-floor spreading, submarine vulcanism, beach formation, deep-seabed mineral resources, sediments, and paleoceanography. Biological oceanographers study the interactions of marine organisms with one another and the environment. Topics include coral reef ecology, marine fisheries, hydrothermal-vent communities, plankton ecology, and near-shore and deep-sea benthic communities.

Because Hawai'i is located near the middle of the largest ocean on Earth, oceanography has a special significance for the state and the University. At Mānoa, the oceanography facilities are among the best in the United States and include three ocean-going research vessels and two research submarines. Biological studies are facilitated by the presence of the Hawai'i Institute of Marine Biology on Coconut Island in Kane'ohe Bay. Computing facilities are based on a growing network of nearly 300 Sun workstations, Macintosh, and personal computers. Graphic peripherals include black/white and color laser printers, a 36-inch inkjet printer, film printers, and pen plotters. Precision instruments include mass spectrometers, gas and liquid chromatographs, liquid scintillation counters, a CHN analyzer, a flow cytometer, and a series of atomic spectroscopy-based instruments. The world-class faculty is actively involved in both teaching and research. The University ranks fifth among universities in the nation in terms of National Science Foundation research funding for oceanographic research. The location, the facilities, and the faculty all make the Mānoa campus an ideal place to study oceanography.

About 40 percent of marine scientists are employed by the U.S. government, especially by the defense, commerce, and interior departments. Another 40 percent teach and do research at academic institutions. About 20 percent are employed by industry.

The MS and PhD in oceanography are recognized WICHE regional graduate programs. Residents of Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, Washington, and Wyoming are eligible, upon admission, to enroll at Hawai'i-resident tuition rates.

Advising

Each student admitted to the oceanography department is assigned an advisory committee by the department chair. The committee initially consists of three graduate faculty members from at least two of the subdisciplines of oceanography. When formed, the student's MS or PhD committee becomes the student's advisory committee. A student must meet with his or her advisory committee at least twice per year. A written report

summarizing each meeting must be signed by the student and his or her committee and a copy placed in the student's file.

Graduate Study

The department offers master's and doctoral programs with areas of specializations in biological, chemical, geological, and physical oceanography.

Oceanography courses listed in this *Catalog* may be taken for credit in the degree program. Additional courses may be selected from the fields of botany, chemistry, engineering, geology, mathematics, meteorology, physics, and zoology.

Admission Requirements

Applicants must have intensive, rigorous training in one of the basic sciences or engineering. Regardless of major, an applicant must have completed mathematical training, including calculus through first-order ordinary differential equations (equivalent to Calculus IV at the University). An applicant must also have a year each of physics and chemistry. The well-prepared student will also have covered classical thermodynamics and applied differential equations and will have had a semester each of biology and geology. GRE test scores (General Test only) are required. Interested students should write to the department chair for a brochure and further information. For U.S. applicants, the deadline for application for admission is February 1 for the fall semester and September 1 for the spring semester. For foreign applicants, the corresponding deadlines are January 15 and August 1.

Major Requirements

All students pursuing a degree program must take OCN 620, 622, and 623. For non-biological students, the sequence is completed by taking OCN 621. Biological students complete the sequence by taking OCN 626, 627, and 628. Students may be admitted to the MS program upon successful completion of the appropriate sequence. To be admitted to the PhD program, a student must receive a positive recommendation from a PhD-qualifying committee.

Degree Requirements

Both the MS and PhD programs require a minimum of 36 credit hours, including 24 credit hours of course work and 12 credit hours of thesis or dissertation research. The 24 semester hours of course work must be in courses numbered 600 or above (excluding OCN 699 and 700 and seminar courses). At least 12 of those semester hours must consist of courses taken from three of the following groups: biological oceanography, geological oceanography, chemical oceanography, physical oceanography, mathematical methods and statistics, and meteorology. All students must complete a seminar requirement, demonstrate computer competency, and accumulate at least 30 days of field experience. PhD candidates must also pass a comprehensive examination and qualify in one foreign language. All students must pass a final oral examination in defense of their thesis/dissertation.

Outreach College



Administration

Krauss 101
2500 Dole Street
Honolulu, HI 96822
Tel: (808) 956-8866
Fax: (808) 956-3752
Web: www.outreach.hawaii.edu

Dean: Victor N. Kobayashi
Interim Associate Dean: Peter Tanaka

General Information

The Board of Regents established Outreach College on June 1, 1998, by the consolidation of two formerly separate units: the College of Continuing Education and Community Service and the Office of Summer Session. Outreach College programs include credit and noncredit courses, concerts, lectures, and educational experiences designed for special groups. Programs and courses are offered both on and off campus. Outreach College is the administrative unit charged with coordinating and administering distance learning programs of the University of Hawai'i at Mānoa, including programs delivered to university centers situated on neighbor islands.

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Mission

Outreach College provides:

1. Opportunities for adult nontraditional and part-time college students to pursue degrees and certificates, and acts as an advocate for nontraditional learners;
2. Programs to help professionals keep abreast of their fields, advance in their careers, or explore new career fields;
3. Programs for lifelong learning, including education for citizenship responsibility, cultural enrichment, personal growth;
4. Consultative services that help solve community, state, national, and international problems;
5. Opportunities for both degree and non-degree students to advance towards degrees by studying on campus during the summer and other extra-session periods. Such periods provide unique opportunities for full devotion in such study areas as archaeological and historic preservation field work; and
6. Cultural and arts programs across the state with an emphasis on underserved communities.

Affiliations

Outreach College is affiliated with the University Continuing Education Association, the Association of University Summer Sessions, the North American Association of Summer Sessions, the Western Association of Summer Session Administrators, Western Alliance of Arts Administrators, and Association of Performing Arts Presenters.

Degrees and Certificates

Outreach College is a non-degree granting academic unit, and delivers, in collaboration with the faculties and colleges, credit courses that may apply towards UH Mānoa degrees. Summer Sessions offer courses in the day as well as evening, primarily to serve degree students at UH Mānoa, but are open to UH system campus students, qualified visitors from the state and abroad, and select high school students.

Distance Learning

Sakamaki C-403
2530 Dole St.
Honolulu, HI 96822
Tel: (808) 956-8547
Fax: (808) 956-3364
Web: www.aln.hawaii.edu
www.hawaii.edu/dl

The distance delivery of Mānoa non-credit and credit courses is coordinated by Outreach College. Over two dozen certificates and baccalaureate and master's degrees from Mānoa colleges of education, liberal studies, information and computer sciences, business administration, and nursing are offered.

Courses are delivered using cable television, interactive television, web-based asynchronous learning, or faculty traveling to other sites. Outreach College and the Department of Information and Computer Sciences (ICS) inaugurated a completely on-line MS degree in ICS, supported by a Sloan Foundation grant in fall 2000. See the web sites for details.

Advising

Student Services
Krauss Hall 101
2500 Dole Street
Honolulu, HI 96822
Tel: (808) 956-7221; (800) 862-6628
Fax: (808) 956-3752
E-mail: advise@outreach.hawaii.edu
Web: www.outreach.hawaii.edu

Office of Student Services provides support services to non-degree seeking undergraduate and post-baccalaureate students. Services include advisement on University admissions procedures and policies, general University policies, degree programs, course selection, and University of Hawai'i system offerings, as well as enrollment and registration for courses delivered by Outreach College. To meet the needs of working adults, advising services are available by appointment in the evening. New students are encouraged to see an adviser for general information about University offerings, policies, and procedures, as well as for assistance in selecting appropriate courses.

Credit Programs

Sakamaki D-410
2530 Dole Street
Honolulu, HI 96822
Tel: (808) 956-6780
Fax: (808) 956-9422
E-mail: cokinaga@outreach.hawaii.edu
Web: www.outreach.hawaii.edu

Outreach College credit courses and programs are offered during the days and evenings throughout the year including the Summer Sessions. Offerings are regularly approved

University of Hawai'i at Mānoa courses as well as any new or experimental courses approved by the University. Instructors are regular Mānoa faculty or lecturers approved by the respective academic departments. In addition, the credit programs unit coordinates all distance learning credit activity for the Mānoa campus, thus extending the resources of Mānoa campus to the neighbor islands, Pacific Basin and beyond.

Major Credit Programs

- Summer Sessions (see below)
- Neighbor Island Outreach. Students can earn undergraduate degrees, including a bachelor of arts degree in liberal studies and bachelor of education. Graduate degrees in education, business administration, nursing, information and computer science, and social work are also available to neighbor island students. Courses are delivered through the use of distance learning technology or Mānoa faculty flying to neighbor islands to conduct face to face classes or a combination of both. The Mānoa Outreach on Maui office as well as the University Centers on Kaua'i, Maui and in West Hawai'i provide on-site support to neighbor island students.
- Evening/Weekend Program on Campus. Students can earn bachelors degrees in psychology, anthropology or liberal studies with a major emphasis in "Human Relations in Organizations."
- State Teachers' Program. Public and private school teachers can take courses to upgrade their professional skills and for salary enhancement.
- Overseas Program. On-site education courses are offered in American Samoa and Saipan.
- Credit Specials. These courses are tailored to meet the needs of a target group; they may condense academic work into shorter time periods and adapt it to special locations and more convenient times.

Summer Sessions (Credit)

The summer period of the University campus offers opportunity for variety and flexibility in instructional programming, while creating a culturally enriching and intellectually stimulating campus environment through special lectures, conferences, and artistic performances that are open to both students as well as the larger public.

Students from almost every state in the nation and more than 50 countries attend classes in the summer, joining resident students to enhance the diversity of the campus. The summer campus also provides a stimulating array of public programs and special events. An extensive schedule of lectures, films, performances, and other public events is published in a special publication, *Summer at Mānoa* which is distributed without charge. To request a copy, write to Summer Session, 2440 Campus Road, P.O. Box 447, Honolulu, HI 96822, or visit or call the Outreach College office.

Summer Session has received numerous awards from the Western Association of Summer Session Administrators and the North American Association of Administrators for its exemplary and innovative programs.

Summer Scholar Program for High School Students

Sakamaki D-407
 2530 Dole Street
 Honolulu, HI 96822
 Tel: (808) 956-9492 or (808) 956-6583
 Fax: (808) 956-3752
 E-mail: kwilliamson@outreach.hawaii.edu
 Web: www.outreach.hawaii.edu/headstart

High school sophomores and juniors with at least a 3.2 GPA may enroll in any 100-200 level course in summer sessions at UH Mānoa. Summer scholars are mainstreamed with other summer students. Over 650 high school students have successfully participated in this program over the past 13 years. The program enables high school students to earn college credit and learn what college life is like before graduating from high school.

International Programs (non-credit)

Krauss Hall 004
 2500 Dole Street
 Honolulu, HI 96822
 Web: www.nice.hawaii.edu

New Intensive Courses in English (NICE)

Tel: (808) 956-7753
 Fax: (808) 956-3421
 E-mail: nice_info@outreach.hawaii.edu

The NICE Program is a noncredit English language program open to non-native speakers of English interested in improving their oral communication and cross-cultural understanding. Study options include English courses for academic, business, and general purposes. Classes are offered to suit the study schedules of a variety of individuals: four 10-week sessions per year (full-time or part-time study), 4-week sessions in winter and summer, and evening classes throughout the year. Admission to NICE is open to foreign students and scholars, and to resident non-native speakers living in Hawai'i. Participants must be 18 years or older and must be high school graduates.

Special English Programs (SEP)

Tel: (808) 956-3416
 Fax: (808) 956-3752
 E-mail: mseki@outreach.hawaii.edu

SEP provides noncredit English language and American culture programs for groups of students from foreign educational institutions or companies. SEP is uniquely designed to suit the needs, schedules, requirements, and interests of the sponsoring school or organization.

International Seminars

Tel: (808) 956-3416
 Fax: (808) 956-3752
 E-mail: mseki@outreach.hawaii.edu

The International Seminars Program provides groups of foreign students and professionals exposure to current American perspectives and practices in their area of study or profession. Highly qualified professors and community professionals speak on topics requested by the sponsoring organization, with translation or in the participants' native language.

International Bridge Program

Krauss Hall 101
 2500 Dole Street
 Honolulu, Hawaii 96822
 Tel: (808) 956-9247
 Fax: (808) 956-3752
 E-mail: kkoteva@outreach.hawaii.edu
 Web: www.bridge.hawaii.edu

The Bridge Program prepares international students for successful living and studying in the United States. The program specifically helps students meet formal academic requirements for entry into graduate programs. Working in partnership with other units of the University of Hawai'i, Bridge assists students in preparation for examinations such as the Test of English as a Foreign Language (TOEFL), the Graduate Record Examination (GRE), and the Graduate Management Admission Test (GMAT).

Bridge addresses other challenges for international students as well. Students who have attended three-year undergraduate degree programs common in their home countries are assisted in meeting four-year requirements that are generally considered standard in the US. The Bridge helps students complete prerequisite courses required for US graduate program entry. Students with an undergraduate grade point average (GPA) of lower than 3.0 may improve their chances for entry into a graduate program if they maintain at least a 3.0 GPA during one academic year as a Bridge student.

Bridge participants take a combination of credit and noncredit courses, and in some cases English as a Second Language class. They simultaneously gain orientation for study in the American university system. Courses are held both on- and off-campus, and sometimes online.

Enrollment in the Bridge Program prepares students for acceptance into graduate programs, but does not guarantee automatic admission. The graduate admissions requirements are different for each U.S. university. At the University of Hawai'i at Mānoa, the final decision for admission rests with the dean of the Graduate Division, who takes into full consideration the recommendation of the chair of the selected field of study.

Students who complete attendance and academic requirements receive International Bridge Program certificates of completion.

Professional and Special Programs (noncredit)

Sakamaki D-400
2530 Dole Street
Honolulu, HI 96822
Tel: (808) 956-8244
Fax: (808) 956-9422
E-mail: pamelaf@hawaii.edu
Web: www.outreach.hawaii.edu

The Professional and Special Programs Office establishes and administers noncredit courses to provide individuals and groups with the opportunity to maintain professional skills, advance in or change careers, or pursue personal development and enrichment. Although noncredit courses do not apply toward the requirements for a college degree, many do qualify for professional continuing education units. Students who complete attendance requirements may receive certificates upon completion of their courses of study.

Courses are held at both on- and off-campus locations, as well as online. They are often relatively short and complete in themselves and are presented in a variety of formats, such as workshops, short courses, studios, and lectures. In general, noncredit courses are open to anyone who is at least 18 years of age or a high school graduate.

Although most courses are offered during three regularly scheduled terms per year, specialized programs for particular groups (e.g., librarians, teachers, engineers, etc.) or contract training for both public and private organizations, can be arranged. Class length, number of meeting times, and locations vary, depending on program objectives and specific needs of students.

The Professional and Special Programs Office offers courses covering selected college-level material in such area as the arts, business and management, communications, computer and information technology, education, engineering and architecture, history and culture, human resource management, language, library studies, personal finance, and recreation and health. The program also offers preparatory and approved continuing education courses for various professions, professional certifications, and their renewal.

Pacific New Media offers short intensive workshops in film, video, and digital media presented by outstanding professionals from Hawai'i and the continental United States. A certificate in Web design is also offered through the program.

Institute for Business and Professional Development

Tel: (808) 956-2040
E-mail: profprog@outreach.hawaii.edu
Web: www.outreach.hawaii.edu/ibpd

The Institute for Business and Professional Development offers continuing education programs for business people, entrepreneurs, professionals, and those seeking to meet professional certification requirements, or to improve career opportunities.

Pacific New Media

Tel: (808) 956-3422
E-mail: pnm@outreach.hawaii.edu
Web: www.outreach.hawaii.edu/pnm

Pacific New Media offers short intensive workshops in film, video, and digital media presented by outstanding professionals from Hawai'i and the continental United States. A certificate in Web design is also offered through the program.

Elderhostel Programs (noncredit)

Sakamaki D-407
2530 Dole Street
Honolulu, HI 96822
Tel: (808) 956-9492 or 956-6583
Fax: (808) 956-3752
E-mail: kwilliamson@outreach.hawaii.edu
Web: www.outreach.hawaii.edu/headstart

Elderhostel offers a short-term, low-cost residential academic program for persons age 55 and over through a network of 2,000 educational and cultural sites. Program topics draw on the natural, sociological, and cultural setting in Hawai'i as well as the USS Missouri service project. Classes are taught by campus faculty and lecturers from the community.

Community Services Division

Sakamaki D-406
2530 Dole Street
Honolulu, HI 96822
Tel: (808) 956-2036
Fax: (808) 956-9422
E-mail: tslaught@outreach.hawaii.edu
Web: www.outreach.hawaii.edu

The Community Services Division coordinates the arts and culture outreach efforts of the University. Major projects include the Statewide Cultural Extension Program (SCEP) and University of Hawai'i Presents. Through SCEP, Outreach College presents over 170 performances each year in schools, libraries, nursing homes, prisons, senior centers, and other venues throughout the state. The University of Hawai'i Presents produces 15 performances of national and international touring companies for the Mānoa campus and the general public. The Community Services Division also publishes a yearly directory, *Artists in Hawai'i Guide*, listing over 200 Hawai'i artists who are available to present arts in education programs.

Center for Conference Services (aka Conference Center)

Sakamaki C-404
2530 Dole Street
Honolulu, HI 96822
Tel: (808) 956-8204
Fax: (808) 956-3364
E-mail: yamashita@outreach.hawaii.edu
Web: www.outreach.hawaii.edu

The Conference Center offers support in meeting planning and management. Serving University units, state and federal government agencies, and nonprofit and professional organizations within the state of Hawai'i that sponsor conferences, symposia, institutes, and workshops, the staff assists in program development and budgeting, marketing, pre- and on-site registration, fiscal management, and on-site logistics. Meeting coordination is offered to adult groups at venues determined by the sponsoring organization.

ROTC Programs



Aerospace Studies

Administration

AFROTC Building
1460 Lower Campus Road
Honolulu, HI 96822
Tel: (808) 956-7734

Faculty

Friedrich C. Schlich (Director)
Capt J. Densley
SSgt K. Keiser
Capt J. Osurman
MSgt J. Rosati

The Academic Program

Aerospace studies (AS) is part of the Air Force Reserve Officers Training Corps (AFROTC) Program. Men and women who successfully complete all requirements are commissioned as second lieutenants in the U.S. Air Force. They then serve on active duty or may, in some cases, obtain educational delay for graduate studies. Academic courses are open to any student without obligation to the Air Force. Two-, three-, and four-year program options are available.

The four-year program is divided into two phases, the general military course (GMC—freshman and sophomore years) and the professional officer course (POC—junior and senior years). Students who have participated in JROTC or have had more than two months of active duty may have a portion or all of the GMC waived. Students are under no obligation to the Air Force until they enter the POC at the beginning of their junior year. Between their sophomore and junior years, students will attend an expense-paid, four-week field training at a continental United States Air Force base and receive field training pay of approximately \$500.

The two-year program consists of the POC plus a five-week, expense-paid field training on the continental United States before students can enter their junior year. No obligation is incurred as a result of attending field training, and the candidate is paid approximately \$700 while in the continental United States. Usually juniors and seniors are enrolled, but sophomores and graduate students may also qualify for the POC.

The three-year program is the same as the two-year program, except a student has an extra year to prepare for field training and to “try out” ROTC with no obligations.

Expense-paid Air Force incentive programs and specialized airmanship training programs are offered to qualified candidates during the summer terms. All interested candidates may receive free flight indoctrination through a local Civil Air Patrol/AFROTC sponsored program.

A POC incentive scholarship is available to all students who complete field training, will be under age 27 as of June 30 of their commissioning year, and meet GPA requirements.

In addition, various four-, three-, and two-year scholarships covering tuition, fees, and books are available on a competitive national basis to candidates in academic majors the Air Force aligns to “critical” career fields. Current examples are computer science, mathematics, engineering, and meteorology.

Interested students may obtain information from the director at the AFROTC Building.

Military Science

Administration
1311 Lower Campus Road
Honolulu, HI 96822
Tel: (808) 956-7744
Fax: (808) 946-2840
E-mail: armyrotc@hawaii.edu



Faculty

LTC R. K. Takao
 MAJ T. M. Johnson III
 MAJ J. J. Protacio
 CPT G. R. Layne
 CPT P. V. Lohmann
 MSG A. W. Perez
 SFC J. D. Clayton

General Information

The Army Reserve Officers Training Corps (ROTC) program provides college-trained officers with commissions as lieutenants in the U.S. Army, Hawai'i Army National Guard, and the U.S. Army Reserve. Officers may be commissioned on active duty, in a reserve component while pursuing a civilian career, or receive an educational delay and earn a graduate or professional degree. Four-year, three-year, and two-year programs are available.

The Academic Program

The four-year program is divided into a two-year basic and two-year advanced course. The basic course is for students who enter ROTC in their freshman year. With approval, students may enter ROTC in their sophomore year and compress the basic course requirements. This traditional program offers a moderately paced course of military and academic training resulting in completion of ROTC and eligibility for a commission on graduation day. All basic courses are electives, and no obligations are incurred. The advanced course includes a five-week summer camp between the junior and senior years held at Fort Lewis, Washington. Pay for the advanced course is \$300-450 per month during the school year and approximately \$650 plus room and board for the five weeks at camp. To be eligible for the advanced course, a student must (a) be a U.S. citizen, (b) successfully complete the basic course or its equivalent, and (c) meet other statutory and regulatory requirements.

The two-year advanced program can be taken without the basic course by students who attend and complete a four-week summer camp at Fort Knox, Kentucky, for which the student receives approximately \$600. Likewise, veterans of all services, three-year JROTC graduates, and national guardsmen and reservists may be exempt from the basic course. Should an individual qualify, select, and complete this option, he or she is eligible to receive a commission upon graduation. Students must have four semesters of college work remaining after finishing the basic summer camp (or qualifying for the exemptions). Advanced course students must have completed 54 credits and be full-time students.

In addition to the courses summarized in the course descriptions, cadets will be required to meet professional military education requirements prior to graduation and commissioning. These requirements consist of courses in military history and computer literacy. Courses on management and national security studies are also recommended.

Optional Programs

Army Reserve/ Army National Guard Membership

The Simultaneous Membership Program (SMP) allows cadets to participate in and receive drill pay from an Army Reserve or Hawai'i National Guard unit as an officer trainee while they complete the Army ROTC advanced course. The pay such cadets receive is in addition to the monthly ROTC spending allowance and any GI Bill educational benefits to which they are entitled.

Scholarships

Two and three-year scholarships are available. All Army ROTC scholarships are merit based and pay up to \$17,000 in tuition per year. In addition, scholarships will provide \$600 per year for books and a \$300-450 per month spending allowance. Applications are accepted beginning in the fall semester each year with results being announced in the spring semester.

Other

All students have the opportunity to attend airborne, air assault, and northern warfare schools. Women are encouraged to participate in the program and comprise 25 percent of the ROTC. Army ROTC courses are also offered through University of Hawai'i Community Colleges and the University of Hawai'i, West O'ahu.

Advising

For general information about the Army ROTC program or specifics on eligibility requirements, contact the Enrollment Officer in the Military Science Building at 1311 Lower Campus Road or call MAJ Trey Johnson at (808) 956-7766/7744.

School of Social Work



Administration

Henke 224
 1800 East-West Road
 Honolulu, HI 96822
 Tel: (808) 956-6300
 Fax: (808) 956-5964
 E-mail: sswadmit@hawaii.edu
 Web: www.hawaii.edu/sswork/welcome.html

Interim Dean: Jon K. Matsuoka

Faculty

- N. Chang, MSW (BSW Program Chair)—minority recruitment and retention
- *N. Mokuau, DSW (PhD Program Chair)—Asian/Pacific Islander mental health issues, human sexuality, women's issues
- *C. Browne, DrPH (MSW Program Chair)—gerontology, women's issues, health care
- *P. Adams, PhD—social policy, child and family
- *S. Chandler, PhD—social policy, mental health issues, women's issues
- *B. Coyne, PhD—criminology, sexual offender programs
- *Q. Duong-Tran, PhD—child and family, human behavior and social work practice, mental health services to special populations, research
- *J. Fischer, DSW—clinical practice, evaluation research, human sexuality
- *R. Fong, EdD—child and family, Asian children mental health, human development
- T. Hathaway, MSW—coordinator of student services
- *V. Kanuha, PhD—multicultural issues, gender violence, native Hawaiian health, HIV
- C. Langworthy, MSW—BSW/MSW practicum

- R. Matayoshi, MSW—BSW/MSW practicum
- *J. Matsuoka, PhD—human behavior and the social environment, research, cross-cultural issues, community organization
- *P. Morelli, PhD—social work practice, cross-cultural/minority mental health, qualitative research
- *C. Mueller, PhD—child and adolescent mental health, HIV, post-traumatic growth
- *E. Wong-Kim, PhD—biomedical ethics, cross culture health issues, social work practice

General Information

The University of Hawai'i School of Social Work (SW) is recognized nationally and internationally for its outstanding faculty; range of research and publications, including the development of the Social Welfare Evaluation and Research Unit (SWERU); focus on Asian and Pacific Islander groups in Hawai'i; and diverse fields of practice in health, mental health, child and family, and gerontology.

The School of Social Work offers baccalaureate and graduate programs, which award the bachelor of social work (BSW), master of social work (MSW), and a PhD in social welfare. In addition, the school provides continuing education about current knowledge in the field to human-service professionals and paraprofessionals.

Social work is a profession concerned with the prevention and resolution of problems for individuals, families, groups, and communities. Social work students are provided with the knowledge, skills, and values that facilitate the prevention and resolution of such problems. Students who believe in social changes and improving the quality of life and who are committed to working with people, conducting research, and developing resources would find the school's curriculum stimulating.

Mission

The mission of the School of Social Work is to contribute to the advancement of social work practice in its many forms for the purpose of preventing or resolving the most critical social problems. Within this general purpose, the school reaffirms

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social work's historic commitment to increase social justice and availability of opportunity for underrepresented and oppressed groups. The principal responsibility of the school is the generation, transmission, and application of knowledge that will benefit Hawai'i. In addition, it is the school's responsibility to contribute to knowledge for use by the profession as a whole. In particular, it is the goal of this school to increase comprehension of the ways in which social policy, social work practice, and research can be improved through understanding of the Asian and Pacific cultures of our state and region.

Accreditation

The school's BSW and MSW programs are accredited by the Commission on Accreditation of the Council on Social Work Education.

Degrees

Bachelor's Degree: BSW

Master's Degree: MSW

Doctoral Degree: PhD in social welfare

Advising

Henke 225
1800 East-West Road
Honolulu, HI 96822
Tel: (808) 956-3831 (BSW)
(808) 956-7182 (MSW)
(808) 956-3830 (PhD)

Freshman and sophomores who are interested in a career in social work or intend to apply to the school should consult the BSW adviser. The adviser will assist students in academic planning and provide information on career opportunities.

The Bulletin of the School of Social Work contains information on admissions and degree requirements for the MSW and PhD programs. For a copy of the Bulletin or additional information, write to the School of Social Work at the above address.

Undergraduate Program

The BSW program has two goals: (a) to prepare students for beginning-level generalist practice and (b) to prepare students for advanced social work education. The program combines both academic course work and field practicum in a two-year course of study beginning in the junior year. The curriculum is predicated on and extends the liberal arts perspective.

Admission Requirements

To be admitted to the BSW program on a full-time basis, the applicant must (a) have been admitted to the University of Hawai'i at Mānoa; (b) have completed the University's General Education Core requirements (special consideration is given to second semester sophomores for early admission); (c) have completed the knowledge-based courses identified by the school; (d) have a minimum cumulative GPA of 2.5; and (e)

provide evidence of motivation for and commitment to social work education (e.g., personal, volunteer, and/or social-work-related experience).

In addition, the applicant must submit transcripts of all postsecondary academic work completed and a School of Social Work application.

Application Deadlines

Students are admitted to the program in the fall and spring semesters. All BSW application material should be sent to the School of Social Work by April 1 for fall and November 1 for spring semester.

Bachelor's Degree

Requirements

To qualify for the BSW degree, the student must (a) fulfill all University core requirements; (b) complete the required undergraduate social work curriculum (see below); (c) earn an aggregate of no less than 124 credit hours; and (d) have a minimum cumulative GPA of 2.5.

BSW Curriculum

Candidates for the BSW degree must complete the following curriculum requirements:

1. The following social work knowledge-based courses must be included in the General Education Core or as lower division electives: a specified political science course, PHIL 110, PSY 260, and one biology course that emphasizes human biology.
2. Social work major courses (41 credit hours), which include SW 200, 302, 303, 325, 326, 360, 361, 391, 402, 403, 440, 490, and 491.
3. Electives required in upper division liberal arts courses (21 credit hours) including one course in each of the following areas: (a) small group, community, or organizational theory; (b) analysis of a social institution, problem, or issue; (c) ethnic or cultural factors; (d) American values; (e) women's issues; (f) research design and methodology; and (g) other related topics.
4. Other electives (6–8 credit hours).

Graduate Programs

Master's Degree

The MSW program, which prepares students for professional advanced social work practice, requires 57 credit hours. This course work needs to be completed within a four-year period, of which four semesters of practicum and completion of the research requirement (Plan A or Plan B) are required. Students may waive some foundation courses by examination and reduce the number of credits needed to receive their degree.

The foundation curriculum covers social welfare policies and services; human behavior in the social environment; research; social work practice with individuals, families, groups, and communities; and the practicum. The advanced curricu-

lum is organized around four concentrations: child and family, gerontology, health, and mental health. Emphasis in the justice system is also available. Elective courses are provided in such areas as family therapy, substance abuse, justice system, child abuse and neglect, therapeutic strategies with the elderly, human sexuality, and ethnic and minority content.

Career opportunities include direct practice, supervision and administration, research, and other positions in public and private agencies in Hawai'i and other states and countries.

Admission to the MSW program requires a bachelor's degree from an accredited U.S. college or university or its equivalent from a recognized foreign institution of higher learning; a liberal arts background; a scholarship record that indicates the ability to do satisfactory graduate work; evidence of personal qualifications, social work and/or related experiences, motivation; and interest that indicates potential for successful graduate social work education and professional practice. Admission occurs for the fall semester only. Completed applications are reviewed in the order they are received by the school. All required application documents must be received by the school no later than February 1 for fall semester admission.

For further information about the school's program and application for admission, refer to the Bulletin of the School of Social Work, write to the school, or check the website.

PhD Program

The purpose of the doctoral program is to prepare students for leadership roles in the profession of social work and field of social welfare. The doctoral program advances the school's mission to understand the relationship between cultural characteristics and effective professional practice. The program encourages scholarly inquiry to enhance knowledge of culture, particularly the cultures of the Asia Pacific region, and the societal structures intended to enhance well-being. The PhD curriculum exposes students to a program of study and investigation that places its highest priority on independent inquiry and the enhancement of intellectual, creative, and analytical abilities. Each student will obtain the ability to conduct independent research on a critical social problem.

The doctoral program is designed to provide sufficient structure to allow students to progress smoothly through the program and, at the same time, provide the flexibility and rigor that are the hallmark of doctoral education. The organization of the curriculum is divided into required courses, to ensure that all students are equipped with comparable basic knowledge; specialization work, in which students largely design their own curriculum; electives; a dissertation design requirement; and the dissertation. The PhD in social welfare requires 36 hours of course credit excluding dissertation credits.

Considerations for admissions will begin upon receipt of the completed application. For more information, contact the chair of the PhD program.

Travel Industry Management



Administration

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 2560 Campus Road
 Honolulu, HI 96822
 Tel: (808) 956-8946
 Fax: (808) 956-5378
 E-mail: tim-info@hawaii.edu
 Web: www.tim.hawaii.edu

Interim Dean: Pauline J. Sheldon

Faculty

- *F. Collison, PhD (Graduate Chair)—transportation marketing, trans-Pacific aviation, tourism and transportation development for the Pacific Islands, travel industry education
- *D. J. L. Choy, PhD—tourism economics, tourism development, travel marketing, travel agency management
- D. Cost, JD—hospitality law
- J. Cox, MA—hotel management and marketing
- *C. Y. Gee, MA, PhD (Hon)—hotel, restaurant and institutional management; tourism development and administration
- *M. Hukill, PhD—information technology and telecommunications impacts on travel and tourism, electronic communications policy and planning
- *M. Johanson, PhD—hospitality management; human resource management; hospitality finance
- M. Kumabe, MA—human resource management
- L. Leslie, BA—culinary arts, institutional purchasing
- B. Leu, MLIS—special collections, library
- *J. C. Liu, PhD—economic impact of tourism, geography of tourism, sociocultural issues of tourism, ecotourism

- *P. J. Sheldon, PhD—tourism and hospitality information systems, tourism economics, tourism policy
- D. Spears, PhD—hospitality/service management, tourism marketing and development, hotel and convention sales, technology development and assessment, and gaming management
- *D. Tesone, PhD—hospitality management, human resource management, leadership, educational technology
- R. Uyeno, MA—tourism development policy and administration, social impact of tourism
- *B. W. Wie, PhD—dynamic modeling of transportation networks, transportation network analysis, traffic control systems, dynamic route guidance

General Information

The School of Travel Industry Management (TIM) is recognized as a leading educational institution in hotel, restaurant, tourism, and transportation management. TIM pioneered the concept of integrating all aspects of the travel industry under a single discipline. Built on a foundation of management science, TIM also draws on a broad range of disciplines to provide high-quality education at the undergraduate and graduate levels to current and future professionals.

The visitor industry in Hawai'i provides TIM students many opportunities to gain experience in the field and to study applications of theory to practical business situations. TIM works closely with local, national, and international business organizations, as well as with various government and private professional organizations.

In addition to Hawai'i's travel industry environment, students benefit from a curriculum that has an international perspective. The global importance of tourism and the increasingly interdependent nature of economic and political systems require a fundamental and multidisciplinary understanding of international issues. TIM's distinctive curriculum and outstanding faculty, the success and importance of tourism as the leading industry in Hawai'i, and the international focus of the programs provide students a unique educational environment and experience.

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Mission

As a professional program within a land-grant institution, the School of Travel Industry Management has linked its mission with the state's economic interest in tourism, Hawai'i's largest economic sector. The mission of the school is threefold: (a) to prepare individuals for leadership and professional positions in the travel industry through education and training, (b) to generate new knowledge in the travel industry through research and graduate education, and (c) to provide service to the community, nation, Asia Pacific region, and beyond.

Goals

The School of Travel Industry Management has the following goals:

1. Instruction—to provide high-quality education at the undergraduate and graduate levels on a statewide basis;
2. Research—to conduct basic and applied research relevant to the travel industry; and
3. Service—to be the leading travel-industry center for information resources and continuing professional education and training serving the state and the Asia Pacific region.

Accreditation

TIM is fully accredited by the Accreditation Commission for Programs in Hospitality Administration (ACPHA).

Degrees

Bachelor's Degree: BS in travel industry management

Master's Degree: MS in travel industry management

Advising

TIM Student Services Office
George Hall 346
2560 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8946
Fax: (808) 956-5378

All students are encouraged to see an adviser at regular intervals to review degree requirements and to plan course schedules. Prior to registration each semester, advising workshops are held to assist students in completing their curricular plans. Handbooks, which provide additional guidelines to students concerning the school and its degree programs, are also available.

New Students

Orientation for new students is held before each semester.

All students are assigned a student services adviser upon admission to the school. The adviser should be consulted regarding the following:

1. Identification of career goals appropriate to the student's interests;
2. Selection of courses appropriate to the student's career goals; and

3. Co-curricular activities and/or work experiences to develop skills and abilities outside the classroom.

Students may also consult with faculty members concerning these items.

Evaluation of Transfer Credits

Transfer credits are evaluated after admission to TIM. After students receive the preliminary evaluation from the admissions office, they may review the evaluation with a student services adviser in the TIM Student Services Office. Students should also be aware that after admission to TIM, prior approval must be obtained before enrolling in courses at other institutions.

Seniors

Seniors must complete a degree check and file a diploma application prior to their final semester. Students should attend one of the advising sessions for graduating seniors held each semester.

Academic Policies**Good Academic Standing**

Undergraduate TIM students must meet the following requirements to maintain good academic standing:

1. Cumulative GPA of at least 2.0 for all courses attempted at UH Mānoa for a grade. Transfer credits and courses completed under the CR/NC option are not included.
2. A GPA of at least 2.0 in the upper division TIM core and TIM emphasis plus the TIM electives. However, a cumulative GPA of 2.5 for the TIM emphasis and TIM elective courses is required for graduation.
3. Satisfactory progress toward completion of degree requirements. This means students must enroll in courses required for the degree and complete these courses with acceptable grades.

Probation

A student who fails to meet any one of the academic standing requirements at the end of any semester is placed on probation. Probationary students must achieve a current (semester) GPA of at least 2.0 to be allowed continued registration. Grades of I (incomplete) and W (withdrawal) are not permitted during probation. Failure to correct academic deficiencies may lead to suspension and eventual dismissal from the University.

Withdrawal from Courses

As the semester progresses, it becomes increasingly difficult to withdraw from a course. No withdrawals are permitted after the ninth day of class except for unusual or extenuating circumstances beyond the control of the student.

Advancement to Upper Division Courses

Students are expected to complete the TIM lower division special requirements (see the "School Requirements" section on the following page) before enrolling in upper division TIM courses.

Undergraduate Program

Areas of Emphasis

TIM offers three areas of emphasis within the BS program: hospitality management, tourism management, and transportation management. The undergraduate instructional program is committed to the development of competent management personnel for the travel industry through a curriculum that enables students to develop leadership abilities to solve problems of a dynamic industry.

The global nature of the curriculum provides insight into the role and responsibilities of the industry within state, regional, national, and world perspectives, as well as the nature of service-based enterprises, business ethics, and societal constraints. In addition, practical knowledge regarding operational aspects of the industry enables students to develop “reality skills” within the field.

Hospitality Management

The hospitality management emphasis is intended to provide students with the ability to apply problem-solving, decision-making techniques and critical-thinking skills to meet current and future industry challenges. Students will study the relationship of the various constituencies (customer, owner, staff) in the management and operation of lodging organizations; the microeconomics of the industry in its various forms; and the investment risks associated with tangible properties. In addition the emphasis covers the principles of conceiving, designing, marketing and operating a commercial food-service facility either as a free-standing operation or as a part of a hotel, club entertainment and recreation complex, or institution, along with principles of basic and quantity food production. Students will study financial control procedures that are specific to hospitality operations; factors affecting design, planning, construction, physical operation and profitability; as well as basic principles of marketing hospitality organizations with a focus on public relations, pricing and yield management.

Tourism Management

This emphasis focuses on strategic issues related to the travel industry, as well as marketing and management principles within specific types of businesses, including travel agencies, tour operations, visitor attractions, and others. Students learn to analyze macroeconomic factors related to the development of tourism and identify impacts of tourism on society and the environment.

Additionally, students will learn tourism research techniques and the formulation of tourism policy within the context of both private and public tourism and travel institutions.

Transportation Management

Students choosing the transportation emphasis will gain an understanding of the characteristics and importance of transportation systems for the United States (both domestic and international); the major transportation modes; government, promotional and regulatory activities in U.S. transporta-

tion; the role of transportation in tourism; the transportation systems that impact the economics of both Hawai‘i and the United States; and the management of firms in various transportation modes.

Within various sectors of the travel industry, students analyze issues confronting airlines and airports that relate to management, government regulation and promotion, new techniques, distribution, and industry trends. Tourist-related and urban transportation systems, surface passenger transportation systems, and international air and marine transportation are also covered. Major logistical activities are also analyzed (traffic management, warehousing, inventory control, order processing, packaging, and materials management).

Admission Requirements

First-Year Applicants

Students with no previous college-level work or fewer than 24 college-level credit hours may apply for admission as first-year students. The following credentials are reviewed:

1. Academic preparation (four years of high school English and four years of high school mathematics are highly recommended), including SAT and (where applicable) TOEFL scores; recommendations from high school counselors and/or principals; and
2. Evidence of potential for success in the travel industry, including, but not limited to, (a) participation in co-curricular activities in school or in the community, (b) personal recommendations, and (c) part-time or summer work experience.

Transfer Applicants

All students with 24 or more college-level credit hours are considered transfer applicants. Qualified applicants must present the following credentials:

1. A minimum cumulative GPA of at least 2.5 for all work attempted at the University of Hawai‘i at Mānoa, as well as for work completed at other institutions;
2. Evidence of potential for success in the travel industry, including, but not limited to, (a) participation in co-curricular activities in school or in the community, (b) personal recommendations, and (c) part-time or summer work experience; and
3. Minimum GPAs as indicated: (a) 2.5 GPA in the TIM lower division special requirements (courses in which credits have been earned may not be repeated); (b) 2.0 GPA in the upper division TIM component; and (c) 2.5 GPA in TIM emphasis/elective courses, if any of these courses have been attempted.

Application Procedures

Application forms are available in the TIM Student Services Office. Applicants who are not currently classified degree students at the University of Hawai‘i at Mānoa must submit completed applications by June 1 for fall admission or November 1 for spring admission. Applicants who are classified degree students at UHM in other schools and colleges who wish to

change majors must submit completed applications by June 15 for fall admission or November 15 for spring admission.

School Requirements

To earn the bachelor of science degree, students must complete the following general requirements:

1. Earn a minimum of 124 credit hours with a minimum cumulative GPA of 2.0;
2. Fulfill the University of Hawai‘i at Mānoa General Education Core requirements (see the “Mānoa General Education Core and Graduation Requirements” section of this Catalog). The following courses are recommended:
 - a. Arts and Humanities—one course from Group 2 (History and Culture);
 - b. Natural Sciences—CHEM 151/151L, especially for students interested in an emphasis in restaurant/institutional food service management; and
 - c. Social Sciences—GEOG 102 or 151;
3. Complete the TIM lower division special requirements with a minimum GPA of 2.5. The courses are ENG 100; one of ENG 250–257; SP 251; ACC 201; ECON 130; QM 250, AREC 210 or MATH 203 or 241; TIM 101; TIM 242; and BLAW 200;
4. Complete the internship program (TIM 100, 200, and 300 or 400B or 400C). This requirement should be completed before the student’s final semester. Performance evaluations from employers must verify hours of work completed. At least one internship must be completed in the student’s area of emphasis, and at least one internship must be completed in the United States;
5. Complete the upper division TIM component with a minimum GPA of 2.0. These courses should be completed during the junior year. TIM 302 must be completed during the first semester the student is eligible. The courses are TIM 301, 302, 303, 304, 305, and 306; BUS 310, SOC 225, ECON 321, or AREC 310
6. Complete one of the TIM areas of emphasis:
 - a. Hospitality Management—TIM 184, 240, 312, 334, 431, and one of TIM 310, 316–317, 333, or 469;
 - b. Tourism Management—TIM 321, 421, and two of TIM 324, 325, 327, 369B, or 469;
 - c. Transportation Management—TIM 350, 442, and two of TIM 351, 353, 354, 369C, 369D, or 469;
7. Complete 3 credit hours of elective. This course may be selected from any upper division TIM course other than the student’s area of emphasis;
8. Earn a minimum GPA of 2.5 in the TIM emphasis and TIM elective course (15–18 credit hours); and
9. Complete at least 60 credit hours of upper division or non-introductory work. Upper division courses are numbered 300 or higher. Non-introductory courses are numbered 200-level with a specific college-level prerequisite. (ENG 250–257 are specifically excluded.)
10. Complete at least 60 percent of the upper division major requirements at UHM.

Graduate Program

The School of Travel Industry Management offers a graduate program leading to the Master of Science (MS) degree. The program is designed to develop a general understanding of the travel industry at both domestic and international levels and in-depth knowledge of a specialized aspect of the field that is appropriate to individual interests and goals. The general objectives of the program are as follows:

1. Provide advanced studies at the graduate level for persons with managerial/professional experience in the travel industry;
2. Increase the supply of personnel who have the capacity for decision-making on travel industry policy issues at the highest levels within the state, national, and international communities;
3. Promote and advance travel industry research in order to increase existing knowledge and understanding of travel industry trends and their impacts;
4. Support the quality development of the travel industry in Hawai‘i and the Asia Pacific region through advanced studies, research, and training; and
5. Establish Hawai‘i as a center of excellence in the international field of travel industry education and research beyond the baccalaureate level, thereby enhancing the reputation of both the University of Hawai‘i and the state.

Areas of Specialization

Four areas of specialization are offered: tourism and travel; hotel, restaurant, and institutional management; transportation; and travel industry education.

Tourism and Travel is an emphasis intended for individuals who wish to focus on public and private aspects of the tourism industry, which may lead to careers in public policy, tourism planning and development, applied and theoretical research, marketing and promotion, consultancy, and other travel and tourism services.

Hotel, Restaurant, and Institutional Management is an emphasis intended for individuals who wish to concentrate on managerial and operational aspects of hospitality with possible careers as executives, corporate officers, and entrepreneurs.

Transportation is an emphasis intended for those who wish to develop expertise in transportation management leading to careers as supervisors and managers in government, airlines, ground transportation, cruise industry, and transportation research and planning.

Travel Industry Education is an emphasis intended for individuals interested in becoming involved in tourism education and training, which may lead to careers as community college teachers, recreational directors and coordinators, curriculum specialists, and administrators for school systems.

Admission Requirements

The MS in travel industry management is designed for individuals who hold a baccalaureate degree in a travel-related, hospitality management or business field. Applicants with degrees in other fields will be required to complete appropriate prerequisites prior to admission to candidacy. These generally include microeconomics, financial and managerial accounting, management, marketing, statistics, and finance.

Minimum admission standards include a GPA of at least 3.0 in the baccalaureate work or in the last two years of undergraduate study. Applicants must attain a satisfactory score on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE) and, where applicable, the Test of English as a Foreign Language (TOEFL). The minimum acceptable TOEFL score is 560.

Three letters of reference are required addressing the ability of the applicant to succeed in graduate study and to make future contributions to the travel industry. In addition, work experience, preferably at the supervisory or managerial level, is highly desirable.

Degree Requirements

The MS is a 36-credit program. Both Plan A (thesis) and Plan B (non-thesis) options are available. Plan A and Plan B students must meet the following requirements: TIM 602, 603, 605, 691, 693, and 695, and a quantitative reasoning course at the 400- or 600-level that has been approved by the graduate chair.

Plan A (Thesis)

The following are additional requirements for Plan A only: (a) three specialization elective courses (9 credits) approved by the graduate chair; and (b) TIM 700 (6 credits).

Plan B (Non-thesis)

The following are additional requirements for Plan B only: (a) Four specialization elective courses (12 credits) approved by the graduate chair; and (b) TIM 699 (3 credits).

Instructional and Research Facilities and Programs

Continuing Professional Education Programs

The TIM school's continuing professional education programs are designed to improve managerial skills, exchange professional experiences, develop interrelationships among sectors of the travel industry, and increase awareness of the social, cultural, and economic implications of policy decisions. Two summer institutes are held each year:

1. Executive Development Institute for Tourism: a three and one-half week program for executives and professionals in international tourism; and
2. Hawai'i International Hotel Institute: a series of one-week courses for those with one or more years of experience in the hospitality field.

Center for Tourism Policy Studies

The Center for Tourism Policy Studies was founded in 1985 to conduct basic and applied research and provide technical assistance in tourism-related areas to strengthen educational programs, improve research methods for academic and industry use, develop new economic methodologies, and facilitate decision-making in both the public and private industry sectors. Projects undertaken by the center have provided information and analysis on broad economic, environmental, social, and cultural concerns and addressed tourism development issues to assist the visitor industry in Hawai'i, as well as the Asia Pacific region.

International Tourism Education and Training Center

The TIM school's International Tourism Education and Training Center (ITETC) was established in 1991 under the auspices of the World Tourism Organization (WTO)—a UN affiliate agency. ITETC is part of a network of WTO centers worldwide whose purpose is to assist the WTO in fostering tourism development in support of its member nations' economic and social aims. The center's activities include (a) delivery of both short- and long-term education and training programs to tourism professionals from WTO member nations; (b) provision of technical assistance to enhance the tourism education and research capabilities of WTO member nations; and (c) implementation of activities to increase international awareness of effective educational strategies in support of tourism development. The WTO center's major focus of operations is the Asia Pacific region; however, the center also offers its specialized expertise to WTO member nations in other areas of the world.

The Sunset Reference Center

With more than 10,000 items, including books, reports, statistical publications, article reprints, and subscriptions to more than 200 periodicals, the *Sunset* Reference Center has the largest collection of specialized resource material on tourism in Hawai'i. The *Sunset* Reference Center provides research material for students, supports the research activities of the Center for Tourism Policy Studies, and serves as a major resource center for the Asia Pacific region.

Student Organizations

The TIM school has six student clubs that provide opportunities for students to interact with their peers, meet industry leaders, and practice management skills through a wide variety of activities. These clubs are Travel Industry Management Student Association, Club Managers' Association of America (UH Chapter), Hotel Sales and Marketing Association, Pacific Asia Travel Association (TIM Satellite Chapter), Pacific Transportation Student Association (student chapter of the National Defense Transportation Association), and Eta Sigma Delta.

Honors and Awards

The TIM school provides scholarships and awards to exceptional students. For a list of these scholarships, see the “Tuition, Fees, and Financial Aid” section of the Catalog.

Eta Sigma Delta

Membership in this international honor society for hospitality management is available to undergraduate and graduate students who have achieved outstanding academic records.

Outstanding Student Awards

These awards are given annually to students who have achieved outstanding academic and service performance in the following categories: (a) senior in travel industry management; (b) graduate student in travel industry management; (c) senior in hotel management; (d) senior in restaurant management; (e) senior in tourism management; (f) senior in transportation; (g) junior in travel industry management; (h) TIM International Award of Excellence (awarded by the TIM Alumni Association); (i) Dean’s Scholar award; and (j) Dean’s Spirit of TIM Award.

College of Tropical Agriculture and Human Resources



Administration

Gilmore 202
 3050 Maile Way
 Honolulu, HI 96822
 Tel: (808) 956-8234
 Fax: (808) 956-9105
 Web: www.ctahr.hawaii.edu

Dean: Andrew G. Hashimoto
 Associate Dean: Marlene M. Hapai

General Information

The College of Tropical Agriculture and Human Resources (CTAHR) was established with the founding of the University of Hawai'i in 1907. CTAHR is a leading academic institution in tropical agriculture, bioengineering, food science and human nutrition, apparel design and merchandising, biotechnology, natural resources and environmental management, and family resources. Hawai'i's unique geographic location, ecological diversity, and multicultural population provide students with a living laboratory. The college is the locus of educational opportunities for students preparing to become tomorrow's scientists, business leaders, family development specialists, fashion designers and merchandisers, nutritionists, and policy makers.

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The land-grant mission of CTAHR provides students with an opportunity to study in an environment that blends teaching, research, and extension programs dedicated to discovering the secrets of basic science while addressing contemporary issues. Faculty members bring to the classroom the unique perspective of emerging research issues, coupled with an abiding commitment to education.

Through its extension activities, the college provides off-campus, noncredit educational programs focused on the advancement of agriculture in Hawai'i, the strengthening of families, and the improvement of communities.

Through its research activities, the college promotes the advancement of agricultural sciences and applications for productive sustainable agriculture. Investigations cover plant and animal physiology; plant, insect, microbial, aquacultural, bioreactor and environmental biotechnology; diseases, insects, and parasites; agronomy; soils; food science; food processing; environmental management; bioengineering; bioremediation; biochemistry; human and animal nutrition; breeding and genetics; and culture, production, economics, marketing, and quality of life for individuals and families.

Degrees and Certificates Offered

Certificates: Graduate Resource Management Certificate

Bachelor's Degrees: BS in natural resources and environmental management, BS in tropical plant and soil sciences, BS in animal sciences, BS in bioengineering, BS in plant and environmental protection sciences, BS in family resources, BS in apparel product design and merchandising, BS in food science and human nutrition, BS in plant and environmental biotechnology

Master's Degrees: MS in natural resources and environmental management, MS in tropical plant and soil sciences, MS in animal sciences, MS in bioengineering, MS in plant pathology, MS in molecular biosciences and bioengineering, MS in entomology, MS in food science, MS in nutritional sciences

Doctoral Degrees: PhD in plant pathology, PhD in molecular biosciences and bioengineering, PhD in entomology, PhD in natural resources and environmental management, PhD in tropical plant and soil sciences

Advising

CTAHR Office of Academic and Student Affairs
 Gilmore 210
 3050 Maile Way
 Honolulu, HI 96822
 Tel: (808) 956-8183 or (808) 956-6733
 Fax: (808) 956-3706
 E-mail: acadaff@ctahr.hawaii.edu
 Web: www.ctahr.hawaii.edu

Undergraduate Programs

Undergraduate programs in CTAHR provide students with an opportunity to acquire those scientific, professional, and personal competencies emphasized by Hawai'i's business, governmental, community, and scientific leaders. The college provides a balance of educational experiences that include classroom instruction, laboratory sessions, co-curricular activities, supervised internships, and international study. Student exchange programs are also available for those desiring short term exposure to other institutions.

Admission Requirements

Students may enter CTAHR as freshmen or as transfer students from other departments or academic institutions. Requirements for admission are the same as those for the UH Mānoa campus in general, except for the food science and human nutrition, family resources, and apparel product design and merchandising majors. Transfer students are required to have a minimum GPA of 2.5 for apparel product design and merchandizing and natural resources and environmental management majors, 2.6 for family resources majors, and 2.8 for food science and human nutrition majors. Additional course requirements may also apply to these majors. Information on CTAHR undergraduate programs can be obtained from the CTAHR Office of Academic and Student Affairs.

College Requirements

To be eligible for a BS degree from CTAHR, students must complete the General Education Core requirements, CTAHR requirements, course requirements of the CTAHR major, and at least 60 credit hours of non-introductory courses (i.e., those numbered 300 and above or having a college-level prerequisite) and maintain a minimum cumulative GPA of 2.0 in a minimum of 126-128 credit hours as prescribed by the major. Some majors may require more credit hours. All CTAHR undergraduates are required to complete a set of interrelated courses: SP 151 Personal and Public Speech or equivalent; FAMR 380/380L Research Methodology/Lab or AREC 310/NREM 310 Statistics in Agriculture and Human Resources; and an internship or senior design course within their major field. Foreign language requirements are specific to each

academic program. Check with the departmental adviser for more information.

Double Major or Second Degree

Students seeking a double major must have a minimum cumulative GPA of 3.0, demonstrate that the proposed majors are substantially different, and obtain approval from undergraduate advisers in both of the relevant departments.

Students seeking a second degree must have a minimum cumulative GPA of 3.0 and demonstrate that the proposed second degree is substantially different from the first degree. At least 30 credit hours are required for the second degree in addition to those associated with the first degree.

Related Undergraduate Programs

Veterinary Science

Students interested in becoming veterinarians generally major in Animal Sciences, within the Department of Human Nutrition, Food and Animal Sciences, and participate in CTAHR's pre-veterinary curriculum. A BS degree is desirable but not required for veterinary schools. The CTAHR pre-veterinary adviser assists students in meeting the admission requirements of veterinary schools that participate in the Western Interstate Commission for Higher Education (WICHE) program, including the University of California—Davis, Colorado State University, and the Washington, Oregon, Idaho College of Veterinary Medicine at Washington State University. Hawai'i students are also encouraged to make applications to other continental United States veterinary schools that accept nonresident students. Students should contact the Web site of the Association of American Veterinary Medical Colleges for information about the Veterinary Medical College Application Service at www.aavmc.org/vmcas/vmcas.htm and for more information about specific requirements for admission to veterinary schools. The department also sponsors the Pre-Veterinary Club of Hawai'i, which offers students opportunity to interact with other students interested in veterinary medicine and working with animals. Students seeking additional information and advising should contact the Department of Human Nutrition, Food and Animal Sciences (Agricultural Sciences Building, 1955 East-West Road, Room 216, Honolulu, Hawai'i 96822 (808) 956-8236).

Agriculture Education

Students who wish to teach agriculture at the secondary level in Hawai'i can meet the state Department of Education's requirements by taking courses from CTAHR and the College of Education. Students may obtain a BS degree in CTAHR prior to transferring to the post-baccalaureate basic certification program in the College of Education. Other students transfer to CTAHR from other programs in the University of Hawai'i system and take courses from CTAHR and the College of Education. Additional information can be obtained from the CTAHR Office of Academic and Student Affairs or the College of Education Student Services Office (Wist Annex 2-126, (808) 956-7849).

Home Economics Education

Students planning on teaching home economics at the secondary level generally begin in CTAHR's Department of Family and Consumer Sciences and then transfer to the College of Education in their junior year. Course work is taken in CTAHR's Department of Family and Consumer Sciences and Department of Human Nutrition, Food, and Animal Sciences and the College of Education. Additional information can be obtained from the Department of Family and Consumer Sciences (Miller 110, (808) 956-8105) or College of Education Student Services Office (Wist Annex 2-126, (808) 956-7849).

Graduate Programs

Graduate studies leading to a master of science degree are available in nine majors: animal sciences, bioengineering, plant pathology, molecular biosciences and bioengineering, entomology, food science, nutritional science, natural resources and environmental management, and tropical plant and soil sciences. Doctor of philosophy programs are available in five fields: plant pathology, molecular biosciences and bioengineering, entomology, natural resources and environmental management, and tropical plant and soil sciences.

Three of CTAHR's graduate programs in tropical agriculture (tropical plant and soil sciences, entomology, and natural resources and environmental resources) have been recognized as distinctive programs by the Western Interstate Commission for Higher Education (WICHE). Qualified students from participating states may enroll in these graduate programs at Hawai'i-resident tuition rates.

CTAHR utilizes general University facilities, including the libraries, which offer extensive collections and information services, and the computing center, which provides access to individual computers as well as large mainframes. Along with the Pacific Biomedical Research Center, CTAHR sponsors the Biotechnology–Molecular Biology Instrumentation Facility for the benefit of researchers throughout the University of Hawai'i. The college's facilities include a microcomputer laboratory, several research stations, and specialized laboratories with state-of-the-art equipment, all of which support research and instruction in the food and agricultural sciences. On-campus affiliations with the Hawai'i Institute of Marine Biology, Water Resources Research Center, East-West Center, Harold L. Lyon Arboretum, Sea Grant College Program, and Hawai'i Natural Energy Institute extend CTAHR's resources. The college is also affiliated closely with off-campus institutions, such as the Bernice P. Bishop Museum, USDA/ARS Tropical Fruit and Vegetable Research Laboratory, Hawai'i Agriculture Research Center, U.S. Geological Survey, National Marine Fisheries Service, and Hawai'i Department of Agriculture.

Students may contact individual departments, the Graduate Division (2540 Maile Way, Spalding Hall, Honolulu, HI 96822), or Financial Aid Services (2600 Campus Road, Honolulu, HI 96822) for information on grants, fellowships, assistantships, scholarships, tuition waivers, loans, work-study programs, and job opportunities.

Information on CTAHR graduate programs can be obtained from the Office of Academic and Student Affairs, Gilmore 210, (808) 956-8183, or from departmental offices.

Admission Requirements

Students must hold a bachelor's degree from an accredited U.S. college or university or its equivalent from a recognized foreign institution of higher learning. Admission requirements for various graduate programs are specified under each department's description. Admission decisions are made by the Graduate Division in consultation with faculty in the field of study.

College Requirements

The requirements associated with the master of science degree vary with each program of study. The master of science Plan A (thesis) and Plan B (non-thesis) options are available in all programs; tropical plant and soil sciences, entomology, and plant pathology programs also offer a Plan C (examinations) option.

The PhD degree culminates in a set of comprehensive and final examinations and a dissertation of original work. Special requirements exist in some fields of study. Contact the Graduate Division or the departments for additional information.

Instructional and Research Facilities

Modern laboratories as well as statewide field laboratories are an important part of undergraduate and graduate instruction. Students are able to learn the latest research methods. Classrooms are well-equipped for learning computer applications.

Student Organizations

CTAHR students are encouraged to join and actively participate in student organizations. CTAHR student organizations provide opportunities for students to gain experience in their professional field through diverse activities. Students can acquire transferable skills and competencies outside of the classroom while gaining invaluable knowledge they can utilize in the work force. Developing lasting friendships with peers and faculty are also benefits of active participation in student organizations. Current CTAHR student organizations include:

- Innovators of Fashion
- Pre-Veterinary Club
- Food Science and Human Nutrition Council
- Tropical Plant and Soil Science Society
- Friends of the Family
- Student Ambassadors
- Agronomy and Soil Science Graduate Student Organization
- Agricultural and Resource Economics Graduate Student Organization
- Ka Mea Kolo (Entomology Club)
- Plant Pathology Graduate Student Organization
- Bioengineering Club
- Horticulture Graduate Student Organization

Exceptional students may also be recommended for membership to honorary societies such as: Gamma Sigma Delta and Phi Upsilon Omicron.

Honors and Awards

The College of Tropical Agriculture and Human Resources and its departments provide scholarships and awards to its students. For a list of these scholarships, see the "Tuition, Fees, and Financial Aid" section of this Catalog. More information on scholarships and awards can be obtained from the CTAHR Academic and Student Affairs Office, Gilmore 211, (808) 956-8183.

Family and Consumer Sciences

Apparel Product Design and Merchandising
Miller 201
Tel: (808) 956-8133

Family Resources
Krauss Annex 7
Tel: (808) 956-6519

2515 Campus Road
Honolulu, HI 96822
E-mail: FCS@ctahr.hawaii.edu
Web: www.ctahr.hawaii.edu/FCS

Faculty

- L. L. Arthur, PhD—history of costumes, social-psychological aspects of dress
- R. A. Caulfield, PhD—infancy, childhood, human development
- D. R. Ching, PhD—agricultural leadership
- D. L. F. Chung, MEd—fashion design
- D. H. Davidson, PhD—cross-cultural child rearing, life span development
- B. De Baryshe, PhD—parenting, family resilience
- C. A. Dickson, PhD—fashion merchandising, international textile products markets
- J. W. Engel, PhD—family relationships, marriage development
- G. F. Fong, EdD—family resource management
- A. M. Fontes, MS—leadership and personal development
- C. S. Ikeda, MEd—technology and education
- L. J. Kawamura, MPh—4-H youth development, foods and nutrition
- P. Kutara, MS—consumer economics
- M. I. Martini, PhD—parenting and family relationships across cultures
- D. M. Masuo, PhD—consumer and family economics
- M. A. Morgado, MA—fashion merchandising, fashion and culture
- C. M. Nakatsuka, MEd—community service learning, 4-H
- R. W. Saito, MS—4-H youth development
- M. K. K. L. Spotkaeff, MS—youth education and coordination

- R. W. Wall, PhD—family financial planning
- R. M. Yoshino, MA—community services
- J. S. M. Young, MA—leadership and volunteer development
- S. Yuen, PhD—human and family development
- H. H. Zeug, PhD—human development, family life

Degrees Offered: BS in apparel product design and merchandising (textiles and clothing), BS in family resources

The Academic Program

The Department of Family and Consumer Sciences has been an integral part of the land-grant system and of the University of Hawai'i since 1907. The department offers two bachelor of science degree programs: apparel product design and merchandising (APDM) and family resources (FAMR).

The APDM program integrates theoretical and applied knowledge regarding apparel design, consumer textiles, historic costume, and apparel production with apparel marketing and merchandising theory and practice, both domestic and international. The program fosters the development of professionals prepared for management-level positions in business and industry. Positions include apparel designer, buyer, merchandise manager, sales representative, costume designer, manufacturer, and store owner. An internship providing work experience related to a student's career interests is required. Majors may specialize in apparel design, apparel merchandising, or fashion promotion, or they may develop individualized programs in consultation with an adviser.

The FAMR program focuses on child and family studies. The FAMR curriculum emphasizes the study of child, adolescent, and adult development; family development (such as marriage and parenting); family resource management (such as consumer and family economics and management); community needs; and leadership in human services occupations. The program requires an internship providing work experience related to a student's career interests. Students are prepared for bachelor-level careers in human and family services and for graduate training in child and family studies, early childhood education, human development, family-life education, family and consumer sciences, and marriage and family therapy. With supplemental course work, students may pursue graduate training in other social science disciplines such as social work, educational counseling, public health, and psychology. FAMR courses are also functional in that they relate to students' personal development and family lives.

In addition to courses offered in the department, there are opportunities for leadership experience and friendship through professional and honorary organizations. *Phi Upsilon Omicron* is a national honorary society in family and consumer sciences with members invited from both programs. *Friends of the Family* provides service and professional experiences for FAMR majors while *Innovators of Fashion* does the same for APDM majors. Majors from any discipline are welcome in the latter organizations.

Undergraduate Study

Advising

Apparel Product Design and Merchandising
Miller 201
2515 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8133
E-Mail: fcs@ctahr.hawaii.edu

Family Resources
Krauss Annex 7
2515 Campus Road
Honolulu, HI 96822
Tel: (808) 956-6519
E-Mail: fcs@ctahr.hawaii.edu

Students are encouraged to come for initial advising before registering for the first year at the University or prior to their application for admission as a transfer.

Apparel Product Design and Merchandising Program

Apparel Product Design and Merchandising (APDM) is a comprehensive undergraduate program whose mission is to prepare students with appropriate knowledge and skills for career positions in apparel and fashion-related industries. Classroom work is enhanced by the largest costume collection at a university in the United State giving students and faculty a rich source of items to draw upon for their classes and projects. New storage facilities and computerization make access simple. In addition, students have the opportunity to learn and use skills such as desktop publishing and presentation graphics to produce materials and presentations. Many classes use web-based technologies to supplement classroom activities. Access to modern computer labs within the college make learning to do fashion illustration fun and challenging and advanced computer systems and equipment also provide modern skills for apparel design majors. Opportunities to study at other universities and to participate in study tours to fashion centers of the world are another plus. A strong foundation for graduate study in apparel and its related areas is provided.

All APDM majors take a core set of courses that provides them with:

- an understanding of and appreciation for the impact of global production and distribution of apparel.
- the ability to plan, develop, and merchandise apparel product lines and to evaluate the quality of the products being developed.
- an understanding of the role of dress and fashion in their lives and the lives of others.
- an understanding of the design, manufacture, marketing, retailing, and consumption of textile and apparel products.
- the ability to demonstrate personal attitudes and skills appropriate to career positions in apparel.

Career Focus Areas

In addition to taking a core of university and APDM courses, students each work with an adviser to develop an in-depth program of study that will provide the basis for a future career in apparel.

Apparel Design. The apparel design focus prepares students for careers in the apparel industry as designers, assistant designers, fashion stylists, and manufacturers. Students have a unique opportunity to study the theoretical and applied aspects of apparel design and costume history in a multicultural environment enhanced by a major costume collection; computerized fashion illustration software; and computerized grading, marker-making, and pattern-making systems.

Apparel Merchandising. The apparel merchandising focus offers a unique combination of fashion theory, marketing, and product information relative to retail and wholesale operations. Graduates are prepared for apparel management careers as buyers, merchandise managers, sales representatives, and fashion coordinators for the local, national, and international markets.

Fashion Promotion. In the fashion promotion focus, students take courses in communication, writing and reporting, and advertising to supplement APDM courses. The curriculum is designed to equip students with an understanding of the use of communications media for promoting sales of apparel and related products and services. Graduates are working in mall management, advertising, and visual merchandising.

Individualized Programs. In addition to the types of programs described above, majors may work with an adviser to develop a curriculum focus of their own choosing. Examples of such programs include historic costume, theater costume, fiber/apparel arts, and a combination of design and merchandising.

Entrance Requirements

New students may be admitted directly into the program when they apply to the University. Students transferring from other colleges within the University of Hawai'i system or from other universities must have a minimum GPA of 2.5 to be considered for admission to APDM.

Degree Requirements

A summary of degree requirements is available in Miller 201, (808) 956-8133 or Miller 110, (808) 956-8105.

Family Resources Program

The family resources program provides students with a comprehensive education in family development and resource management, including course work and study in the areas of family relations and marriage development, parenting, family economics and resource management, consumer economics, human development, and community leadership and resource development. The curriculum prepares students to work proactively in multicultural settings to enhance the quality of family life. The FAMR curriculum provides students with an understanding of:

- the changing needs and dynamics of families over time.
- the management of personal, family, and community resources to meet these needs.
- the growth and development of individuals over the human life cycle.
- the interrelationship of individuals, families, and communities in the context of diverse socio-economic and cultural systems.

Students gain a social systems perspective of how families operate by studying the theoretical and applied literature that addresses the biological, social, cultural, psychological, and economic well-being of individuals and families and the environments in which they live. Students also study the changing functions of the family, the roles of its members, and the community programs and policies that affect the decisions and well-being of families and consumers. An internship in the student's area of focus is an integral part of the curriculum.

Entrance Requirements

New students may be admitted directly into the program when they apply to the University. Students transferring from other colleges within the University of Hawai'i system or from other universities must have a minimum GPA of 2.6 to be considered for admission to FAMR.

Degree Requirements

A summary of degree requirements is available in Krauss Annex 7, (808) 956-6519 or Miller 110, (808) 956-8105.

Human Nutrition, Food, and Animal Sciences

Agricultural Sciences 216

1955 East-West Rd.

Honolulu, HI 96822

Tel: (808) 956-7095

Fax: (808) 956-4024

E-mail: hnfas@ctahr.hawaii.edu

Web: www.ctahr.hawaii.edu/ctahr2001/CTAHCatalog/hnfas.html

Faculty

- D. L. Vincent, PhD (Chair)—reproductive physiology and endocrinology
- A. C. Brown, PhD, RD—medical nutrition therapy, complementary medicine, herbs
- B. A. Buckley, PhD—beef production and breeding
- J. R. Carpenter, PhD—ruminant nutrition and metabolism, forage evaluation, and ruminant production
- L. Y. T. Ching, BS—livestock extension education (Kaua'i Cooperative Extension Service)
- D. A. Dooley, PhD—diet and behavior, nutrition education
- M. A. Dunn, PhD—nutritional biochemistry, vitamins and minerals
- M. W. DuPonte, MS—livestock extension education (Hawai'i Cooperative Extension Service)

- G. K. Fukumoto, MS—livestock extension education (Hawai'i Cooperative Extension Service)
- A. S. Huang, PhD—food chemistry
- W. T. Iwaoka, PhD—food chemistry, food safety, food science education
- N. A. Kanehiro, MS, RD—human nutrition extension education (O'ahu Cooperative Extension Service)
- Y. S. Kim, PhD—meat science, muscle biology, animal growth
- C. N. Lee, PhD—dairy production and reproductive management
- S. R. Malecha, PhD—aquaculture production and breeding
- S. T. Nakamoto, MBA, PhD—marketing of perishable products, agricultural economics
- L. C. Nakamura-Tengan, MS—consumer food safety, extension education and resource management (Maui Cooperative Extension Service)
- R. Novotny, PhD, RD—community and international nutrition
- J. S. Powley, MS—livestock extension education (Maui Cooperative Extension Service)
- A. C. Shovic, PhD, RD—dietetics
- C. A. Titchenal, PhD—sports nutrition, energy balance
- C. W. Weems, PhD—molecular endocrinology and reproduction
- H. M. Zaleski, PhD—swine production and management, reproductive physiology
- J. M. Zee, MPH, RD—human nutrition extension education (Hawai'i Cooperative Extension Service)

Graduate Faculty in Animal Sciences

- J. R. Carpenter, PhD (Chair, graduate field of study)—ruminant nutrition, feed and forage evaluation, beef and dairy production
- B. A. Buckley, PhD—beef production and genetics
- Y. S. Kim, PhD—meat science, muscle biology, animal growth
- C. N. Lee, PhD—dairy production and reproductive management
- S. R. Malecha, PhD—aquaculture production and breeding, pond management
- D. L. Vincent, PhD—animal physiology, reproduction and endocrinology
- C. W. Weems, PhD—molecular endocrinology and reproduction
- H. Zaleski, PhD—swine production and management, reproductive physiology

Cooperating Graduate Faculty in Animal Sciences

- S. Atkinson, PhD—endocrinology and reproduction of marine mammals
- E. G. Grau, PhD—fish endocrinology
- Y. S. Weems, PhD—reproductive endocrinology

Affiliate Graduate Faculty in Animal Sciences

- B. Argue, PhD—aquacultural genetics
- J. A. Brock, DVM, MS—aquatic diseases
- O. Decamp, PhD—aquaculture microbiology
- J. Dobbs, PhD—domestic animals, avian and wildlife nutrition
- I. Foster, PhD—aquaculture feeds and nutrition
- C. Laidley, PhD—aquaculture reproductive endocrinology
- S. Moss, PhD—aquaculture production and shrimp program
- B. Okimoto, DVM—exotic animal husbandry and diseases
- T. Ostrowski, PhD—aquaculture feeds and nutrition
- A. Tacon, PhD—aquaculture feeds and nutrition

Graduate Faculty in Food Sciences

- C. G. Cavaletto, MS (Chair, graduate field of study)—sensory evaluation and food processing
 H. Ako, PhD—nutritional biochemistry, aquaculture, lipid metabolism
 A. M. Alvarez, PhD—bacterial disease
 D. Borthakur, PhD—microbiology, biotechnology
 B. Buckley, PhD—beef production and breeding
 D. A. Dooley, PhD—diet and behavior, nutrition education
 L. Gautz, PhD—instrumental quality evaluation
 A. S. Hodgson, PhD—food technology extension, food safety and quality
 A. S. Huang, PhD—food chemistry
 W. T. Iwaoka, PhD—food chemistry, food safety, food science education
 Y. S. Kim, PhD—meat science, muscle biology, animal growth
 Q. Li, PhD—analytical methodology to identify environmental toxins
 J. H. Moy, PhD—food engineering, food irradiation, processing and technology
 W. K. Nip, PhD—handling and processing of seafood, tropical fruits and root crops
 R. Paull, PhD—fresh fruit and vegetable physiology and handling
 W. W. Su, PhD—bioprocess engineering
 C. S. Tang, PhD—biochemistry of natural products

Cooperating Graduate Faculty in Food Sciences

- R. S. Fujioka, PhD—water resources, food microbiology
 S. Kathariou, PhD—food microbiology
 P. Q. Patek, PhD—microbiology
 J. Seifert, PhD—toxicology
 C. S. Tamaru, PhD—live feed, aquaculture

Affiliate Graduate Faculty in Food Sciences

- A. Tacon, PhD—aquaculture feeds and nutrition

Graduate Faculty in Nutritional Sciences

- M. A. Dunn, PhD (Chair, graduate field of study)—nutritional biochemistry, vitamins and minerals
 A. C. Brown, PhD, RD—medical nutrition therapy, complementary medicine, herbs
 J. R. Carpenter, PhD—protein and fiber utilization
 D. A. Dooley, PhD—diet and behavior, nutrition education
 A. S. Huang, PhD—food chemistry
 W. T. Iwaoka, PhD—food chemistry, food safety
 R. Novotny, PhD, RD—community and international nutrition
 A. C. Shovic, PhD, RD—dietetics
 C. A. Titchenal, PhD—sports nutrition, nutritional biochemistry, energy balance
 C. W. Weems, PhD—reproductive endocrinology, steroids

Cooperating Graduate Faculty in Nutritional Sciences

- A. Franke, PhD—analytical chemistry, phytochemicals
 K. Glanz, PhD—nutrition behavior, workplace wellness
 R. Hetzler, PhD—exercise physiology, sports nutrition

- D. A. Lally, PhD—exercise physiology
 L. Le Marchand, MD, MPH, PhD—nutritional epidemiology
 G. Maskarinec, MD, MPH—diet and cancer
 C. Waslien, PhD, RD—international nutrition, geriatrics

Affiliate Graduate Faculty in Nutritional Sciences

- D. Galanis, PhD—Pacific island nutrition
 W. D. B. Hiller, MD—sports nutrition
 S. J. Taussig, PhD—industrial enzymology
 T. Vogt, MD—dietary intervention trials

Degrees Offered: BS in animal sciences, BS in food science and human nutrition, MS in animal sciences, MS in food science, MS in nutritional sciences

The Academic Program

Animal science (ANSC) is the application of experimental investigation, technology, and other scientific principles for the advancement of efficient and environmentally friendly animal agriculture. The present program centers on swine, sheep, beef and dairy cattle production and pond aquaculture production systems. Students receive training in both basic and agricultural sciences, as well as in animal sciences. Unlike most continental United States institutions, the emphasis of the present program is on tropical production systems with particular reference to the Pacific Basin area. Animal scientists have careers in management and production, food processing and marketing, veterinary sciences, the pharmaceutical and feed industries, teaching, extension education, and research. Those positions require skills in disciplines such as management, nutrition, genetics, physiology, meat science, animal health, feed and forage utilization, engineering, business marketing and salesmanship.

Interest in nutrition, food, and the relationship of food to human health and fitness has never been greater than today. Students majoring in any of the curricula options are prepared for diverse careers in the food industry, health-care and fitness facilities, hospitals, nutrition education and communication enterprises, extension education in nutrition, government or private-sector food and nutrition agencies, science related research laboratories, and science education.

The curricula in food science and human nutrition (FSHN) have a strong science base that is applied to food and human nutrition. Students learn problem-solving skills, approaches to critical thinking and basic principles in two related disciplines. Options in the curricula include dietetics, human nutrition, and science education. The dietetic option has been approved by the American Dietetic Association (Plan V). The human nutrition option can be directed toward nutrition education, sports nutrition, or other interests. The human nutrition option can serve as a pre-professional program in medicine, dentistry, nutrition, or other scientific graduate programs.

Students are strongly encouraged to take chemistry and biological sciences courses prior to entering the program.

Transfer students in FSHN are required to have a GPA of 2.8 or greater and to have taken FSHN 185 with a “B” or better and CHEM 161/161L with a “C” or better.

Upon entering either program, Animal Sciences (ANSC) or Food Science and Human Nutrition (FSHN), students will be assisted by academic advisers to identify their career objectives and select an appropriate option for study.

Advising

All FSHN and ANSC majors are required to report for advising prior to registration each semester.

Undergraduate Study

BS in Animal Sciences

Requirements

- Course work in the basic sciences, mathematics, economics, and animal sciences including the following:
 - NREM 220 or ECON 131
 - CHEM 161/161L, 162/162L, and 272/272L
 - MBBE 402/402L
 - MATH 140 or above
 - PHYS 151/151L
 - One of BIOL 171, MICRO 130, SCI 124, or ZOOL 101
- Animal sciences required courses:
 - ANSC 200, 201, 244, 301, 321, and 445
 - Three of the following: ANSC 451, 453, 454/454L, 462, and 472
 - One of the following production courses: ANSC 431, 432, 433, and 450
- Additional electives to make a total of 128 credit hours

Because of the diversity among fields of specialization within animal sciences, specific course requirements will vary considerably among students. On the recommendation of the student’s major adviser, courses will be selected from those offered in animal sciences, as well as in natural resources and environmental management, bioengineering, anatomy and reproductive biology, biochemistry and biophysics, chemistry, environmental biochemistry, food science and human nutrition, genetics, tropical plant and soil sciences, information and computer sciences, microbiology, oceanography, physiology, and zoology.

BS in Food Science and Human Nutrition

Complete descriptions of course requirements for each option are available from the department.

Requirements

A total of at least 128 credits are required for graduation.

Graduate Study

The graduate program in Human Nutrition, Food and Animal Sciences offers three MS degree programs, one in animal sciences, one in nutritional sciences, and one in food science. The MS in food science is an interdisciplinary / interdepartmental graduate program. Admission and degree requirements differ among the three graduate programs. All programs offer Plan A (thesis) and Plan B (non-thesis options).

MS in Animal Sciences

The MS in animal sciences is offered in the areas of genetics, nutrition, animal diseases, and physiology. Specialty areas consist of beef-cattle nutrition and genetics; dairy-cattle nutrition and physiology (especially the management of cattle in a hot climate); swine management; reproductive physiology and endocrinology of sheep, cattle, fish and swine; muscle biology and meat science; health and disease; and fresh water prawn and marine shrimp breeding, nutrition and pond management systems. Emphasis is on tropical animal science, aquaculture pond management; yield trials and animal management systems. Candidates wishing to specialize in nutrition, animal diseases, meat science, muscle biology, reproduction or physiology should be strong in chemistry and biochemistry with a good background in mathematics. Candidates wishing to specialize in animal breeding and genetics should be particularly strong in mathematics, including statistics, with a good biological background.

Admission Requirements

To be considered for admission to the animal sciences program, an applicant must (1) hold a bachelor’s degree with a major in animal science (or the equivalent thereof) from an accredited institution of higher learning, (2) provide evidence of superior scholarship in previous academic work, (3) arrange for three letters of recommendation, (4) submit GRE general and subject matter (biology) scores, and (5) obtain admission clearance by the Graduate Division. An application with a bachelor’s degree in a major other than animal or veterinary sciences who otherwise qualifies for admission will be required to take ANSC 200 or 201, one production course, and such other undergraduate courses deemed necessary by the department as essential background to the applicant’s studies. The ANSC 200 or 201 requirements may be satisfied through meeting the teaching experience requirement.

Degree Requirements

Plan A

Student must complete a minimum of 30 credit hours, including:

- At least 12 credits of course work numbered 600 and above, including two credits of ANSC 641 (seminar) and excluding 699 and thesis 700.
- A maximum of 3 credits of directed research (ANSC 699).
- 9 credits of thesis research in ANSC 700 with at least 1 credit taken in the final semester.
- Remaining credits must be in courses numbered 400 and above.

Plan B

Student must complete a minimum of 32 credit hours, including:

- At least 18 credits in course work numbered 600 and above, including ANSC 641 and excluding 699.
- 4 credits of directed research (ANSC 699).
- Remaining credits must be in course numbers 400 and above.

Candidates must be enrolled during the term in which the degree is granted; regular course work or ANSC 500 Master's Plan B studies may be used to meet this requirement. ANSC 500 is offered as a 1 credit course a mandatory grading of S/NG but does not count toward meeting degree requirements.

Both Plan A and B

- Students are required to attend weekly seminars and to present an animal sciences seminar each semester. Attendance is mandatory unless legitimate reason is given for being absent. A maximum of 2 credits is allowed for graduate seminar (ANSC 641).
- The following courses are recommended as a core for most graduate students in animal sciences: ANSC 642, 643, 644, 687 and a graduate-level statistics course.

In both plans (on the recommendation of the student's graduate committee), the graduate credit hours will be selected from the graduate courses offered in animal sciences as well as in the other disciplinary graduate programs in CTAHR or other related disciplines such as anatomy and reproductive biology, biochemistry, chemistry, genetics, microbiology, physiology, public health, zoology. Because of the diversity of specialization within animal sciences, specific course requirements will vary considerably among students.

A general examination is required.

MS in Nutritional Sciences

The Graduate Program in nutritional sciences offers a master's degree that prepares students to understand the scientific basis of nutrition, its application to health and fitness, and to develop skills in both basic and applied research methods. Subject areas of concentration include nutritional biochemistry, nutritional epidemiology, diet and cancer, mineral nutrition and toxicology, sports nutrition, nutrition education, nutritional product development, and community and international nutrition. Cooperating programs include Public Health, Kinesiology and Leisure Science, Food Science, Animal Science, Physiology, and the Cancer Research Center of Hawai'i.

Depending on the area of focus, students are prepared for diverse careers in food and nutrition related industries, government agencies, and academic institutions. Graduates have found employment as college instructors; nutrition educators or consultants in the private sector; nutritionists in the food industry, fitness facilities, or health-related government agencies; and as nutrition research scientists in the health-

care industry or government and academic institutions. Many have pursued further graduate study at major universities around the country.

Admission Requirements

Academic prerequisites include a Bachelor's degree in nutrition or a closely related field with a minimum grade point average of 3.0 and undergraduate course work in nutrition, human physiology, biochemistry, and statistics. Motivated students without a nutrition-related degree are encouraged to apply, but will be expected to make up undergraduate course deficiencies. Students are strongly encouraged to take chemistry and biological science courses prior to applying to the program. Additional requirements include submission of GRE General Test scores, two confidential recommendations (using our program's recommendation forms), a TOEFL score of 600 or above if a foreign student, and a completed Graduate Admissions Application. The deadline for receipt of all application materials are February 1 for Fall semester applicants, and September 1 for Spring applicants.

Degree Requirements

Two MS degree options are available: Plan A (thesis) and Plan B (non-thesis). Generally, students are expected to follow Plan A unless the Plan B option is approved by the Graduate Chairperson and the student's adviser. Both options require passing an oral exam of basic nutrition knowledge to advance to candidacy for the MS degree, and a final examination based on the thesis (Plan A) or Directed Reading and Research (Plan B).

Plan A (Thesis)

Student must complete a minimum of 30 credit hours, including:

- 6-9 credits of Directed Reading and Research.
- 18 credit hours of coursework at the graduate level, 12 of which must be at the 600 level.
- The remaining credits are from electives.

Plan B

Students must complete a minimum of 30 credit hours, including:

- 6-9 credits of Directed Reading and Research.
- 18 credit hours of coursework at the graduate level, 12 of which must be at the 600 level.
- Remaining credits are fulfilled by electives that are selected in consultation with the graduate adviser.

A complete description of degree requirements and coursework can be obtained by contacting the department office.

Interdisciplinary/Interdepartmental MS in Food Science

The Department offers an interdisciplinary/interdepartmental MS in food science. The areas of concentration are food

safety and quality, food processing and engineering, food chemistry and biochemistry, food biotechnology and special area. Graduates have found employment as college instructors, technical personnel in the food industry, regulatory or other governmental agencies, and researchers. Others have pursued further postgraduate studies.

Admission requirements

To be considered for admission to the interdisciplinary / interdepartmental MS program in Food Science, an applicant must (1) hold a bachelor's degree (BA or BS) from an accredited institution of higher learning, (2) have taken one course each in organic chemistry, microbiology, biological science (in addition to microbiology) college physics, and biochemistry, (3) arrange for two confidential academic or professional letters of recommendation, (4) submit GRE scores, and (5) obtain admission clearance by the Graduate Division. Foreign students must obtain TOEFL scores of 570 or above. Admission may be possible with prerequisites, in which case the student must complete deficiencies in the first year.

Degree Requirements

Plan A

Student must complete a minimum of 32 credit hours, including:

- At least 18 credit hours of course work, at least 12 credits numbered 600 – 798, excluding credits in 699 courses, Directed Research and 700 courses, Thesis Research.
- 12 credits of thesis research in 700 Thesis Research with at least 1 credit taken in the final semester.
- One (1) credit in a Departmental Seminar such as FSHN 681.
- One (1) credit in FSHN 701 Topics in Food Science.

Plan B

Students must complete a minimum of 29 credit hours, including:

- At least 21 credit hours of course work must be in courses numbered 600 – 798, excluding 700 Thesis Research.
- 6 to 9 credits of 699 Directed Research courses.
- One (1) credit in a Departmental Seminar such as FSHN 681.
- One (1) credit in FSHN 701 Topics in Food Science.

Complete description of course and other requirements are available from the department.

Honors and Awards

The department has several scholarships that are awarded to deserving students.

Molecular Biosciences and Bioengineering

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Faculty

- *C. M. Kinoshita, PhD (Chair)—process engineering, bioremediation
- *D. Borthakur, PhD (Graduate Chair, Molecular Biosciences and Bioengineering)—plant-microbe interaction, plant biotechnology
- *P-Y. Yang, PhD (Graduate Chair, Bioengineering)—bioenvironmental engineering
- *H. Ako, PhD—aquaculture, environmental biochemistry and biotechnology
- *D. A. Christopher, PhD—photosynthesis, photosensory signal transduction, gene regulation, genomics
- *L. D. Gautz, PhD—bioproduction control and automation, electromechanical systems engineering
- *A. G. Hashimoto, PhD—bioengineering
- *M. Kumagai, PhD—gene isolation and expression in bacteria, yeast, and plants
- *P. S. Leung, PhD—bioproduction systems analysis, quantitative methods, resource economics
- *Q. Li, PhD—bioremediation, environmental biotechnology
- *J. H. Moy, PhD—bioprocess engineering, radiation biology
- *W. W. Su, PhD—biochemical engineering, cell-culture engineering
- *C-S. Tang, PhD—biochemistry of natural products, bioremediation
- *S. Q. Turn, PhD—biological process engineering, bioremediation
- *J-K. Wang, PhD—bioproduction systems engineering, aquacultural engineering
- *H. Y. Yamamoto, PhD—plant biochemistry, photosynthesis

Cooperating Graduate Faculty

- A. Alvarez, PhD—plant-pathogen interactions, biocontrol of plant diseases
- M. J. Antal, PhD—alternate energy, combustion
- S. Chang, PhD—vaccine development, molecular immunology
- E. D. H. Cheng, PhD—hydrology, hydraulics
- M. Cooney, PhD—marine biotechnology
- H. G. de Couet, PhD—molecular biology, invertebrate biology, biotechnology
- M. Dunn, PhD—molecular nutrition
- J. Hu, PhD—plant virology
- Y. S. Kim, PhD—animal biotechnology
- J. Leong, PhD—marine biotechnology

* Graduate Faculty

C. C. K. Liu, PhD—hydrology, environmental systems engineering
 S. Malecha, PhD—shrimp biology and biotechnology
 S. M. Masutani, PhD—thermochemical conversion of biomass, sequestration of carbon dioxide
 W. C. McClatchey, PhD—molecular evolution, conservation biology
 G. Mocz, PhD—molecular instrumentation, proteomics
 C. Morden, PhD—molecular systems
 P. Nerurkar, PhD—medical biochemistry
 C. Ray, PhD—groundwater hydrology, bioremediation
 P. Sun, PhD—molecular biology, shrimp biotechnology
 A. Theriault, PhD—medical technology, signal transduction
 M. C. M. Tsang, PhD—materials handling, processing engineering
 J. Yu, PhD—bioengineering, marine bioproduct development

Affiliate Graduate Faculty

R. P. Adams, PhD—molecular biodiversity
 H. Albert, PhD—plant molecular biology and biotechnology
 J. Berestecky, PhD—microbial genetics, biotechnology
 S. Divakaran, PhD—marine bioproducts
 M. M. Fitch, PhD—micropropagation and genetic transformation of papaya
 J. K. Ladha, PhD—nitrogen fixation, soil nutrition, biofertilizer
 C-S Lee, PhD—aquaculture
 R. Ming, PhD—sugarcane breeding and biotechnology
 S. Moss, PhD—aquaculture
 P. H. Moore, PhD—sugar cane physiology
 L. G. Obaldo, PhD—aquacultural engineering
 G. S. D. Pruder, PhD—aquacultural engineering
 A. Wiczorek, PhD—population biology
 J. Zhu, PhD—plant transformation, biotechnology

Degrees Offered: BS in bioengineering, MS in bioengineering, MS in molecular biosciences and bioengineering, PhD in molecular biosciences and bioengineering

The Academic Program

The Molecular Biosciences and Bioengineering Department features a multidisciplinary faculty having a broad spectrum of interests in biotechnology, molecular biology, biochemistry, and bioengineering. The department's strong basic and applied research programs and its active, internationally recognized faculty combine to provide students with exciting learning opportunities. The department houses degree-granting programs in bioengineering (BS and MS) and in molecular biosciences and bioengineering (MS and PhD).

Bioengineering Program

The goal of the bioengineering (BE) program is to provide engineering students a unique opportunity to study biological systems from the engineering perspective. The bioengineering program teaches the importance of the systems approach to problem solving. Undergraduate (BS) and graduate (MS) degrees are offered in bioengineering.

Undergraduate Study

BS in Bioengineering

The first part of the undergraduate bioengineering curriculum is similar to other engineering fields, e.g., calculus, physics, chemistry, and computer programming. Students in Bioengineering take additional courses in biological sciences such as biology, organic chemistry, and biochemistry. During the latter part of the program, students take basic engineering courses such as mechanics and thermodynamics as well as bioengineering courses with emphasis giving to solving practice engineering problems involving biological systems. The mission of the bioengineering program is to provide students a unique opportunity to study the fundamentals of engineering and biology and the application of engineering to biological systems. To fulfill this mission the BE program:

1. Provides students with the fundamentals of engineering,
2. Trains students to become engineers with the skills to design, manufacture, test, and/or operate systems in which living organisms or biological products are a significant component, and
3. Graduates students with the skills to function in modern society as expected of a professional engineer with a baccalaureate degree.

The undergraduate program is accredited by ABET.

Requirements

- General Education Core requirements, including the following:
 - SP 251
 - ECON 120 or ECON 130
 - BIOL 171/171L
 - CHEM 171/171L and 272/272L
 - ENG 100
 - HIST 151 and 152
 - Humanities (one course)
 - MATH 241, 242, 243, and 244
 - PHYS 170/170L and 272/272L
 - Social Science (one course)
 - A course with focus on Ethics
 - A course with focus on Hawaiian, Asian, or Pacific issues
- College requirements:
 - NREM 310
- Basic engineering requirements:
 - EE 160 and 211
 - CEE 270, 271, and 320
 - ME 311
 - Engineering mathematics elective
- Bioengineering requirements:
 - BIOL 172/172L or MICRO 351/351L and a biology elective
 - BE 351/351L, 360, 401, 413, 437, 460, 481, and 482
 - At least two courses from BE 411, 431, 436, or 440

A minimum of 128 credit hours is required for graduation.

Graduate Study

MS in Bioengineering

The research areas in bioengineering open to MS students include management of wastes and wastewater; engineering for cell culture, fermentation, micropropagation, and bioconversion; engineering-intensive horticultural and aquatic biosystems; modeling and optimization of bioresource production and processing systems; water management and irrigation system design; spatial decision support systems for environmental protection and resource development; bioremediation; biological and thermochemical conversion; control, automation and mechanization of biological systems. Graduates of the program have entered careers in industry and public agencies or have undertaken further study in a PhD degree program. Intended candidates for the MS must present a bachelor's degree from an accredited engineering program or the equivalent.

Contact Information

Dr. P. Y. Yang
 Graduate Chair Bioengineering
 University of Hawaii
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Molecular Biosciences and Bioengineering Graduate Program

The Molecular Biosciences and Bioengineering (MBBE) graduate program offers both MS and PhD degrees. The MBBE research and graduate training center around understanding the biochemical, nutritional, and molecular-biological processes that underlie growth, development, photosynthesis, and stress, especially as related to tropical agriculture, aquaculture, plant and environmental biotechnology, and bioengineering.

The university's tropical locale, the importance of agriculture in the economy of this region, and the strong basic orientation of our faculty combine into unique interdisciplinary research and educational opportunities that range from molecular biology and biochemistry to agricultural biotechnology and bioengineering. The program stresses solid foundation in fundamentals, competence in contemporary methods and significant research contributions to plant biology, environmental biochemistry and tropical agricultural biotechnology.

Entrance Requirements

- Minimum qualifications for admittance as a regular student are an undergraduate degree from an accredited U.S. college or university or equivalent degree from a recognized foreign institution of higher learning and a GPA of at least 3.0 on a 4.0 scale.
- All prospective students must submit scores from the GRE General Test. In cases where foreign students encounter

difficulty in taking the examination, submission of scores may be delayed with permission from the Graduate Division. Foreign students must also submit TOEFL scores (see Graduate Bulletin for exceptions.)

- All applicants are expected to have completed courses or equivalents in calculus, physics, chemistry through organic and quantitative analysis, basic biology or botany, genetics, biochemistry, plant physiology, and one additional upper division course in either botanical sciences, cellular or molecular biology. While not a requirement, physical chemistry is highly recommended. Students may be accepted with deficiencies in one or more of these areas, however, deficiencies must be made up during the first year as a graduate student. Such courses may not be used for graduate credit.

General Requirements

- All degree requirements shall be those in effect and published in the Graduate Bulletin as of the date of the initial enrollment in the graduate program. All students shall adhere to policies and procedures as established by the University, the Graduate Division, and the Department.
- The Graduate Chair or representative shall temporarily advise new students until a major adviser is selected. Uncommitted students should be fully cognizant of the faculty and their programs before selecting a Graduate Advisory Committee Chair. The Graduate Chair must be informed of the selection. In unusual situations, a student may change a Graduate Advisory Committee Chair but only after consultation with all faculty concerned and approval of the temporary or permanent Graduate Advisory Committee.
- Upon entering the graduate program, each student shall be assigned a temporary Graduate Advisory Committee appointed by the Graduate Chair. The committee will consist of the Graduate Chair and at least two (2) other members of the MBBE Graduate Faculty. This committee shall advise the student on course selection matters, administer the general examination, insure progression in the program, and advise the student until the permanent Graduate Advisory Committee is established.
- All students shall take a written diagnostic examination during the first semester of residence. The purpose of this examination is to determine the level of understanding in general botany, cytology, anatomy, morphology, biochemistry, and physiology. The length of the examination shall be a maximum of two hours. The date and place shall be determined by the Graduate Chair. The examination shall be administered by a committee of three members of the MBBE Graduate Faculty. Performance on this examination will be used to determine deficiencies.
- Each student shall meet with the student's temporary or permanent Graduate Advisory Committee at least once each semester to assess academic and reassert progress and to establish goals for the next semester. It is the student's responsibility to schedule this meeting and to file the Academic Progress Report with the Graduate Chair.

- All graduate students are encouraged to take MBBE 401 Molecular Biotechnology or an equivalent course as a prerequisite. In addition, a minimum of three (3) of the following 600-level courses are selected with the approval of the Graduate Advisory Committee and the Graduate Chair.
 - MBBE 620 Plant Biochemistry
 - MBBE 680 Methods in Plant Molecular Biology
 - MBBE 687 Advanced Lab Techniques
 - BE 604 Aquaculture Systems
 - BE 606 Instrumentation and Measurement
 - BE 622 Experimental Methods in Cause-Effect Modeling
 - BE 638 Biosystems Modeling
 - BE 648 Biosystems Simulation
 - BE 660 Bioseparation Processes
 - BE 634 Biological Treatment
 - CHEM 633 Molecular Spectroscopy
 - PEPS 630 Plant Virology
 - PEPS 646 Plant Bacterial Interactions
 - PEPS 681 Pesticide Toxicology
 - BOT 669 Molecular Systematics and Evolution
 - BOT 674 Plant Growth and Development
 - CMB 621 Cell Molecular Biology I
 - CMB 622 Cell Molecular Biology II
 - CMB 680 Molecular Genetics
 - MICR 625 Advanced Immunology
 - MICR 632 Advanced Microbial Physiology
 - MICR 671 Advanced Microbial Genetics
 - TPSS 440 Tissue Culture/Transformation
 - TPSS 604 Advanced Soil Microbiology
 - TPSS 614 Cellular Genetics of Crops
 - OCN 653 Methods in Microbiology Oceanography
- MBBE 610 Seminar: All MBBE graduate students shall register for and present a seminar each semester in residence (excluding summer sessions). This requirement can be met by enrolling in MBBE 610, or other equivalent "presentation type" seminar offered in another department with permission of the Graduate Advisory Committee. Thesis/dissertation proposal seminars or defenses cannot be used to meet this requirement.
- All MBBE graduate students shall maintain a B average (3.0) to be eligible for advancement within a degree program.

Additional Requirements

All MS students are encouraged to submit a thesis (Plan A). Only under very special circumstances, a student may be advised to pursue a MS degree without a thesis (Plan B), which is considered to be a terminal degree. MS Plan A requires a minimum of 12 credit hours of 600 level courses (excluding directed research), 6 credit hours of 400 or higher level courses, and 9 credit hours of research (MBBE 699). The course requirement for each student will be determined in consultation with the Graduate Advisory Committee and the Graduate Chair.

Contact Information

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Natural Resources and Environmental Management

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Faculty

- *S. A. El-Swaify, PhD (Chair)—natural resource degradation, erosion, conservation, water quality
- *R. L. Bowen, PhD—natural resource policy, economics, sustainable agriculture
- *C. Chan-Halbrecht, PhD—community and resource economics
- *C. Ching, PhD—policy and production economics
- *L. J. Cox, PhD—community economic development
- *R. de la Peña, PhD—crop management, root crops
- *C. I. Evensen, PhD—natural resource management, environmental quality
- *C. A. Ferguson, PhD—natural resource and environmental policy
- J. B. Friday, PhD—tropical forestry/agroforestry extension
- *J. H. Fownes, PhD—forest ecology
- *P. V. Garrod, PhD—marketing and production economics
- *C. Gopalakrishnan, PhD—natural resource and environmental economics and policy
- P. S. Motooka, PhD—weed science, forest/pasture weed control
- S. Y. Nagano, MS—4-H youth program, county extension
- *G. R. Vieth, PhD—resource management, nonmarket valuation
- D. Ward, MS—4-H development program
- *J. F. Yanagida, PhD—product economics, price analysis, international trade

Cooperating Graduate Faculty

- J. DeFrank, PhD (TPSS)—herbicide management
- M. Habte, PhD (TPSS)—soil ecology, microbiology
- N. V. Hue, PhD (TPSS)—organic cycling
- P. S. Leung, PhD (MBBE)—production, fisheries, aquaculture
- Q. Li, PhD (MBBE)—environmental chemistry
- C. Ray, PhD (CEE)—ground water hydrology and chemistry
- G. Uehara, PhD (TPSS)—systems simulation in agriculture
- H. Valenzuela, PhD (TPSS)—vegetation physiology and management

Affiliate Graduate Faculty

J. Ewel, PhD (US Forest Service)—forest ecology
 K. Ewel, PhD (US Forest Service)—forest/wetland ecology
 S. Pooley, PhD (NMFS)—marine resource economics

Degrees and Certificates Offered: BS, MS, and PhD in Natural Resources and Environmental Management, and Graduate Resource Management Certificate (See the “Interdisciplinary Programs” section within the UHM *Catalog*)

Overall Goals of the Academic Program

The Natural Resources and Environmental Management program emphasizes the science and management of natural, including renewable, resources and their interlinks to environmental quality. It provides students with scientific knowledge of the physical, chemical, biological, economic, social, and policy elements of natural resources management and so allows them to understand the principles that underpin productive, sustainable land use, and enhanced environmental quality. Graduating students will be able to solve contemporary resource use problems and assist in sound decision making for optimizing land use; and managing agricultural and forestry systems, watersheds, and landscapes in an ecologically sound matter. Graduates will also be skilled in addressing resource policy issues and the needs of diverse clientele and communities including policy makers and planners. Scientific objectivity will be emphasized as an important element of environmental planning. Thus, students will be trained in the use of quantitative models and such tools as decision aids for optimizing natural resource management and ecosystem stewardship.

Undergraduate Study

BS in Natural Resources and Environmental Management (NREM)

The Bachelor’s of Science in Natural Resource and Environmental Management (NREM) is a science-based interdisciplinary degree emphasizing the management of natural and environmental resources, that is, decision-making and actions to modify the resource base in order to achieve specified goals. The focus is on tropical island ecology and terrestrial resource systems, with special consideration given to Hawai‘i’s unique physical and social environment. The program gives students the ability to conceptualize and critically analyze environmental problems, identify management options, implement suitable interventions and evaluate their effectiveness. Students receive comprehensive training in basic and applied natural and social sciences, management skills and techniques, real-life problem-solving including community experiences. There are also options for students to develop an individual specialization in their upper division study. Graduates have many challenging and rewarding career opportunities with governmental agencies, non-profit organizations and private businesses in resource-based industries and environmental protection. The BS degree also provides solid academic preparation for post-baccalaureate professional training and graduate study in natural and environmental resources and related fields.

Advising

Undergraduate majors are required to report for advising prior to registration each semester. Students will be advised by the *Undergraduate Advisement Committee* until they declare a track specialization, at which time they will be assigned to a faculty mentor. The mentor will assist the student in developing an appropriate program of study in his/her track, approve track depth electives, and provide advisement through completion of the degree.

Entrance Requirements

Freshmen may be admitted directly into the program when they apply to the University. Students transferring from another program in the University of Hawai‘i system or other universities must have a minimum 2.5 GPA for transferable credits.

Degree Requirements

The BS degree requires a total of 128 credit hours, with at least 60 credits in upper division to non-introductory (i.e. with college-level prerequisite) courses. Regardless of selected specialization, all students must complete a set of basic core courses. Many of these courses also satisfy General Education Core requirements. Required basic courses include:

- GEOG 101/101L
- CHEM 161/161L or 171/171L
- BIOL 171/171L and BIOL 172/172L
- One course from MATH 203, 215, 241, or NREM 203
- GEOG 370 and ES 350

All students must also complete an applied science program core, which requires the following courses:

- SP 151 or 251
- NREM 210 and 220
- NREM 301/301L, 302, and 310
- NREM 458 and 492

Specializations and their Requirements

Students have a choice between two tracks within which to develop an upper-division specialization. Both tracks require a set of specific courses and selected electives totaling 30 credits. Some electives, however, may require additional prerequisite courses and credits.

Specialization in Resource Management and Conservation: This track focuses on the biological/physical and natural science aspects of resource management. Course requirements include:

- CHEM 162/162L and PHYS 151/151L
- TPSS/NREM 304/304L
- GEOG 488
- 15 upper division credits in natural resource specialization area, with at least one course that emphasizes analytical or field research methods (course selection requires adviser approval).

Specialization in Resource Development and Policy:

This track emphasizes the social sciences and business/public management skills. Course requirements include:

- NREM 351 and FAMR 352
- One course from GEOG 412, 441, or 455
- 12 upper division credits from social science disciplines (anthropology, economics, geography, political science, sociology) with at least 9 credits in a single discipline and no more than one course from a closely related multidisciplinary social science program (course selection requires adviser approval)
- 3 upper division credits in social science analytical/field research methods or in advanced communication (COM, JOUR, SP) methods
- 6 upper division credits in specific natural resource area(s) or field study methods

Options for Meeting UH Manoa Hawaiian/ Second Language Requirement

As part of the graduation requirements for all undergraduate students at UHM, NREM majors will select one of the following three options for Hawaiian/Second Language study, in consultation with the faculty adviser:

Option 1. Show proficiency in Hawaiian/Second Language at a 202 course level. Native and bilingual speakers of a second language may be granted a waiver for the foreign language requirement by the College of Languages, Linguistics, and Literature.

Option 2: Show proficiency in Hawaiian/Second Language at a 102 course level and take one additional course each in the Social Sciences (3 credits) and in the Natural Sciences (3-4 credits).

Option 3: Take two additional courses each in the Social Sciences (total 6 credits) and in the natural sciences, including at least one course with a laboratory (total 7-8 credits).

The additional Social and Natural Science courses can be chosen from any 100-200 level UHM courses in the respective area.

Graduate Study

The NREM graduate program brings together natural and social scientists to offer a holistic, integrative, multi-/inter-disciplinary program that uses a systems approach to understanding and managing tropical terrestrial ecosystems. Emphasis is placed on small island settings and their relevance to managing coastal zones in general. It will incorporate the various components and scales (spatial and temporal) that determine ecosystem function and that bear upon the social and economic welfare of residents in different communities and environmental settings. Curricula and courses will emphasize the cutting-edge physical, chemical, biological, economic, social, and policy sciences underpinning the productive, profitable, and sustainable use and management of natural, environmental, and economic resources. The program

will also provide a science-based understanding of the processes that control the performance and function of terrestrial ecosystems, and the human behaviors and policies that impact, and are impacted by those processes.

Students will be expected to acquire quantitative reasoning, critical thinking, and other advanced skills that enable them to solve contemporary resource use problems and to assist in sound decision-making and policy formation. Graduates will be skilled in resolving land use conflicts that arise in addressing policy issues and the competing needs of diverse clientele and communities, including policy makers, planners, and other decision makers. Scientific objectivity will be emphasized as an important element of societal debate and state-of-the-art environmental planning. Thus, students will be trained in the development and use of quantitative models and such tools as multiple objective decision aids for optimizing the use and management of the natural resource base.

Natural resource management issues are attracting considerable national and global attention, as well as growing donor interest, especially in the Asia/Pacific and tropical and subtropical regions. Graduate training, therefore, will feature collaboration with national and international institutions to foster programs that provide students with opportunities to learn about the ways that people from other countries and cultures manage their natural, including renewable, resources and interact with their environments.

Graduating students are expected to serve as professionals in resource and environmental management and policy, academic teaching and research, or applied research and outreach in educational and research institutions, federal and state technical assistance and policy agencies, agricultural and forestry industries, consulting firms, and private nonprofit organizations.

Specialization Areas and Their Requirements

NREM is a multidisciplinary department that is uniquely positioned to offer the integrative graduate curricula that are necessary for informed decision-making and action-oriented holistic natural resource and environmental management. As a fundamental foundation in graduate training, all NREM students are expected to acquire a common base of knowledge embodied in a core set of courses. However, NREM faculty are also cognizant that emphasizing problem solving and multidisciplinary may be misunderstood as a dilution of the scientific rigor that is expected to characterize graduate training, especially at the doctoral level. Therefore, students will be provided an opportunity to select a specific area of specialization. Two primary areas of specialization will be available, namely **Resource Management and Conservation, and Resource and Environmental Economics**. The first is a biological-physical area that includes the characterization, quality, productivity, behavior, management, protection, conservation, and remediation of natural resources in terrestrial ecosystems. The second is a socioeconomic area that includes the economic analysis of the ownership, allocation and pricing of natural resources, including inter-temporal and inter-

generational dimensions, environmental quality and externalities, market—and non-market valuation techniques, and the role of institutions and laws in natural resource and environmental policy formulation.

While we will require a common nucleus of multidisciplinary courses as a core, we will also require an additional core designed to provide advanced training in the chosen primary specialization area. Further course work beyond these cores will be selected from a pool of elective courses with guidance from the student's Program Committee.

Specific specializations in the **Resource Management and Conservation** area include land resource inventory and interpretation; tropical forestry and agroforestry; sustainable land management; land degradation processes and models including erosion, salinization and sedimentation; land, soil and water conservation, reclamation and remediation; water quality; nonpoint source pollution, contaminant sources and transport in watershed agroecosystems; and byproduct recycling potentials and environmental impacts. Specific specializations in the **Resource and Environmental Economics** area include ecological and environmental economics; non-market valuation in resource allocation and policy development; water resource allocation, economics and policy; economics of sustainable resource utilization; forest economics; community economic development; land and water use economics and policy, and conflict resolution and multi-criteria decision support systems for integrated resource management.

To underscore its integrative nature, the NREM Graduate Program features strong collaboration with other academic departments within and outside CTAHR, as well as selected collaborating institutions in and out of Hawai'i. Cooperating- and affiliate-graduate faculty with appropriate expertise will complement NREM's faculty expertise for the benefit of graduate students.

NREM intends to facilitate enrollment of qualified neighbor island citizens in graduate study through the participation of neighbor island faculty and the use of distance education and other interactive electronic technologies.

NREM is also an active partner in offering the multidisciplinary campus-wide Graduate Resource Management Certificate.

Admission Requirements

Applicants for graduate standing must have a bachelor's degree with the qualifications necessary to gain admission to the UHM Graduate Division. Those cleared through the Graduate Division will be evaluated by the department based on previous academic record and specific criteria that include the graduation requirements for the B.S. degree in NREM, the GRE score, chosen area of specialization, recommendation letters, and prior research or professional experience. M.S. applicants must have a B.S. degree in natural resource management, environmental management, or a related field in a biological, physical, or social science discipline. Those opting for the Resource Management and Conservation specialization

area must show a minimum of 15 credits in prior preparation in physical, biological and/or earth sciences, mathematics, or equivalent courses. Those opting for the Resource and Environmental Economics specialization need a minimum of 15 course credits in social sciences to include resource economics, mathematics, management, quantitative analysis or comparable courses.

Applicants for the Ph.D. degree are required to have an M.S. degree in NREM or a related field with background courses similar or equivalent to those described below for the M.S. core in NREM.

The minimum **TOEFL** score required of foreign students is 600 and 250 for Type P or Type C examinations, respectively.

Advising

Admitted students will be advised on an interim basis by the Graduate Program **Interim Advising Committee** which is appointed by the Graduate Program Chair. The primary tasks of this committee are to administer the diagnostic examination (see below), verify entrance and background deficiencies, and prescribe remedial courses. A **Student Program Committee** (thesis or dissertation committee) with a chair whose expertise coincides best with the student's chosen specialization area will be formed as soon as possible after admission. This committee will guide the student's program, advise on the selection of required and elective courses, assist with and approve the selection of a thesis/dissertation research topic that is appropriate for the chosen area of specialization, administer the required Comprehensive and Defense examinations, and oversee the completion of degree requirements.

Admission Requirements

M.S. Degree Program

It is expected that the course preparation for admitted students with a BS degree will be the same, be equivalent to, or exceed those core areas required for the B.S. degree in NREM. With no deficiency in this background, the required minimum number of course credits for the MS degree will be the same as required by the Graduate Division. Plans A, B, and C will be offered. Plan A will require the usual number of 700 thesis credits specified by the Graduate Division. Plan B will be primarily course-driven. Plan C will be available to selected students based on their prior academic record and experience. Either the *Interim Advising Committee* or *Student Program Committee* may recommend entering students for pursuing this option which requires the steps stated on page 45 of the 2001-2002 UHM Catalog.

Because NREM is a multi-/inter-disciplinary program, entering students are expected to come from a variety of disciplines. Therefore, each will be given a diagnostic examination by the *Interim Advising Committee* before or shortly after the beginning of their first semester of enrollment. The examination's results will be used as a guide in designing the

student's program. Identified undergraduate deficiencies, if any, must be corrected as part of the student's course work.

Each student will select a Specialization Area with the approval of the *Student Program Committee* as early as possible following enrollment in the graduate program. To meet the integrative, inter-disciplinary intent of this program, a set of graduate level courses, a *Primary Core*, will be required of every student, regardless of his/her selected Specialization Area. In addition, a *Secondary Core* that prepares the student for the selected Specialization Area will also be required. The remaining credit requirements will be met by thesis credits (NREM 700), Directed Research (NREM 699), and elective courses that are approved by the *Student Program Committee*.

Primary M.S. core (12 Cr)

- HNFAS/TPSS 603 Experimental Design (4)
- NREM 680 Natural Terrestrial Ecosystems (3)
- NREM 670 Agrarian Systems Analysis (3)
- NREM 701 Research Seminar in NREM (2)

Secondary core for Resource Management and Conservation specialization area (9 Cr)

- NREM 610 Soil Formation and Classification (4)
- NREM 631 Sustainable Agriculture Seminar (2)
- NREM 660 Hydrologic Processes in Soils (3)

Secondary Core for Resource and Environmental Economics specialization area (9 Cr)

- AREC 626 Quantitative Methods in Agricultural Economics (3)
- AREC 627 Applied Microeconomic Analysis (3)
- ECON 627 Mathematics for Economics (3)

Ph.D. Degree Program

The PhD degree in NREM will be awarded only to students with outstanding scholarly achievement. PhD standing may be provisionally granted to applicants with a BS degree, but only if they have strong academic background and a high GRE score. However, these applicants may still be required to obtain an MS degree in NREM before formal admission to PhD candidacy. Those with academic records that do not match the NREM core requirements will be expected to incorporate these into their PhD program. In addition, to meet the integrative, inter-disciplinary intent of this program, a set of graduate level courses, a *Primary Core*, will be required of every student, regardless of his/her selected Specialization Area. In addition, a *Secondary Core* that prepares the student for the selected Specialization Area will also be required. The remaining degree requirements will be met by dissertation credits (NREM 800), Directed Research (NREM 699), and elective courses that are approved by the *Student Program Committee*. All PhD students must pass a written and oral Comprehensive Examination (described below), before being advanced to candidacy. The *Student*

Program Committee will be responsible for designing and administering the Comprehensive Examination.

Primary Ph.D. core (9 Cr)

- NREM 630 Agriculture and the Environment (3)
- AREC 638 Resource and Environmental Policy (3)
- NREM 701 Research Seminar in NREM (3)

Secondary core for Resource Management and Conservation specialization area (18 Cr)

- NREM 611 Soil and Clay Mineralogy (3)
- CEE 626 Surface Water Hydrology (3)
- CEE 627 Groundwater Hydrology (3)
- CEE 644 Water Quality Modeling (3)
- GEOG 628 Resource Systems (3)
- OCN 638 Earth System Science and Global Change (3)

Secondary Core for Resource and Environmental Economics specialization area (18 Cr)

- AREC 634 Quantitative Methods II (3)
- ECON 627 Mathematics for Economics (3)
- ECON 606 Microeconomic Theory I (3)
- ECON 607 Macroeconomic Theory I (3)
- ECON 608 Microeconomic Theory II (3)
- NREM 637 Resource Economics (3)

Comprehensive Examination

PhD candidates must pass a two-part (written and oral) *Comprehensive Examination* upon completion of the required course cores, and before being advanced to candidacy. The *Student Program Committee* will be responsible for designing and carrying out the *Comprehensive Examination* which is to follow the preparation of the Dissertation Proposal. The examination is intended to cover all the subjects deemed essential to the selected specialization area, and to verify the student's preparedness for carrying out the proposed dissertation research. Each member of the *Student Program Committee* will submit a set of questions for the written portion of the examination. Therefore, the number of specific fields represented in these questions is a function of and up to the members of the *Student Program Committee*. The oral portion will follow as soon as possible after the written portion of the *Comprehensive Examination*.

Course Pool for Suggested Electives

The following is a tentative course pool to guide student advising. Student course choices will be guided by the *Student's Program Committee*.

- NREM 432 Natural Resource Economics (3)
- NREM 458 Project Evaluation and Resource Management (3)
- NREM 461 Soil Erosion and Conservation (3)
- NREM 480 Tropical Forestry/Agroforestry (3)
- NREM 491 Topics in NREM (V)
- NREM 500 Master's Plan B/C Studies (V)
- NREM 626 Quantitative Methods I (3)
- NREM 671 International Agricultural Systems (2)
- NREM 699 Directed Research (V)

- NREM 701 Seminar in Advanced NREM (1)
- AREC 610 Biosystems Modeling (3)
- AREC 624 Research Methodology (3)
- AREC 629 Adv Production Economics (3)
- AREC 631 International Trade in Agricultural Products (3)
- AREC 636 Advanced Agricultural Policy Analysis (3)
- ANTH 415 Ecological Anthropology (3)
- ANTH 435 Human Adaptation to Forests (3)
- ANTH 620H Theory in Social and Cultural Anthropology: Ecology (3)
- BE 413 Transport Phenomena (3)
- BE 431 Biological Pollution Control (3)
- BE 440 Bioremediation Principles and Practices (3)
- BOT 453 Plant Ecology and Env Measurement (3)
- BOT 454 Vegetation Ecology (3)
- BOT 651 Invasion Biology (3)
- BOT 676 Environmental Physiology Seminar (2)
- CEE 424 Applied Hydrology (3)
- CEE 431 Water and Wastewater Engineering (3)
- CEE 624 Flow Through Porous Media (3)
- CEE 631 Water Quality Management (3)
- CEE 635 Water Quality Chemistry (3)
- CEE 636 Water Quality Biology
- CEE 642 Solid Wastes Management and Control (3)
- ECON 638 Env Economics (3)
- GEOG 402 Agric Climatology (3)
- GEOG 410 Human Role in Env Change (3)
- GEOG 426 Energy Resources (3)
- GEOG 612 Ecological Concepts and Planning (3)
- GEOG 693 Technology and Natural Risks (3)
- GG 455 Hydrogeology (3)
- GG 654 Groundwater Contamination (3)
- LAW 582 Env Law (3)
- LAW 588 Legal Aspects of Water Resources Control (3)
- PH 689 Water Quality Chem (3)
- PH 690 Water Quality, Biology (3)
- PH 773 Measurement of Env Factors (3)
- PH 774 Water Quality management (3)
- PLAN 620 Env Planning (3)
- PLAN 625 Env Policies and programs (3)
- PEPS 451 Env Law (3)
- PEPS 470 Forensic Entomology (3)
- PEPS 671 Insect Ecology (2)
- PEPS 675 Biological Control (2)
- POLS 670 Introduction to Public Policy (3)
- SCI 490 Endangered Species (3)
- TPSS 435 Soil Chemistry (3)
- TPSS 450 Soil Fertility (3)
- TPSS 650 Advanced Soil Fertility (4)
- TPSS 604 Advanced Soil Microbiology (4)
- ZOO 439 Animal Ecology (3)

Plant and Environmental Biotechnology Program

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 Web: www.ctahr.hawaii.edu/ctahr2001/CTAHRCatalog/pub.html

Biotechnology Area Advisory Committee

H. Ako, PhD (Coordinator)—biochemistry, aquaculture
 A. M. Alvarez, PhD—bacterial diseases
 D. Borthakur, PhD—molecular genetics of bacteria and their interactions with plants
 D. A. Christopher, PhD—plant molecular biology, regulation of gene expression
 R. M. Manshardt, PhD—tropical fruit breeding and genetics
 S. H. Saul, PhD—insect genetics

Participating Faculty

A. Brown, PhD—complementary medicine, botanicals, herbs
 D. Dooley, PhD—biotechnology education
 J. S. Hu, PhD—transgenic disease resistance
 A. R. Kuehnle, PhD—genetic engineering and tissue culture
 M. Kumagi, PhD—viral transfection systems
 P. S. Leung, PhD—biotechnology economics
 Q. Li, PhD—environmental biochemistry
 R. E. Paull, PhD—tropical fruit biotechnology
 W. W. Su, PhD—cell culture, biochemical engineering
 J. P. Szyper, PhD—marine biotechnology
 C. S. Tang, PhD—biochemistry of natural products
 A. Wiczorek, PhD—molecular systematics, public education on biotechnology

Degrees Offered: BS in plant and environmental biotechnology

Program Goals

- To provide education leading to biotechnology literacy.
- To provide training in the emerging scientific concepts underpinning biotechnology.
- To ensure training is broad based.
- To ensure students will be able to work as members of interdisciplinary teams.

The Academic Program

During the past decade, biotechnology has brought about major changes in agricultural sciences and society. The interdepartmental Plant and Environmental Biotechnology program is designed to train undergraduate students for careers in new and growing areas of the life sciences emphasizing the use of biotechnology in agriculture, environmental clean-up and management, industry, teaching, and other professions.

The program provides a strong foundation in molecular biology, biochemistry, genetics, biotechnology, and the life sciences.

Students tailor the major to meet their needs by choosing one of the specializations as their focus of study: Environmental and Microbial Biotechnology, Plant Biotechnology, Insect and Pathogens Biotechnology, General Biotechnology, or Aquaculture and Bioreactor Biotechnology. Students participate in hands-on laboratory courses culminating in research and a senior thesis. Students could work as genetic engineers developing more nutritious, pest resistant, or otherwise superior crops by genetic engineering. Students can learn molecular diagnostic methods such as PCR, DNA finger-printing, gene mapping, and protein analysis. They could also be restoring parts of the environment by bioremediation, working in the marine biotechnology industry, or entering graduate or professional school.

Undergraduate Study

BS in Plant and Environmental Biotechnology

Requirements

Students must fulfill the General Education Requirements of the University and college.

Among the courses they must include in these requirements are:

- NREM 310 (statistics)
- MATH 215 or MATH 241 (calculus)
- Foreign languages or options
- BIOL 171/171L; 172/172L; 275/275L
- CHEM 161/161L; 162/162L; 272/272L
- PHYS 100/100L or 151/151L; 152/152L
- NREM 220
- SP 151

In addition, students must complete the following major core requirements:

- MBBE 201 (biotechnology issues and impacts)
- MBBE 401 (molecular biotechnology)
- MBBE 402/402L (biochemistry)
- PEPS 471 (genetics)
- MBBE/PEPS/TPSS 499 (lab rotation)
- MBBE/PEPS/TPSS 499 (senior thesis)

Finally, students must specialize in one of the five options below. They must take the courses indicated.

The **Environmental and Microbial specialization** prepares students for employment in teaching, industry, and government activities dealing with environmental monitoring, clean-up, and quality. The specialization also prepares students for graduate education in the environmental sciences.

Required Courses:

- CHEM 272/272L (organic chemistry)
- MBBE 412 (environmental biochemistry)

- MICR 351/351L (biology of microbes)
- MICR 485/485L (microbes in environment)
- 15-19 credits from among GEOG 101/101L, BIOL 124/124L, CHEM 274/274L, PEPS/MBBE 403, CHEM 445, BE 431, MBBE 420, PEPS 480, MICR 475/475L, MICR 461/461L, PEPS 405, MICR 431/431L, BIOL 406/406L, PEPS/MBBE 403, MBBE/PEPS/TPSS 499 additional credits beyond 3

The **Plant Biotechnology specialization** uses the tools of molecular biology, genetics, and tissue culture to learn how plant cells work and to develop plants with improved traits. The specialization prepares students to enter the plant and agricultural biotechnology industries, various government agencies, or to pursue an advanced professional degree or a teaching career.

Required Courses:

- BIOL 102/102L (botany)
- BOT/TPSS 470/470L (plant physiology)
- TPSS 453 (plant breeding)
- TPSS 440 (tissue culture/transformation)
- PEPS 405 (plant pathogens and diseases)
- 13 credits from among BOT 410, BIOL 124/124L, BIOL 265/265L, OCN 310/310L, MBBE/PEPS/TPSS 499 additional credits beyond 3

The **General Biotechnology specialization** is for students who want a broader background covering a variety of different areas of biotechnology. This specialization will prepare students for careers in industry and government but may also be the best preparation for teaching or pursuing advanced graduate and professional degrees.

Required Courses:

- BIOL 407 (molecular biology)
- MBBE 420 (plant molecular biology)
- BIOL 406/406L (cellular biology)
- 18 credits from among MICR 485/485L, MICR 351/351L, ENTO 470, CHEM 273/273L, MICR 475, TPSS 440, TPSS 453, MICR 461, OCN 310/310L, ANSC 450, PEPS/MBBE 403, PEPS/MBBE 404, MBBE/PEPS/TPSS 499 additional credits beyond 3

The **Insect and Pathogen specialization** prepares students for academic or industrial careers that integrate the traditional disciplines of entomology and plant pathology. The goal is to develop environmentally safe technologies to protect plants and agriculture from pest and pathogen attack.

Required Courses:

- PEPS 363 (general entomology)
- PEPS 405 (plant pathogens and disease)
- PEPS 421 (pest management)
- PEPS 470 (forensic entomology)
- MBBE 412 (environmental biochemistry)
- 13-14 credits from among PEPS 462, PEPS 403, PEPS 404, MBBE/PEPS/TPSS 499 additional credits beyond 3

The **Aquaculture and Bioreactor specialization** prepares students to participate in the increasingly technology-driven areas of bio-based industries such as aquaculture, marine biotechnology, and large-scale production of valuable organisms and compounds for the agricultural, food, pharmaceutical, and medical industries. The specialization prepares students to enter commercial, university, or government jobs directly, to become entrepreneurs, or to continue on for further graduate training.

Required Courses:

- ZOO 320/320L (vertebrate zoology)
- BE 431 (biological pollution control)
- BE 460 (bioreactor design and analysis)
- 16-20 credits from among OCN 201, OCN 331, ANSC 360, ZOO 475/475L, ANSC 430, BE 436, ANSCI 460, MBBE/PEPS/TPSS 499 additional credits beyond 3

Plant and Environmental Protection Sciences

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E-mail: peps@ctahr.hawaii.edu
Web: www.ctahr.hawaii.edu/ctahr2001.CTAHRCatalog/peps.html

Faculty

- *J. K. Grace, PhD (Interim Chair)—urban entomology, termite and social insect biology and control, insect behavior
- *A. M. Alvarez, PhD—bacterial diseases
- *B. M. Brennan, PhD—pesticide regulation and use
- *J. J. Cho, PhD—diseases of vegetable crops, integrated pest management (Maui Agricultural Research Center)
- R. H. Ebesu, MS—extension education (Kaua'i Cooperative Extension Service)
- *S. A. Ferreira, PhD—crop protection, extension education
- R. T. Hamasaki, MS—fruit and vegetable crops extension education (O'ahu Cooperative Extension Service)
- *A. H. Hara, PhD—horticultural entomology, post-harvest insect control, regulatory entomology (Beaumont Agricultural Research Center, Hilo)
- *J. Hu, PhD—virology
- *M. W. Johnson, PhD—biological control, insect pest management
- *M. Kawate, PhD—pesticide registration
- *W. H. Ko, PhD—soil microbiology (Beaumont Agricultural Research Center, Hilo)
- *R. F. L. Mau, PhD—agricultural entomology, entomology extension education, insect biology
- E. F. Mersino, MS—Ornamental crops extension education (O'ahu Cooperative Extension Service)

- *R. H. Messing, PhD—insect ecology and biological control (Kaua'i Agricultural Research Center)
- N. M. Nagata, MS—urban horticulture, cut flowers and fruits extension education
- *S. C. Nelson, PhD—epidemiology, extension education
- *R. K. Nishimoto PhD—weed science
- *W. T. Nishijima, PhD—tropical fruits and nuts, forest and tree diseases, ornamental extension education (Beaumont Agricultural Research Center, Hilo)
- *J. J. Ooka, PhD—diseases of coconuts, 'awa, corn, soybeans, sunflowers, taro, ginger, medicinals, spices; disease suppressive composts (Kaua'i Agricultural Research Center)
- *K. G. Rohrbach, PhD—pineapple diseases, integrated pest management
- D. M. Sato, MS—extension education (Hawai'i Cooperative Extension Service)
- *S. H. Saul, PhD—insect genetics
- *D. Schmitt, PhD—tropical nematology, nematode ecology and management
- *J. Seifert, PhD—biochemical toxicology
- K. T. Sewake, MS—extension education (Hawai'i Cooperative Extension Service)
- R. Shimabuku, MS—vegetable crops production and disease management extension education (Maui Cooperative Extension Service)
- *B. S. Sipes, PhD—nematology, alternative control methods
- *E. E. Trujillo, PhD—soil-borne diseases, biological control of weeds
- *J. Y. Uchida, PhD—fungal pathology, biological control of diseases, environmental impacts
- *M. G. Wright, PhD—integrated pest management, tropical fruits and nuts, insect ecology, biological control
- *J. R. Yates III, PhD—urban pest management, termite biology and control

Cooperating Graduate Faculty

- L. Arita-Tsutsumi, PhD—insect behavior, honeybee ecology (UH Hilo)
- D. Borthakur, PhD—molecular biology
- J. K. Fujii, PhD—insect pathology, termite biology (UH Hilo)
- K. Y. Kaneshiro, PhD—systematics, evolution, insect behavior
- M. Kumagai, PhD—molecular biology
- S. S. Patil, PhD—host parasite physiology
- M. Shintaku, PhD—virology (UH Hilo)

Affiliate Graduate Faculty

- J. W. Armstrong, PhD—commodity quarantine treatments, fruit fly control (USDA-ARS, Hilo)
- C. K. Atkinson, PhD—wildlife disease (US Fish and Wildlife Service)
- N. Evenhuis, PhD—systematics of *Diptera* (Bishop Museum)
- P. A. Follett, PhD—commodity quarantine treatments, tropical tree fruit IPM (USDA-ARS, Hilo)
- D. Gardner, PhD—pathology of native vegetation
- M. L. Goff, PhD—medical and forensic entomology (Chaminade University)
- E. J. Harris, PhD—ecology and control of fruit flies (USDA-ARS)
- F. G. Howarth, PhD—systematics (Bishop Museum)

- E. B. Jang, PhD—insect physiology, fruit fly control (USDA-ARS, Hilo)
 S. D. McCombs, PhD—biotechnology, genetics (USDA-APHIS)
 D. O. McInnis, PhD—insect genetics (USDA-ARS)
 N. J. Reimer, PhD—ant biology and control, biological control of weeds (Bishop Museum)
 G. A. Samuelson, PhD—systematics (Bishop Museum)
 R. I. Vargas, PhD—ecology, mass-rearing techniques (USDA-ARS, Hilo)

Degrees Offered: BS in plant and environmental protection sciences, MS in entomology, MS in plant pathology, PhD in entomology, PhD in plant pathology

The Academic Program

Agriculture, urban and natural environments are severely affected by invasive plants and animals, arthropods, and disease causing organisms. Management of these pests and pathogens is essential to preserve the economic and ecological future of Hawai'i and the Pacific Basin. Societal concerns about protecting our natural resources and the environment have resulted in a plant and resource protection focus stressing biological control, integrated pest management, and genetically based methods. Hawai'i's location in the Pacific basin provides students with an ideal setting for tropical and environmental studies. The unique island ecosystems also encompass many cropping niches from humid tropical environments to arid temperate conditions. In addition, the multitude of agricultural and landscape plants produced provides a natural laboratory to study a diversity of urban and agricultural inputs. The multicultural aspect of the human population further adds to the intriguing plant, human, and pest interactions that are a part of the PEPS academic and research program. Students are presented with great educational opportunities to understand plant and environmental protection and pest management. Students will be prepared for employment in agricultural and urban pest management, science education, government, industry, and environmental resource management. Undergraduate students will be well prepared for professional and graduate studies.

Affiliations

Studies in Plant and Environmental Protection Sciences at the University of Hawai'i are strengthened by cooperative relationships with the following units: Multidisciplinary Graduate Programs of the Cell, Molecular, and Neurosciences; Ecology, Evolution, and Conservation Biology Program; Harold L. Lyons Arboretum; Hawai'i Agriculture Research Center; B. P. Bishop Museum; Agricultural Research Service of the United States Department of Agriculture; Animal and Plant Health Inspection Service of the United States Department of Agriculture; and Hawai'i Department of Agriculture.

Advising

Students are assigned an academic adviser upon acceptance into the PEPS program. Undergraduates are required to consult with their adviser prior to registration each semester.

Undergraduate Study-B.S. Degree

Plant and Environmental Protection Sciences (PEPS) is a multidisciplinary science degree that promotes the understanding of complex agricultural and urban problems created in the global ecosystem. Students receive interdisciplinary exposure to entomology, plant pathology, weed science, and environmental science and can focus on one of these areas in their upper division studies. This holistic program is developed so each student has the opportunity to learn pest management, crop protection, biotechnological approaches, environmental regulations, toxicology, and rural and urban sociology as these relate to their focus areas.

Requirements-(128 credit hours)

PEPS offers a flexible and individualized degree program that allows students to select among several different options to fulfill university core requirements. In accord with their own particular interests and in consultation with their adviser, students also choose from a variety of departmental courses and general electives. PEPS 499 (Independent Research) is a unique requirement that provides students with the opportunity to work individually with faculty members throughout their program.

Specific requirements are:

- BIOL 171, 171L, 172, 172L; or 102, 102L, 103, 103L; or 102, 102L, 123, 123L; or 102, 102L, 124, 124L
- CHEM 151, 151L; or 171, 171L; or 161, 161L, 162, 162L
- CHEM 152, 152L; or 272, 272L, 273, 273L
- SP 151
- ENG 100
- NREM 310
- HIST 151, 152
- TPSS 200
- PEPS: 363, 405, 481, and 495; 1 course numbered from 200 to 399; 6 credits of 499; and 12 credit hours of courses numbered from 400 to 499.
- 29 additional credit hours of approved electives based upon students' academic interests.
- Additional credit hours as necessary to meet UH Mānoa general education requirements.
- Hawaiian / Second Language Requirement: Undergraduate students in PEPS, in consultation with their undergraduate adviser, will be asked to select one of the following three options:
 - Option 1: Show proficiency in a Hawaiian/Second Language at the 202 level;
 - Option 2: Show proficiency in a Hawaiian/Second Language at the 102 level, and take one additional 3-credit semester course in the Social Sciences and one additional 3 or 4-credit semester course in Natural Sciences;
 - Option 3: Take two additional 3-credit semester courses in Social Sciences and two additional 3 or 4-credit semester courses in Natural Sciences. One of the courses in the Natural Sciences must include a laboratory.

The Social Science and Natural Science courses chosen can be any 100 or 200 level course offered at Mānoa in those areas.

Prospective majors should consult with the department to design an appropriate curriculum tailored to their interests.

Graduate Study-Entomology

MS and PhD degrees are offered in the entomology program. Courses are offered in acarology, biological control of insect and weed pests, biotechnology and insect genetics, insect ecology, insect physiology, insecticide toxicology, insect transmission of plant pathogens, medical and veterinary entomology, pest management, systematics, urban entomology, and tropical pest management. Thesis and dissertation research can be selected from any of these subject areas.

Students applying for graduate programs in entomology are expected to have acquired a bachelor's degree with credit hours in entomology and biology, including general biology, general entomology, integrated pest management; one year of chemistry; and an appropriate course in mathematics and/or statistics. Deficiencies in undergraduate preparation can be satisfied during the graduate program. Applications for admission must include GRE scores.

The MS and PhD degrees in entomology are recognized by the Western Interstate Commission for Higher Education (WICHE) regional graduate programs. Residents of Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, Washington, and Wyoming are eligible, upon admission, to enroll at Hawai'i-resident tuition rates.

Master's Degree

The MS degree program is offered under either Plan A (thesis), Plan B (non-thesis), or Plan C (examination). A total of 30 credit hours are required for each degree option. An advisory committee composed of at least three members of the graduate faculty provides guidance to the student. For a general description of these options, see "Requirements" for each option.

The program provides an education in general knowledge of entomology, including basic principles of insect identification, biology, and control and prepares the student for employment in private industry, government agencies, and research institutions.

M.S. Plan A (Thesis)

- 16 credit hours of course work including seminars.
- Students shall enroll in PEPS 660 Research Seminars in PEPS each semester, except when enrolled in PEPS 799.
- 1 credit hour of PEPS 690 Foundations in Plant and Environmental Sciences each year, with at least 2 credits required for graduation.
- 12 credit hours of PEPS 700 Thesis Research.
- 2 credit hours of PEPS 799 Proposal/Defense Seminar (C/N).
- Final oral defense and submission of acceptable thesis.

M.S. Plan B (Non-thesis)

Students preparing for a career in research or admission to a doctoral program are advised to enroll in M.S. Plan A (thesis).

- 23 credit hours of course work including seminars.
- Students shall enroll in PEPS 660 Research Seminars in PEPS each semester.
- 6 credit hours of PEPS 699 Directed Research.
- 1 credit hour of PEPS 690 Foundations in Plant and Environmental Sciences each year, with at least 2 credits required for graduation.
- 1 credit hour of PEPS 799 Proposal/Defense Seminar (C/N) during the semester in which a proposal for the directed research project is given.
- Final defense of the directed research project and examination on other aspects of entomological training before the advisory committee.

M.S. Plan C (Examinations)

Students preparing for a career in research or admission to a doctoral program are advised to enroll in M.S. Plan A (thesis). M.S. Plan C is intended for students who have already acquired considerable expertise in entomology through prior course work, employment, or other educational venues.

Additional course work will be selected by the student in consultation with the advisory committee, and may include non-resident instruction. A two-semester, or four summer session, or one semester and two summer session, residency is required. The student must demonstrate competence in entomology through oral and/or written examinations, which may consist of discussion of a research or educational project, administered by the advisory committee in consultation with the Chair of the graduate program.

Doctoral Degree

Intended candidates for the PhD program should have earned the MS degree in entomology or equivalent from a recognized institution. Those with a BS or BA may petition for admittance into the PhD program only after enrolling in the MS program.

The goal of the PhD program is to have students possess broad general knowledge in all areas of entomology, in-depth knowledge in at least one area of specialization and develop the capability for independent research. Employment options for PhD graduates are in teaching, research, and extension at universities and in research, consulting or management with private industries and government agencies.

Requirements

- 1 credit hour of PEPS 690 each year.
- 1 credit hour of PEPS 660 each semester, except when enrolled in PEPS 799.
- 2 credit hours of PEPS 799 Proposal/Defense Seminar (C/N).
- 1 credit hour of PEPS 800 Dissertation Research during semester of graduation.

- Additional course work as determined by the doctoral advisory committee.
- Oral and written comprehensive examination in the candidate's area of specialization administered by the doctoral committee.
- Final oral defense of the dissertation research and submission of an acceptable dissertation.

Graduate Study – Plant Pathology

Plant Pathology is the study of plant diseases, their causes, and the interactions with the environment. The primary thrust in the program focuses on agricultural crops of economic importance; however, opportunities exist for discovery research in natural ecosystems and the laboratory. The field consists of several sub-disciplines including phytomycology, plant virology, bacteriology, nematology, epidemiology, crop protection, and molecular biology of host-pathogen interactions.

Students should have their undergraduate preparation in botany, horticulture, agronomy, microbiology, or plant and environmental protection sciences. Plant pathology has its foundation in biology and agriculture and offers wide opportunities in both basic and applied areas of biology, plant sciences, and agriculture. The plant pathology program at the University of Hawai'i offers students a unique opportunity to gain knowledge of plant diseases on a vast diversity of tropical crops and native plants as well as the impacts of plant protection practices on the environment.

Applications for admission must include GRE scores for verbal and quantitative aptitude. Candidates may need to demonstrate evidence of adequate preparation in other subject areas as well. Deficiencies may be corrected during the graduate program.

Master's Degree

The MS degree program is offered under either Plan A (thesis), Plan B (non-thesis), or Plan C (examination). A total of 30 credit hours are required for each degree option. An advisory committee composed of at least three members of the graduate faculty provides guidance to the student. For a general description of these options, see "Requirements" for each option.

The MS degree in plant pathology provides a basic education and understanding of the pathogen groupings. Employment opportunities exist in industry, government agencies, research institutions, consulting, and farm management.

M.S. Plan A (Thesis)

- Research: 12 credits in PEPS 700 Thesis Research, and submission of acceptable thesis.
- Courses: 16 credits in courses approved by the candidate's committee, including 10 credits in courses numbered 600-698, excluding PEPS 660 and 699, including at least 6 credits selected from PEPS 612, 616, 630, 646.

- Seminars: Minimum of 2 credits in PEPS 660, which is required each semester except when enrolled in PEPS 799; 2 credits in PEPS 799 (C/N) – C/N credits are not counted towards degree credit requirements.

M.S. Plan B (Non-thesis)

- Research: 6-9 credits in PEPS 699 Directed Research, preferably taken in 2-3 different laboratories.
- Courses: 19-22 credits in courses approved by the candidate's committee, including 16 credits in courses numbered 600-698, excluding PEPS 660 and 699, including at least 6 credits selected from PEPS 612, 616, 630, 646.
- Seminars: Minimum of 2 credits in PEPS 660, which is required each semester except when enrolled in PEPS 799; 1 credit in PEPS 799 (C/N) – C/N credits are not counted towards degree credit requirements.

M.S. Plan C (Examinations)

Students preparing for a career in research or admission to a doctoral program are advised to enroll in M.S. Plan A (thesis). M.S. Plan C is intended for students who have already acquired considerable expertise in plant pathology through prior course work, employment, or other educational venues. Additional course work will be selected by the student in consultation with the advisory committee, and may include non-resident instruction. A two-semester, or four summer session, or one semester and two summer session, residency is required. The student must demonstrate competence in plant pathology through oral and/or written examinations, which may consist of discussion of a research or educational project, administered by the advisory committee in consultation with the Chair of the graduate program.

Doctoral Degree

Intended candidates for the PhD program should have earned the MS degree in plant pathology or equivalent from a recognized institution. Those with a BS or BA may petition for admittance into the PhD program only after enrolling in the MS program.

Employment options for PhD graduates are in teaching, research, and extension at universities and in research, consulting or management with private industries and government agencies.

Requirements

- No minimum course requirement. A candidate's committee develops a course plan together with the student.
- 1 credit hour of PEPS 660 each semester, except when enrolled in PEPS 799.
- 2 credit hours of PEPS 799 Proposal/defense seminar (C/N).
- Comprehensive and final defense examinations.
- 1 credit hour of PEPS 800 Dissertation Research during semester of graduation.
- Submission of acceptable dissertation.

Tropical Plant and Soil Sciences

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Web: www.ctahr.hawaii.edu/ctahr2001/CTAHRCatalog/tpss.html

Faculty

*R. E. Paull, PhD (Chair)—plant growth and development, postharvest handling
A. S. Arakaki, BS—junior extension agent, fruit and vegetable production
R. Arce, BS—junior extension agent, community development, agricultural production
*H. C. Bittenbender, PhD—coffee, kava and tropical fruit physiology and management
*J. L. Brewbaker, PhD—plant breeding, biochemical genetics
*C. G. Cavaletto, MS—sensory evaluation, food processing
I. S. Campbell, PhD—crop management, information systems
*C. L. Chia, PhD—tropical fruits
*R. A. Criley, PhD—floriculture, flowering physiology, plant propagation
*J. DeFrank, PhD—weed science
*K. D. Fleming, PhD—agribusiness management
S. K. Fukuda, MS—extension agent, vegetable production
*M. Habte, PhD—soil microbiology-biochemistry
C. S. Hashimoto, MS—extension agent, fruit production
*A. S. Hodgson, PhD—food technology extension, food safety and quality
*N. V. Hue, PhD—soil chemistry
*K. D. Kobayashi, PhD—fruit physiology and computer modeling
*B. A. Kratky, PhD—vegetable physiology and management
*A. R. Kuehnle, PhD—ornamental breeding and genetics
*K. L. Leonhardt, PhD—floriculture
*R. M. Manshardt, PhD—tropical fruit breeding and genetics
*K. Marcum, PhD—turfgrass management
*S. C. Miyasaka, PhD—alternative crops, plant nutrition
*M. A. Nagao, PhD—development physiology, growth regulation
*M. S. Nishina, MS—associate extension agent, tropical fruit production
*Y. Sagawa, PhD—developmental morphology, cytogenetics, tissue culture
*D. Sato, MS—educational specialist, urban horticulture
*J. A. Silva, PhD—soil fertility and soil chemistry, statistics
*P. Singleton, PhD—crop physiology, nutrient management
V. E. Smith, MS—assistant extension agent, fruit and ornamental production
*K. Y. Takeda, PhD—solanaceous crops
G. I. Teves, BS—junior extension agent, ornamentals production
*G. Uehara, PhD—systems simulation in international agriculture
*H. R. Valenzuela, PhD—vegetable physiology and management

W. K. Wong, PhD—extension agent, landscaping and nursery management
R. M. Yamakawa, MS—associate extension agent, ornamentals production
*R. S. Yost, PhD—expert systems in soil management, fertility

Cooperating Graduate Faculty

*R. S. de la Pena, PhD—crop management, root crops
*S. A. El-Swaify, PhD—soil and water conservation, salinity
*C. I. Evensen, PhD—water quality extension, environmental education
*S. C. Furutani, PhD—horticultural crop physiology
*M. K. Kawate, PhD—pesticide registration/weed science
*R. K. Nishimoto, PhD—weed science
*W. S. Sakai, PhD—ultrastructure, physiological plant anatomy
*T. Sekioka, PhD—vegetable breeding and genetics
*M. J. Tanabe, PhD—in vitro propagation, turf management, plant propagation

Affiliate Graduate Faculty

*H. Albert, PhD—plant biotechnology, gene regulation
*H. T. Chan Jr., PhD—food processing, plant biochemistry
*M. M. M. Fitch, PhD—tissue culture, genetic engineering
*J. J. McHugh, PhD—vegetable management, integrated pest management
*P. Moore, PhD—plant development, sugar metabolism
*R. R. G. Ming, PhD—plant genomics, plant breeding
*C. N. Nagai, PhD—sugar cane genetics and tissue culture
*R. V. Osgood, PhD—weed science
*D. Ragone, PhD—ethnobotany, conservation
*F. Zee, PhD—plant breeding, genetics

Degrees Offered: BS, MS, and PhD in tropical plant and soil sciences

Program Goals

Upon graduation, students will be able to:

- Integrate discipline- and thematic-specific knowledge of basic and applied plant and soil sciences to its application, analysis, and evaluation in the production, management, and improvement of managed and natural ecosystems.
- Demonstrate an awareness of practices that minimize damage to the environment and ensure a safe food supply.
- Perform competitively in the diverse professions available to them and to take advantage of the opportunities afforded by changing situations.

The Academic Program

The Tropical Plant and Soil Sciences (TPSS) program at UH Mānoa is unique. Students have an opportunity to take courses in tropical flower, fruit, vegetable and crop production, turf and landscape management, plant physiology, breeding and genetics, and soil science. They learn about the full spectrum of subjects and activities required to understand and responsibly manage land, water, crops, and their environments

for the benefit of humankind. In addition, they learn about the adaptation and application of new technologies, such as molecular biotechnology, computer-based systems, and the internet, to enhance plant production systems, assure a safe food supply, and protect the environment.

Our students come from many backgrounds including those with little practical environmental or agricultural experience. They have in common a keen interest in applying science for the purpose of finding practical solutions to problems. Mature students are especially welcome. The comprehensive undergraduate program affords students the opportunity to study molecules to whole plants to managed or natural ecosystems, thus providing backgrounds to a host of career prospects. Students majoring in TPSS prepare for careers including plant production and management, plant breeding and genetics, services, marketing, extension, research, and teaching. UHM students trained in tropical plant and soil sciences have embarked on successful careers in international organizations and governmental agencies, in ecological and environmental protection, in agricultural extension, in individual entrepreneur including farming, and as middle and upper management in corporate agriculture. They work in increasing the food supply, improving food quality, and assuring food safety while protecting the environment and improving the quality of life. Undergraduates are encouraged to obtain practical experience, which involves research under the direction of a faculty member and work in a commercial industry via our internship program. Students have found satisfaction in applying their course work and research studies to challenging problems in business, environmental protection, land-use, and agricultural crop production.

Advising

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Students are advised by the department's undergraduate advisors: Dr. Ken Leonhardt and Dr. Ken Takeda. Undergraduate options are detailed in the following section. Each student may identify a faculty member to act as a mentor in the student's area of interest and specialization. All students in TPSS must receive approval of their program of courses from their advisers prior to registration each semester.

Graduate students are advised initially by an adviser or by the department's graduate program chairman.

Undergraduate Study

The program offers a BS degree in Tropical Plant and Soil Sciences with specializations in (1) Plant Sciences and Genetics, (2) Plant Production and Management, and (3) Environmental Soil Science. A student is required to complete 128 credits to graduate with a BS in TPSS.

Requirements

Students must complete the General Education Requirements (Core) of the University. An updated list of the courses recommended that satisfy the University General Education Requirement is available from the undergraduate adviser. The University's Hawaiian/Second Language graduation requirement can be met by showing proficiency at the 202 level in a language, or showing proficiency at the 102 level in a language, plus one (3 Cr) course in Social Sciences and one (3 Cr) course in Natural Sciences, or taking two (3 Cr) courses in Social Sciences and two (3 Cr) courses in Natural Sciences. These courses may not be used to satisfy the University General Education Requirement.

The College has a core consisting of the following three courses that will satisfy parts of the University General Education Requirement:

- SP 151 or 251 Personal and Public Speech or Principles of Effective Public Speaking
- NREM 310 Statistics in Agriculture and Human Resources
- TPSS 492 Internship/directed studies (3 credits)

Students must complete the following three courses in the Department:

- TPSS 200 Tropical Crop Science
- TPSS 300 Tropical Crop Production Systems
- TPSS 351 Enterprise Management

Option in Plant Sciences and Genetics

The option crosses the traditional boundaries that have separated genetics, plant physiology, molecular biology, and traditional crop production areas. The option links laboratory approaches and plant production systems through the application of plant biotechnology to solve multi-disciplinary problems. Students can select courses that allow concentration on genetic engineering to address real-world problems or to whole plant physiology and plant breeding.

Students selecting this option must take Biology 172/172L, 275/275L and 406/406L (or their equivalent), and Chemistry 16L/161L, 162/162L, 272/272L and 273 (or their equivalent). Some of these courses will fulfill part of the Natural Science requirement of the UH General Education Requirement. These courses are considered prerequisite to courses in the major.

Major (Option) Courses

Take a minimum of 14 credits from the following:

- TPSS 440 Tissue Culture/Transformation
- TPSS 450 Nutrient Mgmt Soils & Plants
- TPSS 453 Plant Breeding and Genetics
- TPSS 470/470L Plant Physiology
- TPSS 499 Directed Study
- BIOL 407/407L Molecular Biology
- MBBE 402/402L Principles of Biochemistry or
- BIOL 441/441L Basic Biochemistry

Electives (variable number of elective credits)

While students may choose from the array of courses offered on the UH campus, an advising list of courses will be available to assist students in selecting courses that prepare students for a career in plant sciences and genetics.

The advising list includes courses in botany, chemistry, biology, physics, geography, business, history, and philosophy. Undergraduate advisers will assist students considering enrollment in graduate school in the selection of appropriate courses.

Option in Plant Production and Management

This option prepares students to produce, manage, and market plants grown as crops or in landscapes. The aim is to enable graduates to perform competitively in their chosen profession and to have a sufficiently broad educational background to take advantage of the opportunities afforded by changing situations.

Students selecting this option need to take Botany 101 and 101L (or their equivalent) or Biology 172 and 172L (or their equivalent) and Chemistry 151 and 151L and 152 and 152L (or their equivalent) to fulfill part of the Natural Science requirement of the UH core. These courses are considered prerequisite to courses in the major.

Major (Option) Courses

The major requires 12 credits from:

- TPSS 369 Ornamental Plant Materials
- TPSS 350/405 Tropical Landscape Practices / Turfgrass Management
- TPSS 401/403 Vegetable / Tropical Fruit Production courses
- TPSS 402/404 Flower / Tropical Foliage Production courses
- TPSS 430 Nursery Management
- TPSS 420 Plant Propagation

The student must take 12 credits from following supporting courses for this option:

- TPSS 304 Fundamentals of Soil Science
- TPSS 322 Marketing Perishable Products
- TPSS 450 Nutrient Mgmt Soils & Plants
- TPSS 481 Weed Science
- PEPS 363 General Entomology
- PEPS 405 Plant Pathogens and Disease

Elective Courses (variable number of elective credits)

While students may choose from the array of courses offered on the UH campus, an advising list of courses will be available to assist students in selecting courses that prepare students for a career in horticultural crop production and management.

The advising list includes courses in botany, chemistry, biology, physics, geography, business, and courses in other departments; PEPS, MBBE, and NREM. Undergraduate advisers will assist students considering enrollment in graduate school in the selection of appropriate courses.

Option in Environmental Soil Science

The Environmental Soil Science option will prepare students to effectively manage soil for the production of agricultural commodities and preserve this important natural resource for the benefit of man and the protection of the environment.

Students selecting this option need to take Botany 101 and

101L (or their equivalent) or Biology 172 and 172L (or their equivalent), Chemistry 151 and 151L and 152 and 152L or 161, and 161L and 162 and 162L (or their equivalent), Economics 130, Physics 151 and 151L, Business writing (English 209) and Calculus I - Mathematics 215. Some of these courses will fulfill part of the Natural Science requirement of the UH General Education Requirement. These courses are considered prerequisite to courses in the major.

Major Courses

The following courses need to be taken for this major.

- TPSS 304 Fundamentals of Soil Science
- TPSS 435 Environmental Soil Chemistry
- TPSS 450 Nutrient Mgmt Soils & Plants
- NREM 301 Natural Resource Management

Electives

The student must take 12 credits from following electives for this option:

- TPSS 460 Plant Soil Atmosphere Physics
- TPSS 499 Directed Study
- NREM 461 Soil Erosion and Conservation
- MICRO 485 Microbial Ecology
- MET 101 Introduction to Meteorology
- GEOG 101/101L The Natural Environment
- ICS 101/ 101L Tools for the Computer Age

Graduate Study -

Tropical Plant and Soil Sciences

In order to solve the complex problems facing agricultural plant production systems, many disciplines must be integrated successfully. Candidates may specialize in genetics and breeding of tropical fruits, vegetables, or ornamentals; physiology, culture, and management of tropical fruits, vegetables, or ornamentals; morphogenesis; crop and stress physiology; post-harvest physiology; growth regulation; plant biochemical genetics; plant cytogenetics; weed science; computer modeling; or turf and landscape management, cropping systems, plant-soil relationships, soil chemistry, soil physics, soil management, soil and water conservation, soil fertility, and soil microbiology. Courses offered in botany, biochemistry, plant pathology, food science, genetics, microbiology, and zoology, combined with courses offered in Tropical Plant and Soil Sciences, will provide considerable flexibility in the development of a program suited to a student's career objectives.

The department offers graduate study leading to the MS (Plan A, Plan B and Plan C) and PhD degrees. The TPSS graduate program offers a degree in Tropical Plant and Soil Sciences, and an option in Tropical Plant and Soil Sciences (Horticulture). The degrees emphasize the development of problem-solving skills that integrate molecular, biochemical, physiological, chemical, genetic and ecological approaches to collaborative research in plant and soil sciences.

The Tropical Plant and Soil Sciences degree aims to provide the student with a thorough hands-on understanding of the principles and techniques in the adaptation and application of

biotechnology to tropical crop plant production, and the role of soils in supporting the whole system of crop production systems. The option requires understanding of fundamental biological processes, molecular and organism biology, genetics, plant physiology, chemistry, physics, and microbiology. Soil is studied both for intrinsic properties, as well as, its role in supporting crop growth and as an environmental resource.

The Horticulture option explores the many facets of tropical food and ornamental crop production and requires the understanding of agricultural systems, plant production, soil fertility, and protection of the environment, as well as supporting disciplines such as crop ecology, plant physiology, and molecular biology.

The MS and PhD in Tropical Plant and Soil Sciences are recognized Western Interstate Commission for Higher Education (WICHE) regional graduate programs. Residents of Alaska, Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, Washington, and Wyoming are eligible, upon admission, to enroll at Hawai'i-resident tuition rates.

Entrance Requirements

For admission to the TPSS graduate programs, applicants must present a bachelor's degree with a GPA of 3.0 (4.0 equals A scale) or the equivalent in the last four semesters or approximately 60 semester credits of the applicant's undergraduate record. The GRE is required of all applicants. A minimum CBT TOEFL score of 173 is required of all foreign students. All applicants must submit 2 letters of recommendation at the time of application.

Transfer of Credits

The transfer of credits to meet the requirements of the MS or PhD is not automatic. The student must petition the Graduate Program Chairman, certifying that the transfers make programmatic sense and that the courses to be transferred are equivalent in rigor and scholastic content to graduate-level (600-level) courses offered at the University of Hawai'i. The Graduate Program Chairman may consult with the Graduate Faculty as to the certification. The maximum number of credits that can be transferred is 12.

Only those credits that have not been applied towards the fulfillment of a previous degree may be transferred. An exception may be made if the subject matter area could not be met by course offering at UH, provided the courses transferred meet the rigor and programmatic appropriateness criteria described above.

Graduate Committee

Upon entering the graduate program, students will meet with their adviser. If a faculty adviser has not been selected, the Graduate Chairman or his representative will perform this function. The selection of an adviser must be made before the end of the first semester in residence. The adviser, with the approval of the Graduate Chairman, shall guide the student on course selection matters, insure progression in the program, and advise the student until the permanent Graduate Program Committee is established.

Students shall meet their permanent Graduate Program Committee at least once each semester to access academic and research progress and to establish goals for the next semester. It is the student's responsibility to schedule this meeting and to file the Academic Progress Report with the Graduate Chairman.

Master's Degree

Graduates of the Plan A program can further their graduate studies leading to the PhD degree or enter careers as researchers and technicians, while graduates of the Plan B program typically enter careers in education, agribusiness, extension service, and other agriculturally related occupations. The Plan B is regarded as terminal degree in this Graduate Program. Plan C (examination) option is open to selected students on the recommendation of their graduate program committee. Criteria for selection of Plan C candidates include previous academic records, interviews, levels of performance in the diagnostic examination, and prior research experience.

Requirements

Students will take a written diagnostic examination the week preceding the first day of instruction. The diagnostic examination consists of questions in eight areas including botany, chemistry, biochemistry, mathematics, physics, plant science, statistics, and soil science. The results of this examination will be used by the student's graduate committee, with approval of the Graduate Program Chairman, to select additional courses for the students program.

Plan A students must complete a minimum of 24 credit hours of course work and 6 credit hours of thesis preparation. A final oral examination is required. For Plan B students must complete a minimum of 30 credit hours, including a minimum of 18 credit hours earned in courses numbered 600 to 798 of which a majority must be in Tropical Plant and Soil Sciences. A maximum of 6 credit hours (Plan B) or 2 credit hours (Plan A) in TPSS 699 may be credited towards the 30 credit hours applied.

All students must take TPSS 654 as soon as possible after beginning their studies and register for seminar (TPSS 667) once every academic year in which they are registered as full-time or equivalent, except the final semester, in which the dissertation defense or Plan B project report is given, can be substituted for seminar.

Doctoral Degree

Graduates of the PhD program have entered careers as researchers and/or educators in institutions of higher learning and in public and private institutions.

The PhD is awarded only for original scholarly achievement. The dissertation, which is a significant original contribution to basic knowledge in the candidate's field, is required. Only students with above average academic records in pre-doctoral programs will be accepted in the program.

Requirements

Students will take a written diagnostic examination the week preceding the first day of instruction of their first semester as a TPSS graduate candidate. The diagnostic examination consists of questions in eight areas including botany, chemistry, biochemistry, mathematics, physics, plant science, statistics, and soil science. The results of this examination will be used by the student's graduate committee, with approval of the Graduate Program Chairman, to select additional courses for the student's program.

Course requirements are established by the student's graduate committee. Following a preliminary conference with the program adviser and/or committee, and with the approval of the Graduate Program Chairman, the student will be officially advanced to candidacy. After admission to candidacy and the completion of most courses in the candidate's program, the candidate must take oral comprehensive examinations covering all subjects considered relevant to the concentration. A seminar on the proposed research topic may be also required by the student's permanent committee. A final oral examination, which includes a public defense of the dissertation, is required of all candidates.

For all PhD students, a minimum of 12 credit hours in courses numbered 400 or above is required for the major, not including seminar, directed research, thesis/dissertation research. Candidates must register for seminar (TPSS 667) once every academic year in which they are registered as full-time or equivalent, except the final semester, in which the dissertation defense can be substituted for seminar. PhD candidates who have not had TPSS 654 Communications in the Sciences or its equivalent must take this course during their first year as a substitute for one semester of TPSS 667.

Courses Available for Each Option

Tropical Plant and Soil Sciences

- TPSS 500 Master's Plan B/C Studies
- TPSS 601 Crop Modeling
- TPSS 603 Experimental Design
- TPSS 604 Advanced Soil Microbiology

- TPSS 610 Mineral Nutrition Tropical Crops
- TPSS 614 Cellular Genetics of Crops
- TPSS 615 Quantitative Genetics
- TPSS 640 Advanced Soil Chemistry
- TPSS 650 Advanced Soil Fertility
- TPSS 651 Techniques of Plant/Soil Analysis
- TPSS 654 Communications in Agriculture
- TPSS 667 Graduate Seminar
- TPSS 674 Plant Growth & Development
- TPSS 699 Directed Research
- TPSS 700 Thesis Research
- TPSS 711 Special Topics
- TPSS 800 Dissertation Research
- MBBE 620 Plant Biochemistry
- MBBE 670 Plant Cell Physiology
- MBBE 673 Organization and Expression of the Plant Genome
- MBBE 680 Methods in Plant Molecular Biology

Tropical Plant and Soil Sciences - Horticulture

- TPSS 500 Master's Plan B/C Studies
- TPSS 601 Crop Modeling
- TPSS 603 Experimental Design
- TPSS 604 Advanced Soil Microbiology
- TPSS 610 Mineral Nutrition Tropical Crops
- TPSS 614 Cellular Genetics of Crops
- TPSS 615 Quantitative Genetics
- TPSS 630 Advanced Perishable Marketing
- TPSS 631 International Perishable Marketing
- TPSS 640 Advanced Soil Chemistry
- TPSS 650 Advanced Soil Fertility
- TPSS 654 Communications in Agriculture
- TPSS 667 Graduate Seminar
- TPSS 664 Orchidology
- TPSS 674 Plant Growth & Development
- TPSS 699 Directed Research
- TPSS 700 Thesis Research
- TPSS 711 Special Topics
- TPSS 800 Dissertation Research

Courses

The course offerings listed in this *Catalog* are subject to change without notice. For more current information, refer to the *Schedule of Classes*, published prior to each semester, and the *Summer Session Catalog*, published in April.

Course listings include a two- to four-letter department code, course number (including alpha suffix, if applicable), title, level, credits, description, cross-listings, repeatability, prerequisites, co-requisites, grade option, frequency, and core designation.

Sample Course Description

ABCD 123 Introduction to Courses (3) (2 Lec, 1 3-hr Lab) This sample describes an introductory course. Open to nonmajors if space available. Repeatable once. CR/NC only. Pre: 122, HIST 101 or GEOG 101, and SP 188 (or concurrent); or consent. Co-requisite: 123L. (Cross-listed as DCBA 123) **DA**

Course number reflects course level (see “Course Numbering System” below). An “A” following the number designates a Selected Studies (honors) section. An “L” following the number designates a laboratory course that is companion to a lecture course bearing the same number. All other suffixes (“B–K,” “M–U,” and “W–Z”) mark separate sections of an “alpha” course, each having a distinctive content such that a student may earn credit toward the degree for each section taken.

Roman numerals (I, II) indicate the level of a course in a sequence, e.g., Calculus II is a more advanced course following an introductory-level course.

Credit hours are shown in parentheses following the course title. Variable credit courses are designated “(V).” Some classes break down the time spent in lecture and laboratory.

Description includes class size/format (e.g., lecture, discussion, seminar, lab, workshop, studio) and major subjects covered. Other features may include learning experiences (e.g., two term papers, guest lecturers).

Repeatable indicates that a course may be taken again for additional credit toward a degree.

CR/NC only indicates that the course is offered only for credit (CR) or no credit (NC). Credit is given if a student achieves a passing grade. If CR/NC only is not indicated, the course uses the A–F grading system.

Pre indicates the prerequisites necessary to register for a course, which may include courses, class standing, or consent of the instructor, faculty adviser, or department chair. Some prerequisites may be taken concurrently. When a department

has a prerequisite common to a large group of courses, that fact is noted in italics preceding these course listings.

Co-requisite indicates that the course must be taken in conjunction with another course.

Alt. years means that the course is offered only every other year.

Cross-listed indicates a course that fulfills a requirement in more than one department and specifies the alternate departmental course listing.

General Education designation indicates that the course meets a General Education Core or Graduation requirement. See the key in the right column for designations. Courses that meet the Focus requirement are not designated in the *Catalog*. Focus-designations are in the *Schedule of Classes*.

Course Numbering System

Undergraduate Courses (1–499)

- 1–99 Courses not applicable for credit toward a bachelor’s degree.
- 100–199 Initial or introductory courses.
- 200–299 Second-year courses in a sequence or development in a field of study. 200-level courses that have an explicit college-level course prerequisite count toward the non-introductory credit requirement.
- 300–499 Third- and fourth-year courses in a sequence of courses or first courses in professional curricula. May be accepted by Graduate Division to fulfill graduate degree requirements (petition may be required). Courses numbered 300 or above are upper-division and count toward the non-introductory credit requirement.

Post-Baccalaureate Courses (500–800)

- 500 Directed Study (master’s Plan B)
- 500–599 Courses applicable toward first professional degrees (law and medicine) and in-service training programs in education.
- 600–699 Graduate courses.
- 700 Thesis Research (master’s Plan A).
- 700–798 Advanced graduate courses.
- 800 Dissertation Research.

Special Numbers: Courses ending in –99 are directed research or directed study. Experimental courses ending in –97 or –98 and single offerings are not listed in the *Catalog*.

General Education Designations

Courses that meet the UHM General Education Core and Graduation requirements are identified with one of the following designations at the end of the course description:

Foundations Requirements

Written Communication FW
Symbolic Reasoning FS
Global and Multicultural Perspectives .. FG

Diversification Requirements

Arts DA
Humanities DH
Literatures DL
Social Sciences DS
Biological Sciences DB
Physical Sciences DP
Laboratory (science) DY

UHM Graduation Requirements

Hawaiian/Second Language HSL

For more information, see the “Mānoa General Education Core and Graduation Requirements” section of this *Catalog*.

Please Note: 1) Consult your adviser for a list of updated General Education courses. Additional courses may have been approved after the publication of this *Catalog*. 2) Some programs specify which courses their students must take to fulfill the Core requirements or to fulfill lower division school or college requirements. For these programs, students should consult an adviser from their intended college, school, or department prior to selecting courses.

Accounting (ACC)

College of Business Administration

ACC 201 Introduction to Financial Accounting

(3) Introduction to financial accounting and methods used to record and report financial information to decision makers external to the firm. Use and limitations of financial reports. Pre: sophomore standing.

ACC 202 Introduction to Management Accounting

(3) Introduction to managerial accounting and methods used to report information to decision makers internal to the firm. Cost accounting, budgeting, standard cost systems, reporting and analyzing performance. Pre: 201, ICS 101 (or concurrent), and ICS 101L (or concurrent).

ACC 305 Management Accounting

(3) Information for managerial decision-making, planning, and control: job order and process costing, direct and absorption costing, normal and standard cost systems. Problem solving and application. Pre: 202.

ACC 321 Intermediate Financial Accounting I

(3) Accounting process and the application of GAAP to the recognition and measurement of cash, receivables, inventories, property plant and equipment, depreciation and depletion, intangibles, and current liabilities. Pre: 202.

ACC 323 Intermediate Financial Accounting II

(3) Application of GAAP to the recognition and measurement of long-term liabilities, investments, contributed capital, retained earnings, accounting changes and errors, income recognition, accounting for income taxes, pensions, leases, and statement of cash flows. Pre: 321.

ACC 367 Reporting for Accountants

(1) Stresses the various forms of reporting used to communicate accounting information to clients, management, boards of directors, and public-at-large. Written reports. Pre: 202.

ACC 399 Directed Reading and Research (V)

Reading and research of a special area in major under direction of faculty member(s). Project must

include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by the department chair and faculty adviser.

ACC 401 Federal Individual Income Taxation

(3) Examines federal income tax concepts, such as gross income, exclusions, deductions, exemptions, and tax credits, especially for sole proprietors. Introduces taxation of property transactions. Pre: 202 or BUS 610.

ACC 407 Taxation of Business Entities (3) A survey of the general concepts, rules, and practices involved in the taxation of sole-proprietorships, corporations, partnerships, and subchapter S corporations. Pre: 401.

ACC 413 Law for the Accountant (3) Intensive study of areas of law importance to accountants. Particular attention is given to principles of law relating to contracts, sales, commercial paper, secured transactions, property, legal entities, agency, securities, and accountant's legal liability. Pre: BLAW 200 or consent.

ACC 415 Advanced Financial Accounting

(3) Accounting topics relating to consolidation requirements and introduction to the fundamentals of fund accounting, including the general fund, restricted funds, debt service funds, enterprise funds, general long-term account group, general fixed assets accounting group, and accounting entries for encumbrances. Pre: 323 or 611.

ACC 416 Special Topics in Accounting

(3) This course addresses current issues impacting the accounting profession. Topics vary each semester. Repeatable three times. Pre: 323 or 611.

ACC 418 Auditing and Assurance (3) Auditing concepts including standards, objectives, and ethics for external auditors. Emphasis on reporting standards, internal control, evidence, statistical sampling, EDP audits, and assurance. Pre: 323 or 611.

ACC 419 Accounting Information Systems

(3) Accounting systems analysis, control and design in manual and computerized environments. Knowledge and skills of information technology

for auditing AIS systems. Hands-on experience with microcomputers and a computerized accounting system. A-F only. Pre: 323 or 611; or consent.

ACC 435 Public Sector Accounting

(3) Concepts and principles of accountability for not-for-profit entities, with emphasis on governmental units. Includes budgetary control and fund accounting systems and principles. Pre: 323 or 611, or consent.

ACC 500 Master's Plan B/C Studies

(1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

ACC 606 Tax Research (3) In-depth examination of tax research, IRS administrative procedures, and potential penalties. Extensive practice in issue spotting, reading and analyzing primary authority, and communicating results. Pre: 401.

ACC 609 Advanced Enterprise Systems and Technologies

(3) Computer technologies, database design, use of various software packages, hands-on experience with accounting databases, computer security and EDP auditing, hardware and software evaluation and implementation of business solution systems. Pre: 323 or 611.

ACC 611 External Financial Reporting

(3) This is an external financial reporting course for non-accounting majors only. It applies the financial accounting principles learned in BUS 610 to more complex transactions. Pre: 201 and 202, or BUS 610.

ACC 616 Accounting History and Theory

(3) Historical development of accounting theory emphasizing pronouncements of AICPA, FASB, AAA, and SEC. Pre: 323 or 611.

ACC 619 Assurance in the Information Age

(3) Advanced treatment of assurance derived from modern information systems. Stresses the effect of changing information technology on the auditor's attestation function. Includes research, critical thinking, and communication skills applied to contemporary auditing issues. Pre: 418.

ACC 620 Global Accounting (3) Theory and fundamental causes of international variations in accounting. Special emphasis on problems such variations create for financial reporting, control, and decision-making within multinational business enterprises. Pre: 323 or 611, or consent.

ACC 625 Accounting and Tax Research (3) In-depth examination of tax and accounting research, IRC, and SEC procedures. Extensive practice in issue identification, reading and analyzing primary authority, and communicating results. Credit not given for both 606 and 625. Pre: 401.

ACC 631 Tax of Partners/Partnerships (3) Examines advanced topics in federal taxation of partners and partnerships regarding the contribution, operation, and distribution from partnerships and transfers of partnership interests. Pre: 606 or 625, and 407.

ACC 633 Advanced Corporate Taxation (3) Examines tax advanced topics in corporate taxation, such as corporate reorganizations and divisions. Pre: 407 and 606 or 625.

ACC 635 Advanced Public Sector Accounting (3) Provides the tools necessary for understanding the principles of fiscal accountability and reporting in governmental and non-for-profit organizations. Pre: 415.

ACC 638 Estate and Gift Taxation and Planning (3) Examines estate and gift tax provisions and basic estate planning techniques to save taxes and avoid probate. Overviews generation-skipping transfer taxes and income taxes on estates and trusts. Pre: 401 and either 407, 606, or consent.

ACC 639 Multijurisdictional Taxation (3) Examines international, state, and local tax issues. Topics include U.S. International taxation of in- and out-bound transactions, sourcing of income and deductions and nexus. Pre: 401.

ACC 660 Analysis and Decision-Making (3) Integrates learning through analysis and communication of comprehensive business problems. Stresses research, critical thinking, and analytical and communication skills applied to contemporary accounting and tax issues. Pre: 407 or 606, and 619 (or concurrent), or consent.

ACC 690 Current Topics in Accounting (3) Concentration on current issues impacting the accounting profession. Topics vary each semester. May be repeated for credit.

ACC 695 Accounting Internship (3) On-the-job experience in the accounting community. Necessary evaluation reports and meetings with faculty adviser required. Pre: consent.

Aerospace Studies (AS)

ROTC Programs

The leadership laboratory is required for all courses except AS 304 and 306. Conducted within the framework of organized cadet corps with progression of experiences designed to develop leadership potential. Involves Air Force customs and courtesies, drills, and career progression.

AS 101 U.S. Air Force (1) Study of the total force structure, strategic offensive and defensive, general purpose, and aerospace support forces of the Air Force in the contemporary world.

AS 102 U.S. Air Force (1) Continuation of 101.

AS 201 The Air Force Way (2) Study of Air Force heritage, Quality Air Force principles, ethics, and an introduction to leadership and group leadership problems. Application of written and verbal communication skills is included.

AS 202 The Air Force Way (2) Continuation of 201.

AS 304 AFROTC Four-Week Field Training (4) Four-week field experience and training at selected Air Force bases on the Mainland. Required of AFROTC students for Air Force commission. Pre: 101, 102, 201, 202, enrolled in AFROTC program, and consent.

AS 306 AFROTC Six-Week Field Training (6) Six-week field experience and training at selected Air Force bases on the Mainland. Required of AFROTC students for Air Force commission. Pre: enrolled in AFROTC program and consent.

AS 351 Air Force Leadership and Management (3) Integrated management course emphasizing the military officer as manager in Air Force milieu, including individual motivational and behavioral processes, leadership, communication and group dynamics.

AS 352 Air Force Leadership and Management (3) Continuation of 351.

AS 401 National Security Affairs (3) Study of the national security process, regional studies, advanced leadership, ethics, and Air Force doctrine. Special focus placed on preparation for active duty and current issues affecting professionalism. A-F only. Fall only.

AS 402 National Security Affairs (3) Continuation of 401. A-F only.

Agricultural and Resource Economics (AREC)

College of Tropical Agriculture and Human Resources, see also Natural Resources and Environmental Management (NREM)

AREC 210 Applied Calculus for Management, Life Sciences, and Human Resources (3) Applications of mathematics/quantitative methods, equations, graphs, limits, continuity, derivatives, partials, integrals. Pre: consent. (Cross-listed as NREM 203)

AREC 220 Agricultural and Resource Economics (3) Introduction to economics of agricultural production, marketing, prices, income, policy. Includes government policy and programs related to agriculture, land use, farm tenancy, socio-economic problems of farmers in the United States and the world. A-F only. (Cross-listed as NREM 220)

AREC 310 Statistics in Agriculture and Human Resources (3) Principles/applications of statistical methods. Descriptive and inferential statistics, analysis of variance, regression, non-parametric statistics. A-F only. (Cross-listed as NREM 310)

AREC 341 Agricultural Accounting and Financial Analysis (3) Principles and methods of agricultural accounting. Preparing and interpreting financial statements. Sources and costs of credit, capital budgeting, tax management, estate planning. Pre: 220, ECON 130, or consent. (Alt. years)

AREC 342 Agribusiness Decision-Making (3) Management and organization, production analysis concerning inputs/outputs, planning/budgeting for economic decision-making, acquiring and managing factors of production. Pre: 220, ECON 130, or consent.

AREC 610 Biosystems Modeling (3) Introduction to system thinking, procedures for developing system models, characteristics of important agricultural system modes, computer approach to evaluation and optimization of system models. A-F only. Pre: MATH 242 or consent. (Cross-listed as BE 638)

AREC 624 Research Methodology (3) Philosophical setting for scientific inquiry, scientific method and its antecedents, application in agricultural economics research. Original research project required. Pre: 634 and ECON 608, or consent.

AREC 626 Quantitative Methods in Agricultural Economics I (3) Elementary statistics and probability theory, two variable and multiple variable regression modeling, hypothesis testing and confidence intervals, multicollinearity, serial correlation, and heteroskedasticity. Pre: NREM 310 or ECON 321, and MATH 241; or consent. (Cross-listed as ECON 628)

AREC 627 Applied Microeconomic Analysis (3) Economic applications to the agricultural and nonagricultural industries are emphasized. Econometric techniques are used to estimate demand, supply, production and cost functions which are analyzed in terms of economic theory and market information. A-F only. Pre: 626 or ECON 425, ECON 627 or ECON 420, and ECON 604 or ECON 606, or consent. (Alt. years)

AREC 628 Applied Production Economics (3) The theoretical foundation of production economics and the theory of the firm are developed. Econometric techniques are used to estimate and explain production and cost functions. Pre: 626 and ECON 627, or consent.

AREC 629 Advanced Production Economics (3) Economics of resource allocation at consumer, firm, and industry levels. Advanced analytical techniques of analysis: programming, synthesis, statistical analysis. Pre: 634 and ECON 608, or consent.

AREC 631 International Trade in Agricultural Products (3) Nature of trade in agricultural products; agricultural trade policy issues; role of trade in economic development; multilateral policies, commodity markets, and other current issues in agricultural trade. Pre: 634 and ECON 608, or consent.

AREC 634 Quantitative Methods in Agricultural Economics II (3) Specification, statistical estimation, inference, and forecasting of economic models. Includes advanced topics for single-equation models, pooled models, qualitative dependent variables, simultaneous systems, distributed lags, and time series. Pre: 626 or consent. (Cross-listed as ECON 629)

AREC 636 Advanced Agricultural Policy Analysis (3) Agricultural policy objectives, tools, issues. Analytical framework, approaches, and techniques, with empirical application to developed and developing country policies. Pre: 634 and ECON 608, or consent.

AREC 638 Resource and Environmental Policy (3) Exploration of institutional and policy dimensions of natural resource development, management, allocation, markets and pricing, focusing on their environmental impacts. Emphasis on policy analysis using case studies and empirical findings. Original paper required. A–F only. Pre: 634 and ECON 608; or consent. (Alt. years)

AREC 694 Economics of Marine Resources (3)

AREC 700 Thesis Research (V)

AREC 705 Research Seminar (1) Presentation and discussion of student thesis, dissertation, other current research activities. Pre: consent. (Cross-listed as NREM 701)

AREC 800 Dissertation Research (V)

Agronomy (AGRN)

See *College of Tropical Agriculture and Human Resources, Natural Resources and Environmental Management (NREM) or Tropical Plant and Soil Sciences (TPSS)*

Agronomy and Soil Science (AGRS)

See *College of Tropical Agriculture and Human Resources, Tropical Plant and Soil Sciences (TPSS) or Natural Resources and Environmental Management (NREM)*

AH

See *Arts and Humanities*

American Studies (AMST)

College of Arts and Humanities

Sophomore standing or consent is required for all 300-level courses except as noted.

AMST 201 American Experience: Institutions and Movements (3) Interdisciplinary course that examines diversity and changes in American values and institutions—political, economic, legal, and social. **DH**

AMST 201A American Experience: Institutions and Movements (3) Interdisciplinary course that examines diversity and changes in American values and institutions—political, economic, legal, and social. **DH**

AMST 202 American Experience: Culture and the Arts (3) Interdisciplinary course that examines diversity and changes in American values and culture—literature, film, visual arts, and architecture. **DH**

AMST 202A American Experience: Culture and the Arts (3) Interdisciplinary course that examines diversity and changes in American values and culture—literature, film, visual arts, and architecture. **DH**

AMST 211 Contemporary American Domestic Issues (3) Interdisciplinary exploration of such current American domestic issues topics as politics, economics, civil rights, family life, the justice system, and the environment. **DS**

AMST 211A Contemporary American Domestic Issues (3) Interdisciplinary exploration of such current American domestic issues topics as politics, economics, civil rights, family life, the justice system, and the environment. **DS**

AMST 212 Contemporary American Global Issues (3) Interdisciplinary exploration of such current global issues as international diplomacy, economic development, national security, demographic change, and the environmental protection. **DS**

AMST 212A Contemporary American Global Issues (3) Interdisciplinary exploration of such current global issues as international diplomacy, economic development, national security, demographic change, and the environmental protection. **DS**

AMST 310 Japanese Americans: History, Culture, Lifestyles (3) Explores the experiences of Japanese Americans in Hawai'i and the USA at large: historical and cultural heritage, biographical portraits, changing family ties, ethnic lifeways, gender relations, local identity, and the future of island living. **DH**

AMST 313 African Americans: Issues, Culture, History (3) Traces the history and culture of African Americans and outlines contemporary issues. Topics include: slavery and racism, community formation and resistance, cultural expression, African American diversity, civil rights, gender and class relations. **DH**

AMST 314 U.S. Immigration and Migration (3) Traces the history of immigration and internal migrations in the United States, exploring the rise of nativism and ethnic movements, changing ethnic communities, ethnic cultural expressions, and the changing mosaic of American identities. **DH**

AMST 315 U.S. Women's History to 1890s (3) A survey of history of U.S. women and gender relations up to 1890s. Emphasis on women's labor, women's involvement in social movement, development of suffrage movement, women's literary and popular culture. Pre: 201 (or concurrent) or 202 (or concurrent) or WS 151 (or concurrent); or consent. (Cross-listed as HIST 360 and WS 310) **DH**

AMST 316 U.S. Women's History since 1890s (3) A survey of history of U.S. women and gender relations since 1890s. Emphasis on social reform, suffrage and the New Woman, women's wartime labor, gender and the Cold War, second wave feminism, divisions among women. Pre: 201 (or concurrent) or 202 (or concurrent) or WS 151 (or concurrent); or consent. (Cross-listed as HIST 361 and WS 311) **DH**

AMST 318 Asian America: Survey (3) History of selected Asian immigrant groups from the 19th century to the present. Topics include: immigration and labor history, Asian American movements, literature and cultural productions, community adaptations and identity formation. Pre: junior standing and one of 201 (or concurrent), 202 (or concurrent), SOC 100 (or concurrent); or SOC 214 (or concurrent); or consent. (Cross-listed as ES 318) **DH**

AMST 319 America, Hawai'i and World War II (3) Examines WWII as a watershed in American and Hawai'i history and culture. Topics include: Pearl Harbor, Japanese American internment, sex and racial tensions, Anti-Semitism and the Holocaust, and the dawn of the Atomic Age.

For key to symbols and abbreviations, see the first page of this section.

AMST 320 American Environments: Survey (3) Survey of social, political, and cultural relations in diverse, contemporary American environments, including: island societies, urban centers, suburbs, Indian reservations, farming communities, and national parks. Special emphasis on contemporary environmental issues in Hawai'i. **DS**

AMST 321 The American City (3) Evolution since 17th century; role in contemporary American culture; related problems, perceptions, values. (Cross-listed as HIST 375) **DH**

AMST 343 American Thought and Culture (3) Politics, family, philosophy, technology, etc.; their interrelationship with the total society. Pre-Colonial to end of Reconstruction. Pre: HIST 151 and HIST 152. (Cross-listed as HIST 373) **DH**

AMST 344 American Thought and Culture (3) Continuation of 343: 20th century. Pre: HIST 151 and HIST 152. (Cross-listed as HIST 374) **DH**

AMST 345 Men and Women in American Thought (3) Interpretations of masculine and feminine role behavior as expressions of American cultural values. **DH**

AMST 350 Culture and Art in America: Survey (3) Popular attitudes toward arts, travel, fashions, craft and industrial productions, recreation. Past used to explain the present. **DH**

AMST 353 Television in American Life (3) Explores the changing role of television and new media technologies in American society and culture. Special focus on media in Hawai'i. Pre: 201, 202, or consent. **DH**

AMST 365 American Empire (3) Examines the interplay between an "American culture of empire" and the rise of the United States as a superpower. Topics: imperialism and political culture, social movements and international affairs, race, gender and class relations. (Cross-listed as HIST 379) **DH**

AMST 381 Junior Seminar (3) Materials and methods for the study of American life and thought. Pre: consent. **DH**

AMST 382 Junior Seminar (3) Continuation of 381. Pre: consent. **DH**

Junior standing or consent required for all 400-level courses.

AMST 411 Japanese Americans: Research Topics (3) Research and thematic seminar on Japanese American culture, issues, and history. Pre: 310 or consent. **DH**

AMST 413 Regionalism: The South (3) Definition of a Southern identity and its relation to the larger U.S. culture, using literary and polemical works of 19th- and 20th-century. **DH**

AMST 414 The American West (3) Surveys the U.S. colonization of the American West, exploring the region's diverse cultures and the conflicts between them. Topics include: European-Native contact, Western myths, natural resources, race, class, and gender. (Cross-listed as HIST 474C) **DH**

AMST 415 Nonethnic Minorities (3) Survey of nonethnic minority group movements, e.g., the blind, the aged, homosexuals. Common denominators, traditional "mistaken identity," contemporary search for new identity. **DS**

AMST 417 Native Peoples (3) Native Americans' and Hawaiians' world views, life ways, and conflicts with whites as expressed in oral and written literature. **DH**

AMST 418 Hawai'i's Multiculturalism (3) A multidisciplinary examination of the dynamics of the Hawaiian Islands' racial and cultural diversity from the perspectives of historical trends, social processes, and contemporary political, social, and economic issues as they impact interracial relations. **DS**

AMST 419 Community, Culture and Change (3) As a complement to AMST 418, the course objective is to learn about Hawai'i's multi-racial and multicultural diversity firsthand through various field study projects. Pre: 418 (or concurrent) or consent. **DS**

AMST 420 American Ideas of Nature (3) The natural world in American thought from Native Americans to modern ecologists. Pre: 201 and 202, or HIST 281 and HIST 282. **DH**

AMST 423 History of American Architecture (3) History of American architecture in terms of style, techniques, and symbolic meaning. (Cross-listed as ARCH 473) **DH**

AMST 425 American Environmental History (3) Survey history of the complex relations between American societies and diverse U.S. ecosystems, from European contact and colonization to the present. Pre: 201 or 320 or HIST 281 or HIST 282 or GEOG 101; or consent. **DH**

AMST 431 American Labor History (3) Conditions of labor in major phases of American development; response of labor and community to changing work environment. Capitalism, unionism, race, gender, law, etc. Emphasis on 20th century. (Cross-listed as HIST 477) **DH**

AMST 432 Slavery (3) Examines the origins, practices, and historical evolution of slavery from the 18th to the 20th century. Considers diverse forced labor regimes: chattel slavery, plantation agriculture, convict labor, "wage slavery," and patriarchal domination. Pre: 201 or 313 or ES 305 or ES 306 or HIST 152 or HIST 281; or consent. (Cross-listed as HIST 473) **DH**

AMST 434 Politics in Hawai'i (3) Discussion of modern politics against the background of recent history and major contemporary issues. **DS**

AMST 435 History of Crime & Punishment (3) History of American crime and punishment from 18th century to the present. Topics: changing crime patterns, evolving punishment methods, penal reform movements, convict resistance, growth of prison industrial complex, racism, class, and gender.

AMST 436 Women and the Law (3) Past and present roles of women in American political and legal institutions; common law, judicial decisions, and federal and state legislation affecting women of various socioeconomic groups. (Cross-listed as WS 436) **DS**

AMST 438 Asian Women (3) History, culture, and contemporary reality of Asian women in Asia and the United States. Includes critical analysis of American feminist methodology and theory. Pre: one of POLS 339, WS 360, WS 361, WS 439; or consent. (Cross-listed as POLS 372 and WS 462) **DS**

AMST 440 Race and Racism in America (3) Racial ideas and ideologies, and their effects, throughout American history. **DH**

AMST 442 Radical Traditions (3) Varieties of radicalism that have provided a continuing critique of prevailing values and structures. **DH**

AMST 443 Leaders and Movements (3) Examination of two or three significant personalities in American history and culture and the movements they inspired. Topics vary each semester. Repeatable. **DH**

AMST 451 Popular Culture (3) Major themes, modes, and media of popular or mass culture in the United States; emphasis on cultural trends and social implications. **DH**

AMST 452 The '20s and '30s (3) Novelists, painters, poets, jazz musicians as examples of culture of the 1920s and 1930s in America. **DH**

AMST 453 Culture, Society, and Literature (3) Literary and non-fictional exploration of the intellectual and moral response of Americans to institutions and culture of 20th-century marketplace economy. **DL**

AMST 455 U.S. Women's Literature and Culture (3) Reading of selected works of U.S. women's literature and cultural texts (such as art and film). Emphasis on historical and cultural context and diverse expressions of women's gendered identities. Pre: 202 (or concurrent), ENG 250 (or concurrent), or WS 151 (or concurrent); or consent. (Cross-listed as ENG 455 and WS 445)

AMST 456 Arts of the United States (3) Emphasis on the 18th and 19th centuries. Pre: ART 172 or consent. (Cross-listed as ART 472) **DH**

AMST 458 Film in American Culture (3) Comprehensive survey of varieties of film experience from historical and contemporary points of view. **DL**

AMST 459 Sports in America (3) Sports as reflected in literature, films, and TV. **DS**

AMST 461 America's World Role (3) Examination of America's role in modern world affairs, against the background of history, perceptions, and values. Pre: 211, 212, HIST 282, POLS 220, or consent. **DS**

AMST 463 Visions of the U.S. Abroad (3) Study of the historically dynamic representations of the United States in other countries. **DS**

AMST 464 America and Africa (3) American attitudes toward Africa, as well as how Africa has functioned within the dynamics of American culture and history. **DH**

AMST 465 American Experience in Asia (3) Comparison of American experiences in Japan, China, and Southeast Asia within historical and perceptual framework. (Cross-listed as ASAN 465) **DH**

AMST 475 Documentation of Historic Architecture (V) Study and documentation of existing buildings, structures, sites of historic and/or cultural significance, including field measurements and drawings, historical research, photo documentation, and preparation of archival drawings to be deposited in the Library of Congress. Documentation conducted according to standards of the Historic American Buildings

Survey/Historic American Engineering Record (HABS/HAER). Repeatable. Pre: consent. (Cross-listed as ARCH 472).

AMST 490 (Alpha) Topics in American Studies (3) Themes, problems, and issues not addressed in other American studies undergraduate courses, focused within these areas: (B) social structure and interaction; (C) thought and belief; (D) arts and environment; (E) historic preservation. Repeatable with consent.

AMST 499 Readings in American Studies (V) Directed readings and research for majors. Pre: consent.

AMST 500 Master's Plan B/C Studies (1)

Graduate standing or consent required for all 600-level courses.

AMST 600 Approaches to American Studies (3) Introductory survey of methodological issues underlying research in American studies.

AMST 601 Patterns of American Cultures (3) American cultural origins and development. Beginnings to late 18th century.

AMST 602 Patterns of American Cultures (3) American cultural origins and development. Late 18th century to late 19th century.

AMST 603 Patterns of American Cultures (3) American cultural origins and development. Late 19th century to present.

AMST 611 Asian America (3) The Asian American experience from an interdisciplinary and humanities perspective. Asian American history, literature, media, and theater arts. Comparative study of Hawai'i and the Continental United States.

AMST 612 Women in American Culture (3) Historical/contemporary status of women in the United States; women's roles as defined by legal, educational, political, economic, and social institutions; implications for social science method. (Cross-listed as WS 612)

AMST 614 Advanced Topics: American West (3) Examination of the U.S. colonization of the American West. Topics include: European-indigenous relations, migration and labor, regional literature, frontier ideology, ethnic conflict, and new community formation.

AMST 617 Social and Cultural Diversity in America (3) Examination of selected subcultures in America.

AMST 618 American Sexualities (3) Aspects of sexual identity within the context of American culture. Pre: 345 or consent.

AMST 623 American Architecture (3) Cultural analysis of the evolution of American architecture from the Colonial period to the present involving sociopolitical and economic, as well as aesthetic, considerations. (Cross-listed as ARCH 671)

AMST 624 Wilderness in America (3) American wilderness as both physical setting and social construction. Pre: 420 or consent.

AMST 625 Material Culture (3) Physical artifacts considered as documents of American cultural and regional development. (Cross-listed as ARCH 625)

AMST 626 Environment and Society (3)

Technological development in cultural perspective; its relation to the American environment, science, capitalism, public policy, and values.

AMST 627 The American City (3)

Urban life and culture in contemporary and historical perspective; emphasis upon promises and problems of city in American culture. (Cross-listed as ARCH 627 and HIST 639E)

AMST 632 Mass Media (3) Appraisal of major media of communications in American society with attention to political, educational, cultural, and ethical implications.

AMST 635 Public History and Commemoration (3) Approaches to public presentations of history and examination of various ways in which historic memory is constructed in sites such as museums, memorials, and theme parks. Pre: 600 (or concurrent) or consent.

AMST 638 American Punishment (3) Examines the history of American criminal punishment, from the birth of the penitentiary to the rise of the prison-industrial complex.

AMST 643 Critical Traditions in America (3) Examination of various dissident movements in American history.

AMST 644 Religion in America (3) Religious ideas and churches in American history and politics. (Cross-listed as HIST 639D)

AMST 646 Advanced Topics: Social/Cultural/Intellectual (3) Readings and research on American social and intellectual history. Repeatable. (Cross-listed as HIST 639B)

AMST 647 Advanced Topics: Business/Labor/Technology (3) Readings and research on American business, labor, and technological history. Repeatable. Pre: graduate standing or consent. (Cross-listed as HIST 639K)

AMST 649 American Intellectual Traditions (3) Examination of intellectual figures and movements in American history.

AMST 655 Folk Traditions (3) Reading and research examining traditional pre-20th-century folk arts, folk music, and folklore and relevance to contemporary American life.

AMST 656 Film in America (3) Examination of various roles of motion picture film in America with particular respect to art form, cultural artifact, document, and myth.

AMST 659 Arts in America: Modern to Post-Modern (3) Survey of the literature of the field.

AMST 664 America in Asia (3) Topics in U.S. economic, political, military, and cultural relations with East and Southeast Asia, from the 18th century to the present.

AMST 665 Comparative Cultures (3) Study of American culture in comparison with other selected cultures.

AMST 668 Globalization and Transnationalism (3) Examines the socioeconomic and cultural meanings of globalization and transnationalism. Emphasis on how the deployment and flows of power beyond the nation-state have an impact on regional, national, and/or local communities and cultures. Pre: 600 (or concurrent) or consent.

AMST 669 America and the World (3)

Historical and contemporary issues in America's global relationships.

AMST 671 19th Century U.S. Literature (3)

Selected works of 19th-century literature as cultural documents.

AMST 672 20th Century U.S. Literature (3)

Selected works of 20th-century literature as cultural documents.

AMST 673 African American Literature (3)

Cultural and social imagination of blacks and whites as revealed in literature, poetry, and drama.

AMST 674 Harlem Renaissance (3) Politics and literature of culture and race with the focus on Harlem in the 1920s.

AMST 675 Preservation: Theory and Practice (3)

History and philosophy of historic preservation movement. Analysis of values and assumptions, methodologies and tactics, implications for society and public policy. (Cross-listed as ARCH 628 and PLAN 675)

AMST 676 Recording Historic Resources (3)

Techniques in recording and evaluation of historic buildings and other resources, with an emphasis on field recordings and state and federal registration procedures. Pre: 675 or ARCH 628, or consent. (Cross-listed as PLAN 676)

AMST 677 Community Preservation (3)

Local-level historic preservation, with an emphasis on historic districts, design guidelines, regulatory controls, and community consensus-building. (Cross-listed as PLAN 677)

AMST 679 Elements of Style (3) The manifestations, visual characteristics, and social/cultural meaning of "style" in American architecture and decorative arts from the early settlement period through the present. Pre: 623, 675, ARCH 628, or ARCH 671.

AMST 680 Historic Building Technology (3)

History of buildings, building technologies, materials, and finishes, including construction techniques and methods of investigating older buildings. Emphasis on North American building practices c.1600–c.1960. Pre: 675 (or concurrent) or ARCH 628 (or concurrent).

AMST 681 American Vernacular Traditions (3)

Methods and approaches in the study of vernacular architecture, cultural landscapes, and material culture, with an emphasis on traditions and innovations in the Americas. (Cross-listed as ARCH 650)

AMST 690 Research Seminar (3) Themes, problems, and issues not addressed in other American studies graduate courses; emphasis upon research methods. Repeatable.

AMST 695 Historic Preservation Practicum (3)

Applies course work in historic preservation to hands-on activities under the direction of practicing professionals and University faculty. Historic preservation certificate students only. Pre: consent.

AMST 696 (Alpha) Preservation Field Study (6)

On-site historic preservation field study. Site will rotate. Academic and hands-on preservation training. (B) Hawai'i; (C) Asia; (D) Pacific. Repeatable in each alpha to a maximum of 18 credit hours. Pre: consent.

AMST 699 Directed Reading/Research (V)**AMST 700 Thesis Research (V)****AMST 800 Dissertation Research (V)****Anatomy (ANAT)***School of Medicine***ANAT 499 Directed Reading Research (V)**

ANAT 512 (Alpha) Unit II Concurrent Electives (1) Elective courses for first-year medical students. (B) human anatomy of the thorax and upper limb; (C) histology. CR/NC only. Pre: BIOM 551 and consent.

ANAT 513 Unit III Concurrent Electives (Alpha) (1) Elective course for first-year medical students. (B) human anatomy of the abdomen and lower limbs; (C) histology. CR/NC only. Pre: BIOM 551 and consent. Spring only.

ANAT 514 (Alpha) Unit IV Concurrent Electives (1) Concurrent electives in anatomy. (B) functional anatomy of the head, neck, and lower limb with review of the upper limb anatomy included; (C) human embryology; systematic study of human development including implantation, placentation, basics of development of each organ system with reference to pertinent congenital anomalies and their surgical repair; (D) neuroanatomy: spinal cord, brain stem and the regions of the cerebrum will be discussed. CR/NC only. Pre: BIOM 551 and consent.

ANAT 515 Unit V Concurrent Elective (1) Elective course for second-year medical students. CR/NC only. Pre: BIOM 551 and consent.

ANAT 545 (Alpha) Unit VII Anatomy Electives (V) Advanced study of human anatomy by dissection and individual observation of surgical procedures. (C) topics in reproductive biology. CR/NC only. Pre: FPCH, MED, OBGN, PED, PSTY, SURG 531 or 532; or consent.

ANAT 599 Independent Study in Anatomy (1) Independent dissection and study of human anatomy for advanced medical students. Repeatable. Pre: BIOM 553 or consent.

ANAT 601 Histopathology (2) Introduction to normal tissue structure and basic principles of pathological processes. Histological preparations of normal and abnormal tissues will be studied. Pre: consent.

ANAT 603 Lower Extremity, Thorax, and Abdomen (3) Human gross anatomy dissection of the lower extremity, thorax, and abdomen with emphasis on muscles, function, innervation, and vascular supply. A-F only. Repeatable one time. Pre: departmental approval. Spring only.

ANAT 604 Upper Extremity, Head, Neck, and Spine (3) Human gross anatomy dissection of the upper extremity, head, neck, and spine with emphasis on muscles, function, innervation, and vascular supply. A-F only. Repeatable one time. Pre: departmental approval. Fall only.

ANAT 607 Human Embryology (2) Systematic study of human development, including implantation, placentation, basics of development of each organ system with reference to pertinent congenital anomalies and their surgical repair. Pre: consent. Recommended: gross anatomy course.

ANAT 612 Seminar in Anatomy Teaching (1) Effective teaching methods, organization of courses in anatomical sciences, development and evaluation of exams, experience in teaching with audiovisual/computer aids. Open to graduate students in anatomy or reproductive biology. Repeatable. Pre: 601, 602, 603, 604, or BIOM 606.

ANAT 699 Directed Research (V)

ANAT 700 Thesis Research (V) Pre: admission to candidacy (master's program).

ANAT 800 Dissertation Research (V)**Animal Sciences (ANSC)**

College of Tropical Agriculture and Human Resources

ANSC 200 Humans, Animals, and Agriculture (3) (2 Lec, 1 3-hr Lab) Introduction to animal agriculture, animal science, and the use of animals by humans. Ethics and importance of human use of animals in agriculture are emphasized. **DB**

ANSC 201 Principles and Practices of Animal Science (3) Breeds, their origin, distribution/evaluation; management practices for food, fiber, work, pleasure. Beef, dairy, sheep, swine, poultry, horses, aquacultured species emphasized. **DB**

ANSC 244 Comparative Nutrition (3) Digestive systems and nutrient functions, interrelationships and metabolism are compared among animal species, including humans. An intermediate, general nutrition course for Food Science and Human Nutrition and Animal Science majors. Pre: CHEM 161 or consent. Fall only. (Cross-listed as FSHN 244) **DB**

ANSC 251 Livestock Management Practices (3) Management of livestock and poultry emphasizing animal handling, behavior, and techniques with practical application by the student. Pre: 200, 201, and consent. **DB**

ANSC 301 Anatomy of Agricultural Animals (4) (3 Lec, 1 3-hr Lab) Micro and gross anatomical arrangements of tissues and organ systems of domestic animals. Pre: 200. **DB**

ANSC 321 Applied Animal Nutrition (3) (2 Lec, 1 3-hr Lab) Application of the principles of nutrition to feeding of farm animals; composition and nutritional value of feed stuffs; nutritional requirements of beef cattle, dairy cattle, horses, poultry, and swine. Pre: 244. **DB**

ANSC 353 Horses and Horsemanship (3) (2 Lec, 1 3-hr Lab) Origin of species, breeds, nutrition, care, management. Lab on management practices with work on light horses. **DB**

ANSC 360 Topics in Aquaculture Science (3) Survey of specific areas in aquaculture including biological, physical, economic aspects of intensive/extensive crustacean, fish, mollusc, aquatic plant culture; terrestrial system integration. Pre: 200 and 201, or BIOL 222; or consent. **DB**

ANSC 431 Beef Production (3) (2 Lec, 1 3-hr Lab) Principles of economic beef production, including beef breeds, selection, breeding, management systems, feeding, and marketing under tropical conditions. Pre: 201 and 244. **DB**

ANSC 432 Swine Production (3) (2 Lec, 1 3-hr Lab) Principles of efficient pork production, including comparative breed evaluation, breeding, feeding, management, marketing, and business aspects. Problems and practices associated with tropical environment emphasized. Pre: 201 and 244. **DB**

ANSC 433 Tropical Dairying (3) (2 Lec, 1 3-hr Lab) Principles involved in economical milk production in the tropics, including management,

recordkeeping, breeds, breeding, selection, culling, feeding, housing, milking, quality control, and raising young animals. Pre: 201 and 244. **DB**

ANSC 445 Genetics and Animal Breeding (3) Review and application of genetic principles to livestock, poultry, companion, aquatic, and laboratory research animals. Current practices and future developments. Pre: BIOL 222, ZOOL 101, or equivalent; or consent. Recommended: biochemistry and genetics or equivalent. **DB**

ANSC 450 Aquaculture Production (3) Theory and practice of aquaculture: reproduction, yield trials, management, economics and business case studies of fish, crustaceans, and molluscs. Field classes held at commercial farm and hatchery. Repeatable. Pre: 200 (or concurrent) and 201 (or concurrent), or BIOL 172 (or concurrent). (Cross-listed as OCN 450) **DB**

ANSC 451 Physiology of Domestic Animals (3) Functions and relationships of organs and organ systems of domestic animals excluding reproduction and lactation. Problem-based learning and case studies are emphasized. Pre: 301 or consent. **DB**

ANSC 453 Animal Diseases and Their Control (3) Disease problems of livestock, poultry, and companion animals; their economic significance, causes, public health implications, and control. Pre: 200 or consent. **DB**

ANSC 454 Meat Science and Muscle Biology (3) Development, growth, function, carcass evaluation of muscle tissue. Pre: 301. **DB**

ANSC 454L Meat Science and Muscle Biology Lab (1) (1 3-hr Lab) Livestock and poultry slaughter, carcass evaluation, meat chemistry, muscle physiology and biochemistry, meat microbiology, and meat processing. Pre: 454 (or concurrent). **DY**

ANSC 460 Biology and Culture of Shrimp and Prawns (2) Aspects of the biology and culture of the freshwater prawn *Macrobrachium rosenbergii* and marine shrimp *Penaeus* (sp) species. Scientific research results and case studies presented and analyzed. Pre: BIOL 222, ZOOL 101, or equivalent; or consent. **DB**

ANSC 462 Reproduction and Artificial Insemination (4) (3 Lec, 1 3-hr Lab) Introductory exploration of anatomy, development, and physiology of reproduction of domestic animals and artificial insemination. Pre: 200 or consent. **DB**

ANSC 472 Endocrinology of Domestic Animals (3) Physiology of secretion and actions of hormones of pituitary, thyroid, adrenal, pancreas, parathyroid, thymus, other endocrine organs excluding reproduction. Pre: 200 or consent. **DB**

ANSC 491 Topics in Animal Sciences (V) Study and discussion of significant topics, problems. Offered by visiting faculty and/or for extension programs. Repeatable.

ANSC 492 Internship (4) Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/employer. A-F only. Pre: consent. (Cross-listed as FSHN 492)

ANSC 499 Directed Study or Research (V) Limited to exceptional undergraduate students, generally with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in major. Exceptions

may be granted for students with high achievement in last three semesters.

ANSC 500 Master's Plan B/C Studies (1)

ANSC 603 Experimental Design (4) (3 Lec, 1 3-hr Lab) Design of experiments and variance analyses in biological and agricultural research. Pre: NREM 310 or ZOOL 631. Recommended: ZOOL 632. (Cross-listed as TPSS 603)

ANSC 641 Seminar in Animal Sciences (1) Topics of current interest and current research related to nutrition, genetics, and physiology. Pre: consent.

ANSC 642 Advanced Animal Nutrition (3) An advanced course in the nutrition of mono-gastric, ruminant, avian, and aquatic species. Topics include digestive system structures, utilization of nutrients, energy metabolism, and experimental techniques used in the study of animal nutrition. Pre: introductory biochemistry or animal nutrition; or consent.

ANSC 643 Physiology of Reproduction (3) Comparative differentiation, development, growth, and function of the reproductive systems of mammals and birds; external factors that influence response; artificial insemination. Pre: 451 or consent.

ANSC 644 Growth Biology of Meat Animals (2) Growth and development of meat-producing animals; skeletal muscle, adipose tissue, and bone; protein turnover, lipid metabolism, and bioenergetics; regulation of animal growth.

ANSC 687 Advanced Laboratory Techniques (3) (1 Lec, 2 3-hr Lab) Advanced laboratory techniques used in food science and human nutrition research. Pre: BIOC 441 and BIOC 441L, or FSHN 477, or MBBE 402 and 402L. (Cross-listed as FSHN 687 and MBBE 687)

ANSC 699 Directed Research (V) Pre: consent.

ANSC 700 Thesis Research (V)**Anthropology (ANTH)**

College of Social Sciences

Most 300- and 400-level courses have as a prerequisite one of the 200-level courses. If passed with a grade of A or B, or upon written consent of instructor, ANTH 150 may be substituted. Additionally, 300- and 400-level courses may be taken for graduate credit with prior approval of the student's adviser.

ANTH 150 Human Adaptation (3) Human variation, physical and cultural, examined for its adaptiveness. Alternative explanations of human behavior; implications for future. For nonmajors. **DS**

ANTH 151 Emerging Humanity (3) Introduction to the paleontology of human biological evolution and the archaeology of culture in the world prior to AD 1500. **FG**

ANTH 152 Culture and Humanity (3) Introduction to cultural anthropology. How human groups have come to terms with, modified, and even created their physical, social, natural, and supernatural environments, and endowed their lives with meaning and order. Open to nonmajors. A-F only. **FG**

ANTH 160 World Prehistory (3) Survey based on archaeological evidence of human diversification and spread over past four million years; development of agriculture; origin of ancient civilizations. **DH**

ANTH 200 Cultural Anthropology (3) Nature of culture; introduction to basic concepts for analyzing cultural behavior; patterning, integration, and dynamics of culture; culture and the individual. **DS**

ANTH 210 Archaeology (3) Introduction to prehistoric archaeology; methods and techniques of excavation and laboratory analysis; brief survey of theory in relation to change and diversity in prehistoric human groups. **DS**

ANTH 215 Physical Anthropology (3) Human evolution, primatology, human genetics, biological variation, human adaptability, growth and development. Co-requisite: 215L. **DB**

ANTH 215L Physical Anthropology Laboratory (1) Laboratory to accompany 215. Co-requisite: 215. **DY**

ANTH 300 Study of Contemporary Problems (3) Significance of anthropology for contemporary affairs, particularly American ethnic and minority group relations. Relevance to various professions, governmental policy, political action, and accomplishment of change. **DS**

ANTH 303 Technology and Culture (3) Theory of culture and technology; development of technology in context of cultures since the stone ages. The present and future are considered. Pre: one of 150, 200, 210, or consent. **DS**

ANTH 305 History of Anthropology (3) Development of anthropological ideas, focusing on theoretical issues concerning culture, society, and human nature. Required of majors. Pre: 200. **DS**

ANTH 307 Theory in Contemporary Anthropology (3) Theoretical issues that have generated current research and controversies in more than one specialty within social/cultural anthropology; historical roots. Pre: 200 or consent. **DS**

ANTH 308 American Culture (3) Contemporary culture of the United States. Variations in kinship, family, work, play, values, religion; selected topics such as ethnicity, alternate lifestyles, consumerism, addiction. Pre: 150, 200, or consent. **DH**

ANTH 310 Human Origins (3) Theory of evolution, evolutionary systematics, and taxonomy; evolutionary biology of primates; fossil records for primate and human evolution. Laboratory included. Pre: 215, ZOOL 101, or consent. **DB**

ANTH 313 Visual Anthropology (3) Historical development of documentary films of non-Western peoples; critical examination of ways in which ethnographic films represent different cultures. Pre: 150 and 200, or concurrent; or consent. **DH**

ANTH 315 Sex and Gender (3) Cross-cultural theories and perceptions of sexual differences; linkage between biology and cultural constructions of gender; relationship of gender ideology to women's status. Pre: 200 or consent. (Cross-listed as WS 315) **DS**

ANTH 316 Anthropology of Tourism (3) Anthropological perspectives on the subject of the global phenomenon of tourism. Includes issues of cultural performance, identity, and commoditization. Open to nonmajors. **DS**

ANTH 321 World Archaeology I (3) Archaeology of human origins, early cultures, and origins of agriculture. Pre: 210 or consent. **DH**

ANTH 322 World Archaeology II (3) Archaeology of complex societies, including the rise of urbanism, state-level society, historical and industrial archaeology. Pre: 210 or consent. **DH**

ANTH 323 Pacific Island Archaeology (3) Origins of Pacific peoples; chronology of settlement; sequences of culture in Australia, Melanesia, Micronesia, and Polynesia. Pre: 200 or consent. **DH**

ANTH 330 Social Organization (3) Systematic study of human institutions; general principles of social interaction formulated from ethnographic data. Pre: 200 or consent. **DS**

ANTH 335 Anthropology of Aging (3) Sociocultural factors of aging in different societies as a background for a more detailed exploration of the culture of aging in American culture. Pre: 150, 200, or consent. **DS**

ANTH 340 Primate Behavior and Ecology (3) Comparative survey of social behavior and ecology of free-ranging nonhuman primates in natural habitat; topical aspects, methods, relevance to human behavior and anthropology. Pre: one of 150, 200, BIOL 172, PSY 100, ZOOL 101, or consent. **DS**

ANTH 345 Aggression, War, and Peace (3) Biocultural, evolutionary, and cross-cultural perspectives on the conditions, patterns, and processes of violence, war, nonviolence, and peace. Pre: ANTH 200 or consent. (Cross-listed as PACE 345) **DS**

ANTH 350 Pacific Island Cultures (3) Introduction to cultures of Polynesia, Micronesia, and Melanesia from time of first settlement to emergence of modern nation states. Pre: 200 or consent. **DH**

ANTH 370 Ethnographic Field Techniques (V) Problems and techniques of social-cultural anthropological fieldwork; ethnographic literature; work with informants. Pre: 200 or consent. **DS**

ANTH 380 Archaeological Lab Techniques (4) Laboratory analysis and evaluation of field data; preservation and restoration of artifacts. Preparation for publication. Pre: 210 or consent. **DH**

ANTH 381 Archaeological Field Techniques (V) Archaeological survey and excavations; field trips, mapping, photography. Repeatable once with consent. Pre: 210 or consent. **DH**

ANTH 384 Skeletal Biology (3) Introduction to the human skeleton and methods for analyzing archaeological human remains including age, sex, ethnicity, paleodemography, skeletal and dental variation, paleopathology, population studies. Co-requisite: 384L. **DB**

ANTH 384L Skeletal Biology Laboratory (1) Laboratory to accompany 384. Co-requisite: 384. **DY**

ANTH 385 (Alpha) Undergraduate Proseminar (3) Selected problems in current research. (B) archaeology; (C) ethnography; (D) social anthropology; (E) applied; (F) psychological; (G) biological. Repeatable. Pre: consent. **DS**

ANTH 399 Directed Reading or Research (V) Pre: minimum cumulative GPA of 2.7, minimum GPA of 3.0 in anthropology, or consent.

ANTH 400 Anthropological Statistics (3) Introduction to statistical methods and their use in analysis of anthropological data. Pre: 200, 210, or 215. **DS**

ANTH 414 Introduction to Linguistic Anthropology (3) Introduction to ethnographic study of speech and language. Pre: 200 or consent. (Cross-listed as LING 414) **DS**

ANTH 415 Ecological Anthropology (3) Relationship of humans with natural environment; role of culture in ecological systems. Pre: 200 or consent. **DS**

ANTH 416 Economic Anthropology (3) Analysis of economic activities in non-Western, non-industrial societies; production, distribution, and consumption of goods and services in a variety of cultures. Pre: 200 or consent. **DS**

ANTH 417 Political Anthropology (3) Character of political institutions and their development in non-Western and non-industrial societies. Pre: 200 or consent. **DS**

ANTH 418 The Anthropology of Homosexualities (3) An anthropological examination of homosexualities; consideration of nature/nurture in the origins and expressions of identity and sexuality; social and political aspects of homophobia; queer theory. A-F only. Pre: 200. **DS**

ANTH 420 Communication and Culture (3) Anthropological introduction to communication; intercultural and interspecies comparisons; verbal and nonverbal. Ethnography of communication, discourse and structural analyses, ethnomethodology. Pre: 200 or consent. **DS**

ANTH 421 Anthropology and Mass Media (3) Anthropological critique of mass media research; role of mass media in social and cultural processes of authority, economic exchange, and identity formation in Western, nonwestern, and global contexts. A-F only. Pre: 200 or consent. **DS**

ANTH 422 Anthropology of Religion (3) Myth, witchcraft, symbolism, values, ritual, spirit possession, shamanism, religious healing, and millennial cults in primitive, folk, and urban societies. Pre: 200 or consent. (Cross-listed as REL 422)

ANTH 423 Social and Cultural Change (3) Various approaches to examples of social and cultural change in non-literate societies; evolution, diffusion, acculturation, revolution, etc. Historical features and social processes of colonialism. Pre: 200 or consent. **DH**

ANTH 424 Culture, Identity, and Emotion (3) The interrelation of culture, thought, emotion, and social realities. Role of language and culture in shaping emotional experience and self-understanding, including the formation of social identities such as gender, ethnicity and nationality. Pre: 150 or 200, or consent. **DS**

ANTH 425 Medical Anthropology (3) Social and cultural aspects of medicine; the relationship of medicine to the beliefs, social systems, ecological adaptations, and cultural changes of human groups. **DS**

ANTH 426 Folk Medicine: Cross-Cultural Studies (3) Comparative study of folk (traditional) medical systems in diverse settings, with attention to the relationships among belief systems and medical practices, including biological outcomes. Pre: 150, 200, or consent. **DS**

- ANTH 427 Food, Health, and Society (3)** How human groups identify, collect, create, and transform foods; how they shape those into dietary behaviors, and the influence of those behaviors on health. Pre: 150 (or concurrent) or 200 (or concurrent), or consent. **DS**
- ANTH 430 Human Adaptation to the Sea (3)** How people from prehistoric to modern times have sailed, fished, or otherwise exploited and enjoyed the sea; how the sea has molded human life. Pre: upper division standing or consent. **DS**
- ANTH 432 Human Adaptation to Living in Space (3)** Plans for establishing space settlements; implications for humanity of migration into solar system and beyond. Pre: 150, ASTR 281, or consent. **DS**
- ANTH 435 Human Adaptation to Forests (3)** Cultural ecology of human societies in forest habitats. Emphasis on case studies of traditional and changing adaptations in the tropics. Pre: 200 (or concurrent) or consent. **DS**
- ANTH 446 Southeast Asian Cultures (3)** Cultures of Southeast Asia from hunting and gathering groups to high civilizations; kinship, economic, political, and religious systems; recent developments. Pre: 200 or consent. **DS**
- ANTH 447 Polynesian Cultures (3)** Analysis of Polynesian cultures from their origins to contemporary states. Pre: 200 or consent. **DS**
- ANTH 448 Micronesian Cultures (3)** Intensive survey of Micronesian societies, with emphasis on physical and cultural environment and processes of change from initial colonization to the present. Pre: 200 or consent. **DS**
- ANTH 449 Melanesian Cultures (3)** Belief systems, economic organization, and social and political structures in Melanesia; examination of selected societies; analysis of rise of nationalism and independence. Pre: 200 or consent. **DS**
- ANTH 450 Physiological Anthropology (3)** Human variation; ecological factors; biological and cultural response to heat, cold, altitude, diet, disease, urbanization. Lab exercises in data collection under field conditions. Pre: 215, PHYL 103, or consent. (Cross-listed as PHYL 450) **DB**
- ANTH 455 Human Biology of the Pacific (3)** Human biology of prehistoric and living populations of the Pacific: mainland and island Southeast Asia, Australia, Melanesia, Micronesia, and Polynesia. Fossil humans, microevolution, human variation, origins. Pre: 215 or consent. **DB**
- ANTH 458 Forensic Anthropology (3)** Application of physical anthropology to problems in human identification. Determination of age, sex, ancestry, etc., of the skeleton and preparation of reports for legal medicine. Pre: 384 (or concurrent) or consent. **DB**
- ANTH 461 Southeast Asian Archaeology (3)** Prehistory and protohistory of Southeast Asia and of Southeast Asian contacts with East Asia, India, Australia, and Oceania. Pre: 210 or consent. **DH**
- ANTH 462 East Asian Archaeology (3)** Prehistory and protohistory of China, Japan, and Korea from earliest human occupation to historic times. Geographical emphasis may vary between China and Japan/Korea. Pre: 210 or consent. **DH**
- ANTH 463 South Asian Archaeology (3)** Archaeological perspective on the South Asian past. Covers earliest human occupation to the period of British colonialism. Topics include the beginnings of agriculture, urbanism, and the interaction of the diverse peoples of South Asia. Pre: 210 (or concurrent) or consent. **DH**
- ANTH 464 Hawaiian Archaeology (3)** Archaeological perspective in Hawai'i's past; origins of Hawaiians; early settlement and culture change; settlement patterns and material culture; historic sites preservation. Pre: 210 and consent. **DH**
- ANTH 468 Archaeological Theory and Interpretation (3)** Introduction to theory in archaeology; interpretive paradigms; the relation of archaeological methods to interpretation and evaluation of theories. Pre: 210. **DH**
- ANTH 469 History of Archaeological Thought (3)** Historical survey of archaeology as a discipline; focusing on theoretical, methodological, and substantive advances that changed archaeology. Pre: 210 or consent. **DS**
- ANTH 470 Folklore (3)** Theory and method of comparative and analytical folklore study, with special applications to Pacific traditions. Pre: 200 or consent. (Cross-listed as IP 470) **DS**
- ANTH 472 Ceramic Analysis in Archaeology (3)** Concepts, methods, and approaches used in the analysis of ancient pottery. Emphasis placed on ceramic technology, stylistic analysis. Pre: 210 or consent. **DH**
- ANTH 473 Lithic Analysis in Archaeology (3)** How archaeologists infer procurement, production, distribution, and use of lithic resources, with emphasis on the manufacturing process. Includes lab for replicating prehistoric technologies. Pre: 210 or consent. **DH**
- ANTH 474 Geoarchaeology (3)** Field and laboratory analysis of sediments and soils in 98 environments, site formation, post-depositional processes, landscape change, and paleogeomorphic reconstruction. Pre: 210 or consent. **DP**
- ANTH 475 Faunal Analysis in Archaeology (3)** Analysis of archaeologically recovered faunal collections with emphasis on identification and interpretation of nonhuman vertebrate remains. Pre: 210 or consent. **DH**
- ANTH 476 Paleobotanical Analysis (3)** Paleobotanical analysis is directed toward the understanding of human-plant relationships and their change through time. Theoretical and methodological consideration of pollen, phytoliths, wood charcoal, seeds, and other macro-plant remains in archaeology. Pre: 210 or consent. **DH**
- ANTH 480 (Alpha) Anthropological Applications (3)** Anthropological theory, method, and data applied to problems in specialized fields. For students in professional fields who lack anthropological background; (B) development; (C) health; (D) education. (480D cross-listed as EDEF 480) **DS**
- ANTH 481 Applied Anthropology (3)** Methods and results in application of anthropological concepts to the practical problems of agricultural, commercial, and industrial development. Pre: 200 or consent. **DS**
- ANTH 482 Okinawan Culture (3)** Ryukyuan culture, society, and personality; family, community, kin group, class, religion, values, and socialization. Cultural relationships with Japan, Korea, China, and Taiwan. Pre: upper division standing or consent. **DS**
- ANTH 483 Japanese Culture and Behavior I (3)** Sociocultural factors in Japanese behavior. Social structure; traditional institutions. **DS**
- ANTH 484 Japanese Culture and Behavior II (3)** Sociocultural factors in Japanese behavior. Behavior patterns; cultural values, norms, and beliefs. **DS**
- ANTH 485 Pre-European Hawai'i (3)** Pre-European society and culture from an anthropological viewpoint. Pre: 200 or consent. **DH**
- ANTH 486 Peoples of Hawai'i (3)** Historic and contemporary society and culture from an anthropological viewpoint. Pre: 200 or consent. **DS**
- ANTH 487 Philippine Culture and Society (3)** Patterns of belief and behavior among peoples of the Philippines; development, persistence, and change of institutions. Pre: upper division standing or consent. **DS**
- ANTH 488 Chinese Culture: Ethnography (3)** Critical interpretations of ethnographic and biographic texts depicting individual and family lives in different socioeconomic circumstances, geographical regions, and historical periods of modern China. **DS**
- ANTH 489 Chinese Culture: Current (3)** Contemporary topics including the modern revolution, ideology, work, popular Confucianism, entrepreneurial activities, emigration, overseas settlements. **DS**
- ANTH 490 Teaching Human Adaptation (6)** For anthropology majors who lead, under supervision, a freshman seminar section of 150. Pre: senior standing and consent.
- ANTH 491 Teaching Cultural Anthropology (6)** For anthropology majors who lead, under supervision, a freshman seminar section of 200. Pre: senior standing and consent.
- ANTH 495 Senior Thesis (3)** Preparation of a major paper with a committee of one chairperson and one other member; paper on topic of interest in anthropology. Optional for majors. Pre: 305 or consent, and senior standing. **DS**
- ANTH 496 Senior Thesis (3)** Preparation of a major paper with a committee of one chairperson and one other member; paper on topic of interest in anthropology. Optional for majors. Pre: 305 or consent, and senior standing. **DS**
- ANTH 500 Master's Plan B/C Studies (1)**
- ANTH 601 Ethnology (3)** Survey, in historical perspective, of theory in social and cultural anthropology. A course in the graduate core of anthropology. Pre: graduate status and consent.
- ANTH 602 Linguistic Anthropology (3)** Investigation of mutual influences of linguistic theory and methodology and anthropological theory and methodology. A course in the graduate core of anthropology. Pre: LING 102, graduate status, and consent.
- ANTH 603 Archaeology (3)** Development of critical and analytical skills in assessment of archaeological literature; emphasis on the science, theory, explanation, and paradigms that comprise archaeology. A course in the graduate core of anthropology. Pre: graduate status and consent.
- ANTH 604 Physical Anthropology (3)** Human evolution and human variability in extant and previously existing populations; emphasis on

history of physical anthropology, evolutionary systematics, primate biology and behavior, paleontology, anthropological genetics, climatic adaptation, growth, and nutrition. A course in the graduate core of anthropology. Pre: graduate status and consent.

ANTH 605 Discursive Practices (3) Emphasizes linguistic, semantic, and interactional aspects of culture, exploring ways that discourse constructs social action and social realities, examining processes by which culture is produced as meaningful behavior in actual situations. Pre: graduate status.

ANTH 606 Anthropology of Infectious Disease (3) The role of human behavior, including its social and cultural determinants, in understanding the distribution of infectious diseases and in shaping preventive and therapeutic strategies. Pre: graduate status or consent.

ANTH 608 History and Memory (3) History and collective memory as culturally formed and politically contested realities. The role of narrative, ritual, and media technologies in shaping representations of the past. Pre: consent.

ANTH 607 The Media and Discursive Practice (3) Role of the mass media in constructing meaning in social cultural processes such as nationalism, ritual, identity, and collective memory. Attention to interactional and poststructural theories of discourse that link the mass media to discursive practice. A-F only.

ANTH 610 Anthropology of Tourism (3) Social and cultural analysis of tourism practices, with emphasis on Hawai'i, Asia and the Pacific. Tourism in relation to consumer culture, transnational flows of people and images, post-colonial politics, performance and identity formation.

ANTH 620 (Alpha) Theory in Social and Cultural Anthropology (3) Major theoretical problems in (B) kinship; (C) cognitive systems; (D) religion; (E) political institutions; (F) law and social control; (G) economics; (H) ecology; (I) other to be announced. Repeatable. Pre: consent.

ANTH 632 Field Study of Population (3) Concepts and techniques in field study of non-literate (tribal and peasant) populations. For graduate students in the social sciences planning field research that involves taking a census. Pre: consent. (Cross-listed as GEOG 632)

ANTH 635 History in Anthropological Interpretation (3) Historical research involving archaeological, anthropological, linguistic, documentary, and oral historical forms of evidence. Emphasis on interpretation and methodology. Pre: consent.

ANTH 640 (Alpha) Methods and Theory in Archaeology (3) Focused seminars pertaining to distinct areas of archaeological method and theory. (B) analytical; (C) environmental; (D) ethnoarchaeology; (E) economic; (F) underwater. Repeatable twice. Pre: 603 or consent.

ANTH 645 Historic Preservation (3) Federal, state, and local laws and regulations that regulate and provide protection to significant archaeological and historical resources in Hawai'i and the region. Pre: 210.

ANTH 650 Women and Culture (3) Cultural diversity and uniformity in the sex-linked role repertoire, interaction, exchange, rituals,

symbolization, role reversal, life cycle, socialization, personality, stress, pathology, acculturation, and movement. Pre: classified graduate standing and consent.

ANTH 668 Maritime Archaeology Techniques (6) (5 7-hr Lab) Laboratory and field training in the principles and practice of methods of maritime archaeology—coastal habitations, shipwrecks, waterlogged artifacts; survey, mapping, excavation, conservation. Summer only, full-time. Repeatable. Pre: 210 or consent. (Cross-listed as OEST 668)

ANTH 699 Directed Reading or Research (V) Pre: classified graduate standing and consent.

ANTH 700 Thesis Research (V) Research for master's thesis.

ANTH 710 Seminar in Research Methods (3) Theory construction and research design in social and cultural anthropology; techniques for collection, processing, and evaluation of data. For students preparing research. Repeatable. Pre: classified graduate status in anthropology or consent.

ANTH 712 Data Processing in Anthropology (3) Techniques of data retrieval; strategies of fieldwork and data analysis for identifying, sampling, and processing large bodies of materials. Repeatable. Pre: classified graduate standing and consent.

ANTH 720 Anthropology of Japan (3) Japan examined through three dimensions of cultural anthropology: cultural/symbolic, social/organizational, and individual/psychological. Selected topics analyzed and interpreted in terms of conjunctions of these dimensions. Pre: 483 or 484; or consent.

ANTH 750 (Alpha) Research Seminar (3) Selected problems in current research. (B) archaeology; (C) medical; (D) ethnography; (E) social; (F) psychological; (G) biological. Pre: classified graduate status and consent.

ANTH 800 Dissertation Research (V) Research for doctoral dissertation.

Apparel Product Design and Merchandising (APDM)

College of Tropical Agriculture and Human Resources

APDM 101 Introduction to APDM (2) Introduction to the fields of apparel design and merchandising including theories of fashion change, apparel industry operations, current industry operations, literature of the field, professional competencies, careers in apparel and related businesses.

APDM 111 Apparel Product Aesthetics (3) Introduction to design elements, principles of design organization, apparel quality assessments, and factors influencing aesthetic judgements of apparel and fashion-related products; apparel product terminology.

APDM 200 Culture, Gender, and Appearance (3) Social construction of gender within culture and its visual expression through appearance. Analysis of role, identity, conformity, and deviance in human appearance. Open to nonmajors. (Cross-listed as WS 200) **DS**

APDM 201 Fashion Promotion (3) Principles and practices in fashion advertising, visual merchandising, publicity and public relations, and fashion show production in apparel and related businesses.

APDM 205 Basic Apparel Construction (4) (3 Lec, 1 3-hr Lab) Principles, concepts, and procedures for quality construction and custom fitting of clothing.

APDM 215 Block Pattern Designing (3) (2 Lec, 1 3-hr Lab) Principles of pattern making for women's apparel through manipulation of pattern blocks. Pre: 205 or consent.

APDM 216 Fashion Illustration I (3) (2 Lec, 1 3-hr Lab) Principles and techniques of sketching the fashion figure including garment details and fabric drape. Development of a personal style of illustration. Introduction to use of computers for illustration. Pre: 111 or consent. **DA**

APDM 221 Textile Fundamentals (4) (3 Lec, 1 3-hr Lab) Physical properties, structures, and finishes of textiles used in apparel and home furnishings. Government and agency requirements affecting textiles. Pre: 101 or consent. **DP**

APDM 237 Pattern Grading (3) Principles of proportionally increasing or decreasing a master pattern according to a prescribed set of body measurements. Application includes basic, intermediate, and advanced designs. Use of computerized grading program. Pre: 215.

APDM 301 Fashion Forecasting/Marketing (3) Principles and practices in fashion trend forecasting. Fashion elements in apparel company marketing strategies. Adapting trend forecasts to apparel lines. Pre: 101, 111, and economics; or consent.

APDM 310 Western World Fashion History (3) Historic study of dress as related to customs and cultures in the Western world, in socio-historical and contemporary contexts. Emphasis on 19th and 20th centuries. Pre: 200, HIST 151, and HIST 152; or consent.

APDM 315 Draping (3) (2 Lec, 1 3-hr Lab) Principles of pattern making through draping muslin models on standard garment forms. Pre: 215 or consent.

APDM 316 Advanced Pattern Design (3) (2 Lec, 1 3-hr Lab) Further study of flat pattern methods and industrial practices for fashion design majors. Use of CAD. Pre: 315.

APDM 318 Fashion Illustration II (3) (2 Lec, 1 3-hr Lab) Advanced study in the illustration of the fashion figure. Personal interpretation of the techniques of fashion illustration. Use of CAD. Pre: 216 or life drawing. **DA**

APDM 330 Advanced Apparel Construction (3) (2 Lec, 1 3-hr Lab) Principles of advanced techniques for garment construction with emphasis on new, difficult-to-handle fabrics. Pre: 205 or consent.

APDM 350 Embellishments (V) Emphasis on design principles as applied to stitchery using a variety of techniques and raw materials. Processes and problems experienced and critiqued in a group environment. Repeatable. Pre: 205 or consent. **DA**

APDM 370 Interior Design Fundamentals (3) Aesthetic, social, and functional aspects of selection, layout, and furnishing of home interiors; application of principles of design to family living situations. Pre: ART 101 or consent.

APDM 371 Retail Buying and Merchandising (3) Theories and procedures in selecting, buying and selling apparel and textiles. Types of merchandising organizations, analysis of consumer demand, brick-and-click opportunities and challenges, development of an image, operation location, store and floor layout. Pre: 301 and BUS 312; or consent.

APDM 372 Case Studies in Merchandising (2) Analysis of fashion merchandising problems, including the weighing of data, disciplined thinking, and arriving at meaningful conclusions. Case study method used. Co-requisite: 371.

APDM 375 Merchandise Planning and Control (3) Theories, problems, and procedures of financial and assortment planning and control of merchandise inventories. Pre: 371, ACC 201, and MATH 100 (or equivalent), and TXCL program math competency test.

APDM 380 Shelter and Society (3) Development and characteristics of traditional shelter and furnishings in relation to culture and customs with focus on Hawai'i, the Pacific Basin, and Asia. Pre: consent.

APDM 401 Clothing and Society (3) Seminar in sociological, psychological, and economic implications of clothing and adornment for the individual and society. Historic and contemporary perspectives. Pre: 301 and consent. **DS**

APDM 410 Ethnographic Dress (3) Development of ethnic dress as representative of ethnic group status throughout the world. Focus on non-western and Asian ethnic groups. Pre: 200, HIST 151, and HIST 152; or consent.

APDM 416 Costumes/Cultures of East Asia (3) Development of traditional dress as visual manifestation of culture. Ethnic and national dress of China, Japan, Korea, Mongolia, Okinawa, Tibet, and Vietnam. Pre: 200, HIST 151, and HIST 152; or consent.

APDM 418 Costumes of South and Southeast Asia (3) Development of traditional dress as visual manifestation of culture. Ethnic and national dress of Afghanistan, India, Indonesia, Malaysia, Pakistan, Philippines, Thailand and Saudi Arabia. Pre: 200, HIST 151, and HIST 152; or consent.

APDM 419 Apparel Design Studio I (3) Development of independent expression through creative designing for a ready-to-wear collection. Problem solving in the design process; includes sketching, draping, blocking, muslin proofs, complete garments, and portfolio. Studio courses must be taken in sequence. Pre: 301, 310, 316, 320, 330, and either 416 or 418; or consent.

APDM 420 Apparel Design Studio II (V) Continuation of 419.

APDM 430 Fashion Promotion Studio (V) Application of principles and procedures related to the promotion of fashion apparel. Preparation and presentation of fashion information through shows, displays, media, and written communications. Repeatable. Pre: consent.

APDM 437 Brick and Click Retail (3) Application of principles, procedures and techniques of organizing a small retail business in a brick-and-click world. Creative use of low and high tech resources. Students plan, write and evaluate small retail business plans. Pre: 375 and consent.

APDM 460 Costume Collections Management (3) Investigation of skills/techniques for handling textile and apparel artifacts in museums. Students will document, research, interpret, and exhibit costumes and textiles. Hands-on management and policy-making experience. Pre: 310, 410, 416, 418, or consent.

APDM 471 International Apparel Trade Issues (3) Theories, concepts, problems of international trade of textile and apparel products. Issues of importing and exporting apparel products globally. Social, political and economic factors affecting textile and apparel trade. Pre: 371 or consent.

APDM 491 Topics in APDM (V) Study and discussion of special topics, problems. Offered by staff and visiting faculty. Repeatable.

APDM 492 Internship (4) Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/employer. Pre: senior standing and consent.

APDM 496 Field Study in APDM (V) Study tours to various centers of the world to examine historical and modern apparel and textiles. Merchandising and design methods and operations examined. Repeatable. Pre: consent.

APDM 499 Directed Reading and Research (V) Pre: consent.

APDM 699 Directed Reading and Research (V) Pre: consent and graduate standing.

Arabic (ARAB)

College of Languages, Linguistics and Literature

ARAB 101 Elementary Modern Standard Arabic (4) This course is designed to provide students with basic knowledge of Modern Standard Arabic. The course focuses on developing proficiency in the standard written Arabic language, as well as formal spoken Arabic. **HSL**

ARAB 102 Elementary Modern Standard Arabic (4) This course focuses on developing proficiency in the standard written Arabic language as well as formal spoken Arabic. It introduces a wide range of situation-based texts and topics that build vocabulary, grammar, and general communicative competence. Pre: 101. **HSL**

ARAB 201 Intermediate Modern Standard Arabic (4) This course is designed for students who have successfully completed a year of Elementary Arabic. Focus is on acquisition of more complex grammatical structures, expanding vocabulary, and developing competence in a wide range of communicative situations. Pre: 101 and 102, or consent. Fall only. **HSL**

ARAB 202 Intermediate Modern Standard Arabic (4) This course is designed for students who have successfully completed three semesters of Arabic. Focus is on intensive practice of interactive functional skills such as listening comprehension and fundamental conversation strategies. Pre: 101, 102, and 201. Spring only. **HSL**

Architecture (ARCH)

School of Architecture

All courses except 100, 241, 251, 261, 271, and 272 are restricted to declared architecture majors, unless otherwise specified. Exceptions must have prior approval of the associate dean or dean.

ARCH 100 Introduction to the Built Environment (3) Broad exploration of creative human responses to place, climate, culture, communication, technology, and time. A study of the human-environment relationship with emphasis on the impact of scientific knowledge and architectural design theory on history, culture, sociology, technology and the built form. **DS**

ARCH 101 Basic Architecture Studio A (4) Perception, design and communication. Exploration of human perception, including multi-sensory reception, interpretation of sensory input by the brain, and emotional and cultural factors. Elements and principles of basic two and three-dimensional design concepts. Formal/spatial exercises that explore elements, surfaces, measure and order in both graphic and architectonic contexts. Analytical exercises which examine both existing and self-created orders and studio activities involving thinking, reading, writing, drafting, model making, and especially drawing (freehand, with instruments and computer). A-F only. Pre: consent. **DA**

ARCH 102 Basic Architecture Studio B (4) Materials, design and communication. Hands-on exploration of various materials and construction techniques and an introduction to various design processes as systematic approaches to solving architectural/environmental design problems. Analysis of architecture as the creation of spaces generated by human needs and aspirations and developing concepts to explore and achieve innovative solutions responding to these needs. Studio activities involving thinking, reading, writing, model making and a variety of communication techniques, with emphasis on the delineation of 3-D spaces using perspective drawing techniques, light notation and computer modeling. A-F only. Pre: 100 and 101, or consent. **DA**

ARCH 121 Design Drawing (3) Drawing techniques as necessary tools of design process. Orthographic projection, paraline, other mechanical drawing skills. Perspectives, shades, and shadows. Pre: 122 or ART 113 (or concurrent). **DA**

ARCH 122 Freehand Drawing (3) Basic freehand drawing in black and white media. Contour, gesture, perspective, and value delineation based on careful observation of actual subject. Emphasis on use of drawing as a tool for visualization and communication. **DA**

ARCH 200 Professional Practice of Architecture (3) Introduction to the professional practice of architecture with emphasis on the Asia/Pacific context. Explorations of architects' responsibilities and privileges, how, and with whom they collaborate to accomplish their work. Introduction of professional ethics, attitude, and communication skills; practice formation and organization; and the project delivery process. Exposure to design and practice management, planning and engineering innovations, information and construction technology advancements, and related built environment issues. Includes presentation by practitioners and project case studies. A-F only. Co-requisite: 201 (for architecture majors). Pre: 100 and 201 (or concurrent for architecture majors); or consent.

ARCH 201 Intermediate Architecture Studio A (4) Emphasis on space planning and introduction to building materials and technology and statutory requirements (building codes, life safety issues, etc.). Problems dealing with fairly complex functional requirements, multi-story design issues, vertical transportation, interior finishes, etc.. Production of schematic designs and introduction to design development. A-F only. Co-requisite: 200. Pre: 102, 200 (or concurrent), 235, 235L, and ART elective; or consent. **DA**

ARCH 202 Intermediate Architecture Studio B (4) Architecture design with emphasis on site development and analysis and response to climate and other environmental factors. Site analysis techniques; introduction to passive systems, sustainability and statutory requirements (zoning, land use ordinances, etc.); description and delineation of property and land features; understanding of neighborhoods, regions, community based issues, etc.. A-F only. Co-requisite: 218. Pre: 200, 201, 218 (or concurrent), and PHYS 151; or consent. **DA**

ARCH 211 Structure in Architecture (4) Analysis and design of elementary structural systems. Statics, determinant structures. Pre: 101 and PHYS 151. **DP**

ARCH 212 Structural Design in Architecture (3) Analysis and design of structural systems and components; strength of materials; seismic and wind forces, indeterminate structures, handbooks, and codes. Basic materials. Pre: 211. **DP**

ARCH 213 Lighting, Illumination, and Power (3) Theory of lighting and lighting design. Artificial light sources as positive design elements. Electrical theory; solar and acoustical considerations. Power sources and equipment; integration into design process. Pre: 201 and PHYS 152. **DP**

ARCH 214 Mechanical Systems (3) Occupant comfort (environmental and ambulatory) in buildings: heating, ventilation, air conditioning, vertical transportation. Pre: 201 and PHYS 152. **DP**

ARCH 218 Introduction to Architecture Systems (3) Introduction to the basic systems that affect architectural design, including structural, environmental, life-safety, building envelope, building materials and assemblies. Develop the fundamental skills of teamwork to collaborate with others, and design, with the ability to assess, select and integrate these systems into building design. A-F only. Co-requisite: CHEM 151. Pre: MATH 140, PHYS 151, and CHEM 151 (or concurrent); or consent. **DP**

ARCH 221 Color Theory and Application (2) Basic color theory (color wheel, value, complementary mixing, relativity or color, color harmony, etc.); architectural applications using color as primary design element; color media. Open to nonmajors if space available. Pre: 122 or ART 113. **DA**

ARCH 231 Architectural Chemistry (3) Review of organic and inorganic chemistry as it relates to building use and techniques. Pre: MATH 140. **DP**

ARCH 235 Computer Applications in Architecture (2) Fundamentals of computers; general and potential use in architecture. Programming to solve everyday practical problems in planning/design of buildings. Open to nonmajors if space available. Pre: MATH 140. Co-requisite: ARCH 235L. **DA**

ARCH 235L Computer Applications Laboratory (1) Direct use of computers toward applications in architecture. Pre: MATH 140. Co-requisite: ARCH 235. **DA**

ARCH 241 Introduction to Urban Design (3) Principles and practice of urban design within the comprehensive planning process. Sociocultural, economic, political, environmental determinants of urban form and pattern. Open to nonmajors if space available. (Cross-listed as PLAN 240) **DS**

ARCH 251 Introduction to Landscape Architecture (3) Principles and practice of landscape planning, design, and technology. Ecological, sociocultural, and natural science determinants of landscape form and pattern. Open to nonmajors if space available.

ARCH 261 Introduction to Interior Architecture (3) Introduction and orientation to the field. Fundamental design principles and elements as applied to interiors. Basic materials and methods of interior construction; basic professional and business practices. Critical analysis of an existing interior space. Open to nonmajors if space available. **DA**

ARCH 271 World Architecture and Urbanism A (3) The significance of architecture in recording the development and aspirations of societies in the world's major cultural regions, from early agricultural settlements to 1500 C.E. Prerequisite for advanced courses in architectural history and theory. Open to non-majors. **DH**

ARCH 272 World Architecture and Urbanism B (3) The significance of architecture in recording the development and aspirations of societies in the world's major cultural regions, from the 15th century C.E. until the contemporary period. Prerequisite for advanced courses in architectural history and theory. Open to non-majors. **DH**

ARCH 301 Advanced Architecture Studio (4) Design of complex buildings on simple sites and simple buildings on complex sites. Research of specific building types; introduction to building systems and technology. Production of schematic drawings and partial design development documents. A-F only. Pre: 202, 218, CHEM 151, and PHYS 151; or consent. **DA**

ARCH 302 Asia-Pacific Architecture Studio (4) Design of complex buildings on complex sites. Investigation of complex programmatic requirements, building systems and technology. Production of schematic drawings and partial design development documents. A-F only. Pre: 271, 272, 301, 315, 316 (or concurrent), 317, and 318 (or concurrent); or consent. Co-requisite: 316 and 318. **DA**

ARCH 311 Advanced Structural Design in Architecture (3) Analysis and design of advanced structural systems and components; integration into total design. Codes, seismic and wind forces, concrete and steel. Computer applications. Pre: 212. **DP**

ARCH 313 Hydraulic Systems (2) Water, sanitary, and storm sewage and systems that transport them. Pipes and piping materials, plumbing, fire protection devices. Solar energy applications. Pre: 201 and PHYS 152.

ARCH 315 Lighting, Power, Acoustical Systems (3) Qualitative and quantitative issues of natural and artificial lighting, natural and manufactured power, and natural and reinforced acoustical

systems, and the desirable and appropriate applications to building design. A-F only. Pre: 218 or consent. **DP**

ARCH 316 HVAC and Mechanical Systems (3) Qualitative and quantitative issues of mechanical systems, including heating, natural ventilation, air conditioning, hydraulics, vertical transportation, security and fire protection systems, and the desirable and appropriate applications to building design. A-F only. Pre: 218 or consent. **DP**

ARCH 317 Structure/Material Systems A - Wood (3) Properties, evolution and range of wood and its use in structural systems and the ability to assess, select design, and integrate wood structural systems into building design. A-F only. Pre: 218 or consent. **DP**

ARCH 318 Structure/Material Systems B - Steel (3) Properties, evolution and range of steel and its use in structural systems and the ability to assess, select design, and integrate steel structural systems into building design. A-F only. Pre: 317 or consent. **DP**

ARCH 321 Architectural Presentation Techniques (2) Analysis and application: sepia, mylar, acrylics, perspectives, models, slides, photographs, etc. Pre: 121 or consent. **DA**

ARCH 331 Materials and Methods of Construction A (3) Comprehensive study of materials and systems available in construction industry; methods of assembly to create complete, functional, and safe facilities. Pre: PHYS 151 and PHYS 152. **DP**

ARCH 332 Contract Documentation (3) Preparation of construction documents for a small-scale building. Pre: 202 and 331.

ARCH 334 Materials and Methods of Construction B (3) Continuation of study on materials and systems available in construction industry; methods of assembly to create complete, functional, and safe facilities. Pre: 331. **DP**

ARCH 341 Introduction to Planning (3) Perspectives on planning; planning tools and methods; specific Hawai'i planning/research problems from a multidisciplinary approach. Pre: consent. (Cross-listed as PLAN 310)

ARCH 361 Intermediate Interior Architectural Design B (5) Design of small- to moderate-size interior spaces and relationship to external form. Exercises in detailed program writing. Space planning for existing spaces. Consideration of statutory requirements, building materials, systems and technology, and furniture and equipment. Production of schematic and design development documents. Introduction to construction documents and cost opinions. Pre: 202, 212, 261, and 331. **DA**

ARCH 362 Advanced Interior Architectural Design A (5) Programming and design of moderate- to large-scale spaces, including choice of furnishings and equipment. Development of total interior environments and integration of interior architectural projects for adaptive re-use developments. Production of schematic, design development, partial construction documents, and cost opinions. Pre: 301 or 361, 311, 6 credit hours of English, and two semesters of 200-level foreign or Hawaiian language. **DA**

ARCH 369 Study Abroad: Architectural Study Tour (V) Firsthand examination of the architecture of various countries, with emphasis on experiencing and comprehending significant spaces

within historical, cultural, and physical contexts. Topics and countries visited change with each offering. Open to nonmajors. Repeatable.

ARCH 372 Special Topics in Architectural History and Theory (3) An examination of specific theories, movements, or periods of architectural history. Changing topics to be taught by both regular and visiting faculty. Repeatable. Pre: 271, 272, or 371; and consent. **DH**

ARCH 390 Special Topics (V) Selected topics in any aspect of architecture. Content to be announced. Repeatable. Pre: consent.

ARCH 399 Directed Work (V) Pre: consent.

ARCH 400 Project Management (3) Exploration of the management of architectural services from project initiation through project completion. Investigation of project delivery options; management of project design teams, project operations and services; design parameter definition; design service documentation; and project execution. A-F only. Pre: 200 or consent.

ARCH 401 Asia-Pacific Urban Design Studio (5) Variety of changing topics each semester depending upon faculty's and students' research interests, with exploration of different design issues at the urban scale within the Asia-Pacific region. A-F only. Pre: 302 and 474; or consent.

ARCH 402 Comprehensive Architectural Design (5) Semester-long individual design project. Comprehensive design of moderate-size building. Production of schematic, design development, and partial construction documents and cost opinions. Pre: 401, 8 credit hours of environmental systems, and 7 credit hours of architectural electives. **DP**

ARCH 403 Comprehensive Architecture Design A (5) Assemble comprehensive architectural program including user needs, appropriate precedents, space and equipment requirements, site analysis, laws and standards, site selection, and design assessment criteria. Produce an architectural schematic design, informed by the program, including programmatic spaces, structural and environmental systems, life safety provisions and building assemblies. A-F only. Pre: 213, 214, 311, 313, 334, and 402; or consent. **DP**

ARCH 404 Comprehensive Architecture Design B (5) Continuation of architectural design project in 403. Produce a detailed development of programmatic spaces, structural and environmental systems, life-safety provisions, wall sections and building assemblies, as may be appropriate, and assess the completed project with respect to the program's design criteria. Assess, select, configure and detail as integral part of design, appropriate combinations of building materials, components and assemblies. Make technically precise descriptions and documentation for review and construction purposes. A-F only. Pre: 403 or consent. **DP**

ARCH 405 Selected Design Studio (V) Special architecture/interior architecture problems individually selected by students or faculty to sharpen design skills. Repeatable. Pre: consent.

ARCH 406 Office Research Practicum (3) Learn design research method[s]. Conduct architectural design research under the guidance of a practicing architect in an office setting in an area of the architect's expertise and interest. The experience also exposes students to the professional practice of architecture via shadowing an architect mentor

relative to typical design process activities, communication techniques, and professional ethics issues. A-F only. Pre: 200, 301 or 302; or consent.

ARCH 416 Architectural Acoustics (3) Basic properties and behavior of sound. Principles of room acoustics and noise control. Acoustical design in architecture for sound isolation. Pre: 201 and PHYS 152; or consent. **DP**

ARCH 417 Structure/Material Systems C - Concrete (3) Properties, evolution and range of concrete and masonry and its use in structural systems and the ability to assess, select, design, and integrate concrete and masonry structural systems into building design. A-F only. Pre: 318 or consent. **DP**

ARCH 418 Non-Structural Materials (3) Properties, evolution and range of materials used for non-structural purposes and their applications in building design. A-F only. Pre: 218 or consent. **DP**

ARCH 431 Computer-Aided Design (2) Design theory applications to computer graphics systems and current developments in practice and research. Pre: 202, 235, and 235L. Co-requisite: 431L. **DA**

ARCH 431L Computer-Aided Design Laboratory (1) Use of computer graphics systems in architectural design applications. Pre: 202, 235, and 235L. Co-requisite: 431. **DA**

ARCH 432 Construction Management (3) Design professional's role during the building procurement process, particular emphasis on documentation and construction phases. Analysis of value of professional construction management services. Pre: 202 and 331.

ARCH 434 Professional Practice and Ethics (3) Professionalism, office organization, administration; public, client, consultants, and contractor relations; project administration, procedures, and compensation. Pre: 301 or 361.

ARCH 435 Architectural Economics (3) Survey of fundamental business principles and economic theories as they relate to professional practice for design professionals. Pre: 202. **DS**

ARCH 436 Dean's Seminar (V) Lecture/seminar on professionalism, ethics, design, technology, building performance. Transition from academia to professional practice. Pre: consent.

ARCH 461 Advanced Interior Architectural Design B (5) Programming and design of large-scale, complex spaces, including choice of furnishings, fixtures, equipment, finishes, and color. Development of total interior environments, integrating building systems. Relationship of interior spaces to external form and integration into large-scale, complex architectural solutions. Production of schematic, design development, and partial construction documents and cost opinions. Pre: 302 or 362, 334, 5 credit hours of environmental systems, and 4 credit hours of architecture electives. **DA**

ARCH 462 Comprehensive Interior Architectural Design (5) Semester long individual final design project. Programming and comprehensive design of moderate-size interior space integrated into the larger architectural environment. Production of schematic, design development, and partial construction documents and cost opinions. Pre: 461, 8 credit hours of environmental systems, and 7 credit hours of architectural electives. **DA**

ARCH 472 Documentation of Historic Architecture (V) Study and documentation of existing buildings, structures, and sites of historic and/or cultural significance, including field measurements and drawings, historical research, photo documentation, and preparation of archival drawings to be deposited in the Library of Congress. Documentation conducted according to standards of the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER). Repeatable. Pre: consent. (Cross-listed as AMST 475)

ARCH 473 History of American Architecture (3) History of American architecture in terms of style, techniques, and symbolic meaning. (Cross-listed as AMST 423) **DH**

ARCH 474 Theories of Architecture and Urban Design (3) An overview of major theories of architecture and urban design, covering important individuals and movements, and examining their impact on contemporary architectural practice and on life in a broad range of local, national, Asia-Pacific and international settings. Pre-requisite for advanced electives in architectural history and theory. Open to non-majors and writing intensive. Pre: 272 or consent.

ARCH 477 Research Seminar (V) Research methodology for the qualitative development of an optimum environment. Repeatable. Pre: consent.

ARCH 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: 702, master's Plan B candidate, and consent.

ARCH 502 Comprehensive Architecture Studio A (5) Assemble comprehensive architectural program including user needs, appropriate precedents, space and equipment requirements, site analysis, laws and standards, site selection, and design assessment criteria. Produce an architectural schematic design informed by the program and other design determinants with statement of probable cost of construction. A-F only. Co-requisite: 315, 316, and 417. Pre: 315 (or concurrent), 316 (or concurrent), 401, and 417 (or concurrent); or consent.

ARCH 503 Comprehensive Architecture Studio B (5) Continuation of architectural design project in ARCH 502. Produce detailed design development of programmatic spaces, structural and environmental systems, life safety provisions, wall sections and building assemblies. Assess completed project with respect to program criteria. Make technically precise descriptions and documentation for review and construction purposes. A-F only. Pre: 502 and 518, or consent.

ARCH 504 Practicum Studio A (12) Scholarly pursuit integrated with architecture firm based practical experience under the direction of practicum faculty who is a licensed architect. Investigation of basic project definition proficiencies including office management, project management, programming, site and environmental analysis, schematic design, engineering systems coordination, building cost analysis, and code research. Application of skills based on proficiency areas will include weekly assignments, completion and compilation of professional training and scholarly endeavors, and semester long research projects. CR/NC only. Pre: 503 and 533; or consent.

ARCH 505 Practicum Studio B (12) Scholarly pursuit integrated with architecture firm based practical experience under the direction of

practicum faculty who is a licensed architect. Investigation of basic project execution proficiencies including office management, project management, programming, design development, construction documents, specifications and materials research, document checking and coordination, construction procurement, and construction contract administration. Application of skills based on proficiency areas will include weekly assignments, completion and compilation of professional training and scholarly endeavors, and semester long research projects. CR/NC only. Pre: 503 and 533, or consent.

ARCH 506 Asia-Pacific Topical Architecture Studio B (5) Studio based research and design related to a professional project in architectural design, architectural technology, historic preservation, urban design, or other topics that consults and benefits a specific identified community in the Asia-Pacific region. A-F only. Pre: 504, 505, and 573; or consent.

ARCH 507 Architecture Doctorate Studio A (6) Development of an individual Arch.D. project proposal with an approved advising committee and under the guidance of the faculty coordinator of several committees. This studio encourages interaction between returning practicum students and previously licensed candidates through shared proposal development and research techniques. Pre: 505, 506, and 534; or consent.

ARCH 508 Architecture Doctorate Studio B (6) Development of an individual Arch.D. project proposal with an approved advising committee and under the guidance of the faculty coordinator of several committees. This studio encourages interacting between all graduating candidates through shared research techniques and project development. Co-requisite: 507. Pre: 705 (or concurrent) or consent.

ARCH 533 Professional Practice, Law and Ethics (3) Exploration of the practice of architecture including: professionalism; office organization and administration; public, client, consultant, and other contractor relations; project administration, procedure and compensation; construction law and contract administration. A-F only. Pre: 400 and 503 (or concurrent); or consent.

ARCH 534 Forms and Frames of Practice (3) Comprehensive study of architectural practice as it relates to the varying roles which architects assume in response to societal demands. A look at the changing role of the architect. Architecture as it relates to form and integration within the frame of the global context. A study of diverse architecture practices, especially in the Asia Pacific region. Exploration of creative challenges including the application of information technology systems, materials and design process research, construction technology, computer-aided manufacturing, and entrepreneurial approaches in contemporary practice. A-F only. Pre: 504, 505, and 533; or consent.

ARCH 535 Architecture Doctorate Seminar (3) Assessment of both contemporary and future architectural education, research and practice, by examining existing and evolving consistencies and shared visions that cut across distinct architectural approaches and other disciplines. Conceptual skills in the production of architecture that links environmental concerns with advances in building construction, computational and informational technologies. It includes the study of collaboration

in design and on the technologies and spaces that support it; the study of encoding design knowledge in material resolution. Pre: 474 or consent.

ARCH 536 Architecture Doctorate Seminar: Science and Environment (2) Conceptual skills in the production of architecture that links environmental concerns with advances in building construction, computational and informational technologies. It includes study of collaboration in design and on the technologies and spaces that support it; the study of encoding design knowledge in material resolution. Pre: 535 or consent.

ARCH 573 Asia-Pacific Architecture and Culture (3) To provide both theoretical and historical basis for the built environment of the Asia-Pacific region. A-F only. 271 and 272 and undergraduate language core; or consent.

ARCH 600 Research Methods Seminar (3) Comprehensive review and assessment of objectives, role, and function of research in architecture. Lecture, seminar, and independent study. Pre: graduate standing or consent.

ARCH 625 Material Culture (3) Physical artifacts considered as documents of American cultural and regional development. (Cross-listed as AMST 625)

ARCH 627 The American City (3) Urban life and culture in contemporary and historical perspective; emphasis upon promises and problems of city in American culture. (Cross-listed as AMST 627 and HIST 639E)

ARCH 628 Preservation: Theory and Practice (3) History and philosophy of historic preservation movement. Analysis of values and assumptions, methodologies and tactics, implications for society and public policy. (Cross-listed as AMST 675 and PLAN 675)

ARCH 640 Urban Form (3) City spatial organization; principles of neighborhood, town, and city design and planning; spatial dimension of building and land use. Pre: PLAN 640 or consent. (Cross-listed as PLAN 646)

ARCH 641 Land Use Planning (3) Theory and practice; selected modes of land use analysis; growth management strategies. Pre: PLAN 600 and PLAN 601, or consent. (Cross-listed as PLAN 640)

ARCH 642 Urban Design Studio (6) Group experience in defining urban and regional design problems and potentials in developing and evaluating alternative schemes and formulating strategies for implementation of planning and design solutions. Pre: 641 or consent.

ARCH 650 American Vernacular Traditions (3) Methods and approaches in the study of vernacular architecture, cultural landscapes and material culture, with an emphasis on traditions and innovations in the Americas. (Cross-listed as AMST 681)

ARCH 671 American Architecture (3) Cultural analysis of the evolution of American architecture from the Colonial period to the present involving socio-political and economic as well as aesthetic considerations. Pre: graduate standing or consent. (Cross-listed as AMST 623)

ARCH 672 Research Studio (5) Activity devoted to specialized focus of student in architectural technology. Emphasis in basic or applied research. Repeatable. Pre: graduate standing or consent.

ARCH 675 Professional Ethics (3) Philosophical and analytical study of professional ethics. Lecture and seminar. Pre: graduate standing in architecture or planning, or consent.

ARCH 680 Community Development (3) Social, physical, ecological, and economic problems of communities in the Pacific Basin; examination of solutions emphasizing the application of community organization and services, environmental management, and appropriate technology to communities. Pre: graduate standing or consent. Co-requisite: 680L. (Cross-listed as PLAN 685)

ARCH 680L Community Development Design Lab (2) Application of social, physical, ecological, and economic data to selected studio problems in the design of communities. Pre: 302 or 362, and consent. Co-requisite: 680.

ARCH 681 Housing Delivery (3) Application of ecology, appropriate technology, and local resources to problems of housing development in Pacific Basin countries; building design and implementation strategies for housing delivery. Pre: 680 and graduate standing, or consent. Co-requisite: 681L. (Cross-listed as PLAN 686)

ARCH 681L Housing Delivery Lab (2) Application of ecology, appropriate technology, and local resources to selected studio problems in the design of housing. Pre: 302 or 362, and consent. Co-requisite: 681.

ARCH 683 Housing and Community Development Practicum (V) Laboratory and field testing of selected topics related to housing design and technology; site development and infrastructure; social, health, and economic community development; and housing implementation strategies. Repeatable. Pre: 680 (or concurrent), 681 (or concurrent), or consent. (Cross-listed as PLAN 683)

ARCH 687 Urban Design in Asia and Pacific (3) Social behavior in urban space; design for individual, society and state functions; urban designing ideas and concepts in the European/American tradition and the variant Asia Pacific traditions. Pre: ASAN 312, PLAN 310 or PLAN 600. (Cross-listed as PLAN 636 and ASAN 636)

ARCH 690 Special Topics Seminar (3) Seminar on a wide range of architectural topics to be directed by both visiting and regular faculty. Repeatable. Pre: consent.

ARCH 691 Special Topics: Architecture History/Theory (V) Specialized work at an advanced level on the history and theory of architecture. Repeatable. Pre: consent.

ARCH 692 Special Topics in Architectural Technology (V) Specialized investigation at an advanced level of technological developments in structural systems, environmental control systems, or materials and methods of construction. Repeatable. Pre: consent.

ARCH 693 Special Topics in Architecture and Design (V) Intensive work on specialized topics in the fields of architecture and design. May include research and/or studio experiences in architecture, interior architecture, computer-aided design, professional practice, advanced visual design, and architectural graphics. Repeatable. Pre: consent.

ARCH 699 Directed Work (V) Pre: graduate standing or consent.

ARCH 700 Thesis Research (V) Pre: completion of graduate requirements or consent.

ARCH 701 Graduate Studio I (6) Planning, programming, and schematic design of a project selected by student as the focus of graduate study with emphasis on the thorough performance of all required tasks. Pre: one of 401, 402, 461, or 462; 600; and consent.

ARCH 702 Graduate Studio II (6) Design development of a project selected by student as the focus of graduate study with emphasis on the thorough performance of all required tasks. Pre: 701 with a grade of B or better, or consent.

ARCH 703 Urban Design and Planning Studio (6) Group experience in defining urban and regional design problems and potentials, developing and evaluating alternatives, formulating strategies for implementation. Pre: 641, PLAN 640, or consent. (Cross-listed as PLAN 754)

AREC

See Agricultural and Resource Economics

Art (ART)

College of Arts and Humanities

It is recommended that art majors complete 113, 115, and 116 of the art required courses prior to undertaking studio courses at the 200 level. Courses labeled repeatable may be taken for a maximum of 6 credit hours unless a second repetition requires department chair's consent.

ART CORE COURSES

ART 101 Introduction to the Visual Arts (3) Nature of the world's visual arts and their influences on quality of life. Lectures, demonstrations. **DA**

ART 113 Introduction to Drawing (3) Descriptive, expressive, and formal aspects of visual language through drawing practice. **DA**

ART 115 Introduction to Two-Dimensional Composition (3) Basic design concepts, elements, and principles of art. **DA**

ART 116 Introduction to Three-Dimensional Composition (3) Basic concepts, elements, and principles of art. **DA**

ART 201 Expanded Arts (3) Theory and practice course investigating language common to all arts activity particularly as related to the contemporary arts. Pre: one 100-level 2D studio course and one 100-level 3D studio course; or consent. **DA**

EXPANDED ARTS/CONTEMPORARY ISSUES

ART 301 (Alpha) Art and Technology Studio I (3) (6 Lec/Lab) Combined theory and practice studio course(s) that investigate language, processes, and personalized composing systems related to the use of technological media and its application to a variety of contemporary art areas and related disciplines. (B) imaging systems; (C) electronic and electro-acoustic sound; (D) interactive systems and installations. Pre: 201 and one 200-level studio; or consent. **DA**

ART 302 Theory and Criticism of Art (3) Examination of the significant themes and issues in contemporary theory and criticism as they relate to the production and reception of art. Pre: 201 or consent. **DA**

ART 389 Hawaiian Art: Studio (3) A studio art course that explores art-making from a Hawaiian perspective, focusing on the concepts of 'Oli and Mo'olelo (narratives) and Kumulipo (creation mythology). Pre: one 200-level studio art course, or consent. **DA**

ART 401 Art and Technology Studio II (3) Tutorial studio course that encourages exploration in combined and new media through independent work within an environment of theoretical and critical discourse. Repeatable once. Pre: 301 or consent. **DA**

ART 403 Contemporary Issues (3) Art studio addressing a specific sociocultural theme. Repeatable twice. Pre: 201 or consent. **DA**

ART 404 Gender Issues in Multimedia and Video (3) Studio/lecture course investigating social, cultural, and gendered representations as informed by contemporary theory and practice. Pre: 201 or any WS course; or consent. (Cross-listed as WS 484) **DA**

ART 405 Professional Practice (3) Methods and skills for professional preparation. Creation of visual/written documentation of artwork and practice. Exploration of legal, financial and ethical considerations of artmaking. Student must have a 35 mm camera and light meter. A-F only. Pre: BFA Art major and advanced standing in Art; or consent.

ART 490 Comparative Aspects of Arts (3) A seminar to compare modalities of form. Methodology: experiential, descriptive, semantic, structural, and historical. Pre: 171, 172, and 180; or consent. **DA**

ART 690 Interdisciplinary Seminar (3) Issues of contemporary art. Analysis of current literature and criticism. Pre: consent.

HISTORY OF ART

ART 171 Introduction to Western Art I (3) Major developments in Western art from pre-history to the Middle Ages. **DH**

ART 172 Introduction to Western Art II (3) Major developments in Western art from the Renaissance to the present. **DH**

ART 175 Survey of Global Art I (3) Art produced in Asia, Africa, Native America, Europe, and the Pacific Islands, from prehistory to the 15th century. Religious and philosophical ideas expressed in architecture, painting, prints, sculpture, applied art, body art, and textiles. Fall only. **FG**

ART 176 Survey of Global Art II (3) Art produced in Asia, Africa, Native America, Europe, and the Pacific Islands, from the 15th century to the present. Religious and philosophical ideas expressed in architecture, painting, prints, sculpture, applied art, body art, and textiles. Spring only. **FG**

ART 180 Introduction to Eastern Art (3) Major developments in arts of Asia. **DH**

ART 275 Women in Art (3) An interdisciplinary survey of the role of women as subject/object in the

visual arts, their activity as creators of art and as participants in the art world. Pre: 101 and one of PHIL 100, SOC 100, or WS 101; or consent. (Cross-listed as WS 275) **DH**

ART 290 Art of Africa, Pacific, North America (3) Formal and contextual study of art from selected areas in Africa, the Pacific, and North America. Pre: 171, 172, or 180; or consent. **DH**

ART 370 Ancient Art (3) Arts of Egypt, Mesopotamia, Crete, and Mycenae. Pre: 171 or consent. **DH**

ART 371 Medieval Art (3) Arts of Europe from early Christian era to Renaissance. Pre: 171 or consent. **DH**

ART 373 Art of Greece and Rome (3) Minoan and Mycenaean arts; Greece and Rome. Pre: 171 or consent. **DH**

ART 374 Art of the 19th Century (3) Architecture, sculpture, and painting of Europe. Pre: 172 or consent. **DH**

ART 380 Early Art of Japan (3) Major developments, prehistoric through Kamakura; architecture, painting, sculpture. Pre: 180. **DH**

ART 381 Later Art of Japan (3) Major developments, Muromachi to modern period; painting, sculpture, architecture. Pre: 180. **DH**

ART 384 Art of Korea (3) Ceramics, sculpture, painting, and architecture; neolithic through Yi periods. Pre: 180. **DH**

ART 385 Early Art of China (3) Major developments of three-dimensional arts; emphasis on jade, bronze; secular and religious sculptures from prehistoric to 9th century. Pre: 180. **DH**

ART 386 Later Art of China (3) Major developments of style and aesthetics of applied arts; architecture, furniture, ceramics, other crafts. Pre: 180. **DH**

ART 391 Museum Interpretation (3) Theory and techniques for interpretation of museum resources and communicating with museum visitors. Consideration for interpretive programs in museums, art galleries, historic sites, and parks. Pre: consent. (Alt. years: spring only) **DH**

ART 396 (Alpha) History of Photography (3) History of photography from its beginnings to the present; emphasis on the evolution of photography as an art form; (B) nineteenth century, from the invention of photography through pictorialism; (C) twentieth century, from World War I to the present. Pre: 172 or consent. **DH**

ART 470 (Alpha) Renaissance Art (3) Painting, sculpture, and architecture: (B) early Renaissance in Italy; (C) northern Europe; (D) High Renaissance and mannerism in Italy. Pre: 172 or consent. **DH**

ART 471 Baroque and Rococo Art (3) Architecture, sculpture, and painting of Europe in the Baroque and Rococo periods. Pre: 172 or consent. **DH**

ART 472 Art of the United States (3) Emphasis on the 18th and 19th centuries. Pre: 172 or consent. (Cross-listed as AMST 456) **DH**

ART 473 Art of the First Half of 20th Century (3) Development of modern art in Europe 1900–1939. Pre: 172 or consent. **DH**

ART 474 Art Since Middle 20th Century (3) Art of Europe and the United States since 1945. Pre: 172 or consent. **DH**

ART 475 (Alpha) Art of the Pacific (3) Visual form and function of the arts in cultural context: (B) Australia, Indonesia; (C) Melanesia, Micronesia, Polynesia; (D) North Pacific coast Indian, Eskimo. Pre: 290 or consent. **DH**

ART 476 Art of Tribal Africa (3) Visual form and function of arts in cultural context. Mali, Burkina Faso, Ivory Coast, Liberia, Guinea, Nigeria, Ghana, Cameroon, Congo, Zaire. Pre: 290 or consent. **DH**

ART 479 Art of Hawai'i (3) Stylistic and aesthetic characteristics of art of ancient Hawai'i; relationship to art from other parts of Polynesia. Pre: 290 or consent. **DH**

ART 482 Women in Japanese Art (3) Issues relating to representations of women in Japanese art. Emphasis on social class and gender roles. Pre: 180 or any WS course; or consent. (Cross-listed as WS 482) **DH**

ART 483 Applied Art of Japan (3) Ceramics, metalwork, lacquer, and textiles throughout Japanese history. Pre: 180. **DH**

ART 486 Early Chinese Painting (3) Stylistic and aesthetic development of two-dimensional arts; painting and calligraphy from prehistoric to 12th century. Pre: 180. **DH**

ART 487 Later Chinese Painting (3) Stylistic and aesthetic development of two-dimensional arts; painting and calligraphy from end of Sung to the present. Pre: 180. **DH**

ART 491 (Alpha) Art of Southeast Asia (3) Critical analysis of the historical and cultural development of Buddhist and Hindu art in Southeast Asia; (B) island Southeast Asia; (C) mainland Southeast Asia. Pre: 180 or consent. **DA**

ART 492 Art of Ancient India (3) Critical analysis of the historical and cultural development of Indian architecture, painting, and sculpture. Pre: 180 or consent. **DH**

ART 493 Art of Islam (3) Major developments in art and architecture. Pre: 171 or consent. **DH**

ART 495 History of Modern Design (3) Major design movements in Europe and America from late 19th century to present; arts and crafts movement, art nouveau, modernist trends of the 20th century. Pre: 172 or consent. **DH**

ART 496 Topics in the History of Cinema (3) Specific period or national style of cinema studied in its historical context. Repeatable. Pre: 109 or consent. **DH**

ART 670 Art Historical Methodology (3) An introduction to art historiography, analytical techniques, and research methods and materials. Pre: consent and graduate standing.

ART 677 Art of Oceania (3) Arts from Polynesia, Melanesia, Micronesia explored in context of issues involving belief systems and cultural change. Repeatable one time. A-F only. Pre: 475C or consent.

ART 679 Art of Indonesia (3) Seminar: aspects of ethnic or tribal sculpture, textiles, architecture, painting. Pre: consent.

ART 687 Chinese Painting and Calligraphy (3) Research topics in the history of Chinese painting and calligraphy. Pre: consent.

ART 688 Chinese Sculpture and Applied Arts (3) Research topics in the history of Chinese sculpture, ceramics, bronzes, jade, and textiles. Pre: consent.

ART 695 (Alpha) Seminar in Western Art History (3) Selected topics in European and American art history. Pre: consent.

ART 780 Early Japanese and Korean Art (3) Emphasis on Buddhist art, 6th to 14th century; early secular painting. Lecture and seminar. Pre: consent.

ART 781 Later Japanese and Korean Art (3) Emphasis on secular art, 14th century to modern period. Lecture and seminar. Pre: consent.

ART 790 Buddhist Art of South Asia (3) Selected research topics in South and Southeast Asian Buddhist art. Pre: consent.

ART 791 Hindu Art of South Asia (3) Selected research topics in South and Southeast Asian Hindu art. Pre: consent.

CERAMICS

ART 105 Introduction to Ceramics (3) Three-dimensional concepts in clay; hand-building and wheel-throwing techniques. **DA**

ART 243 Ceramics—Hand-Building (3) Includes modeling, coil, pinch, and slab techniques; introduction to glaze techniques. Repeatable. Pre: 105, 116, or 130; or consent. **DA**

ART 244 Ceramics—Wheel-Throwing (3) Techniques and aesthetics of wheel-thrown forms; introduction to glaze techniques. Repeatable. Pre: 103, 105, 116, or 130; or consent. **DA**

ART 342 Technical Ceramics (3) Clay body development, glaze development, empirical and calculation methods. Emphasis on glaze maturity, surface, and color. Pre: 243, 244, or consent. **DA**

ART 343 Ceramics—Sculpture (3) Sculptural concepts and techniques specifically related to the medium of clay; advanced hand-building, throwing, glazing, and firing techniques. Repeatable once with consent. Pre: 243 and 244; or consent. **DA**

ART 344 Ceramics—Vessels (3) Exploration of the ceramic vessel as function, metaphor, and expression. Advanced hand-building, throwing, glazing, and firing techniques. Repeatable once with consent. Pre: 243 and 244; or consent. **DA**

ART 345 Ceramics—Low Temperature (3) Form and surface problems related to earthenware clay bodies and low-temperature glazes; mold-making for ceramics. Repeatable once with consent. Pre: 243 and 244; or consent. **DA**

ART 346 History of Western Ceramics (3) Western ceramics history from chronological, developmental, contextual, and theoretical standpoints; influence of Asian ceramics. Pre: 243 and 244; or consent. **DH**

ART 441 Advanced Ceramics (3) Seminar and studio practice to address the content of the student's work in relation to contemporary concepts. Class exhibition is the final project. Pre: BFA major and four 300-level ceramics courses; or consent. **DA**

DRAWING/PAINTING

ART 123 Introduction to Painting (3) Theory and practice of painting; material and technical procedures. **DA**

ART 213 Intermediate Drawing (3) Extension of 113 with emphasis on 20th-century issues. Pre: 113 or consent. **DA**

ART 214 Introduction to Life Drawing (3) Investigations of the figure concerning anatomical construction, light, space, diagrammatic analysis, and thematic content. Pre: 113 or consent. **DA**

ART 223 Intermediate Painting (3) Survey of late 19th- and early 20th-century studio practice emphasizing developments in light notation, cubism, surrealism, and expressionism. Introduction to acrylic painting. Repeatable. Pre: 113 (or concurrent) and 123, or consent. **DA**

ART 224 Painting from Life (3) Painting from the model; a survey of the figurative tradition. Repeatable. Pre: 123 and 214 (or concurrent), or consent. **DA**

ART 225 Painting/Water-Based Media (3) An introduction to water-based media. Traditional transparent color, gouache and acrylics. Pre: 113 or consent. **DA**

ART 313 Advanced Drawing (3) Studio practice in drawing emphasizing 20th-century developments in art and independent research. Repeatable twice. Pre: 213 or consent. **DA**

ART 314 Intermediate Life Drawing (3) Further investigations of the figure concerning anatomical and diagrammatic construction, light, space, and thematic content. Pre: 214 or consent. **DA**

ART 320 Brush Art of the Far East (3) Brush techniques in classical painting and calligraphy; studio course. Pre: consent. **DA**

ART 321 Materials and Techniques of Painting (3) Experiments with various traditional and contemporary materials and procedures; discussion of their influences on painting. Pre: 123, 171, and 172; or consent. **DA**

ART 322 Advanced Color (3) Theory and application of color as related to studio practice. Pre: 115 or consent. **DA**

ART 323 Advanced Painting I (3) Studio practice in painting, emphasizing the development of abstract visual language and other 20th-century directions in art. Pre: 214, 223, and 224; or consent. **DA**

ART 414 Advanced Drawing from Life (3) Study of the figure with emphasis on the expressive function of drawing. Repeatable once. Pre: 214 or consent. **DA**

ART 423 Advanced Painting II (3) Development of greater formal means and aesthetic insight, emphasizing independent development. Repeatable once. Pre: 323 or consent. **DA**

FIBER

ART 103 Introduction to Fiber (3) Studio projects and demonstrations in basic loom weaving, indigo dyeing, and introductory non-loom fiber techniques. **DA**

ART 238 Intermediate Fiber—Structure (3) Studio emphasis on structure, non-loom weaving techniques, arranged in a sequence of weave structure development. Spinning and dye technology will be introduced. Repeatable one time. A-F only. Pre: 103, 113, or 116; or consent. **DA**

ART 239 Intermediate Fiber—Structure (3) Surface design on cloth, using a variety of resist methods, direct printing, and embellishment techniques. Exploration in two and three

dimensions. Repeatable one time. Pre: 103, 104, 113, 115, or 217; or consent. **DA**

ART 335 Papermaking (3) Studio emphasis on handmade papermaking techniques, conceptual exploration in two and three dimensions. Repeatable one time. A-F only. Pre: 103, 104, 113, 115, 217, or 239; or consent. **DA**

ART 336 Fiber—Wearable Art (3) Art for the body will draw inspiration from world costume and from a variety of three-dimensional fiber forms. Repeatable one time. A-F only. Pre: 103, 104, or 116; or consent. **DA**

ART 337 Fiber—Sculpture (3) Mixed-media and non-loom techniques. Exploration of ideas in contemporary basketry and other sculptural forms. Repeatable one time. A-F only. Pre: 103, 116, or 238; or consent. **DA**

ART 339 (Alpha) Advanced Fiber (3) Exploration of fiber art as an expressive medium, emphasizing individual approaches and concepts in studio projects; (B) structure; (C) surface. Repeatable once each alpha. A-F only. Pre: (B) 394B or 394C and 238, 337; or consent; (C) 394B or 394C and 239, 335, or 336; or consent. **DA**

ART 394 (Alpha) History of Textiles (3) Textile history up to contemporary fiber art, with reference to the technical process. (B) Europe and the Americas; (C) Oceania, Asia, the Middle East, and Africa. Pre: 172 for (B); 180 for (C); or consent. **DH**

ART 437 Textile Conservation/Research (V) Independent study of textile conservation and research. Individualized directed work (internship/practicum) in the museum environment. Repeatable up to twelve credits. A-F only. Pre: 238, 239, 394B, or 394C; and consent.

ART 439 Advanced Fiber II (3) Advanced study in fiber leading to the development, installation, and documentation of individual projects. Repeatable. A-F only. Pre: 339 and portfolio review; or consent.

GLASS

ART 130 Introduction to Glass (3) Basic techniques of working with cold and molten glass. Theory of glass studio operation and introduction to glass theory. **DA**

ART 230 Glass Casting: Sand and Metal Molds (3) Expressive explorations in glass casting with wet sand, bonded sand, and metal molds. Repeatable once. Pre: 116 (or concurrent) and 130; or consent. **DA**

ART 234 Cold Glass Fabrication (3) Expressive explorations using architectural sheet glass. Development of 2D and 3D forms using engraving, sandblasting, and cold joinery techniques. Pre: 113 (or concurrent), 116 (or concurrent), and 130; or consent. **DA**

ART 303 Kiln-Formed Glass (3) Expressive explorations in the use of kiln-formed, fusible-sheet glasses and enameling on glass. Pre: 234 or consent. (Fall only) **DA**

ART 306 Lost Wax Glass Casting (3) Glass kiln casting techniques, lost wax fuse casting, pâte de verre. Repeatable once. Pre: 230, 254, and 356 (or concurrent); or consent. **DA**

ART 330 Advanced Glass (3) Glass as an expressive medium. Individual problems; construction of studio equipment. Readings and discussions of contemporary glass issues. Repeatable once. Pre: 230, 254, and 356; or consent. **DA**

ART 430 Advanced Glass II (3) Advanced study in glass leading to the development, installation, and documentation of individual projects. Pre: 330 or consent. **DA**

GRAPHIC DESIGN

ART 265 Design: Studio I (3) Introduction to graphic design. Explorations of rhetorical and semiotic structures and their relationship to visual form and content. A-F only. Pre: 115 or consent. Co-requisite: 265L. **DA**

ART 265L Design: Studio I Lab (1) Beginning instruction in the Macintosh computer environment, including hardware, software, and lab networking as it relates to graphic design production. CR/NC only. Pre: 115 or consent. Co-requisite: 265. **DA**

ART 266 Design: Typography I (3) Introduction to typography. Exploration of letterform and word compositions in the context of single-page structures. A-F only. Pre: 115 or consent. **DA**

ART 360 Exhibit Design and Gallery Management (3) Design theory and techniques for presentation of artworks and mounting exhibitions. Pre: 115, junior standing, and consent. **DA**

ART 365 Design: Studio II (3) Intermediate graphic design. Emphasis on communication problems involving process and analysis. Introduction to modernist precedents and information theory. A-F only. Pre: 265 and 266; or consent. **DA**

ART 366 Design: Typography II (3) Intermediate typographic design, exploration of word and text composition in the context of multiple-page structures. A-F only. Pre: 265, 266, and 365 (or concurrent); or consent. **DA**

ART 367 Design: Internship Preparation (3) Pre-professional practice skills. Pre: 364 or consent. **DA**

ART 368 Design: Internship (4) Internship in industry under professional and faculty supervision. Pre: 367 or consent. **DA**

ART 465 Design: Studio III (3) Advanced graphic design. Emphasis on postmodernist theory, context, audience, and alternative media. A-F only. Pre: 365, 365L, and 366; or consent. Co-requisite: 465L. **DA**

ART 466 Design: Typography III (3) Advanced typographic design. Exploration of 2D, 3D, electronic, and intermedia. Emphasis on contemporary typographic models. A-F only. Pre: 365, 365L, and 366; or consent. **DA**

ART 468 Design: Thesis Project (3) Thesis project. Pre: 369 or consent.

PHOTOGRAPHY

ART 107 Introduction to Photography (3) Elements and principles of photography. Lectures, demonstrations, and projects. Assumes no prior knowledge of photography. Student must have camera with adjustable shutter speed, aperture, and light meter. **DA**

ART 109 Understanding Image in Motion (3) Creative aspects of film and video. Understanding forms, aesthetics, and techniques of the moving image; feature and short works (animation, documentary, and experimental). **DA**

ART 207 Intermediate Photo: Black and White (3) Black and white photography emphasizing communication and self-expression. Lectures, demonstrations, and projects. Student must supply camera and material. Pre: 107. **DA**

ART 209 Image in Motion Studio I (3) Basic theory, practice, and techniques for animation, with sequential digitized imagery and synchronized sound. Repeatable once with consent. A-F only. Pre: 107 or consent. **DA**

ART 307 Advanced Photography: Studio (3) Advanced investigation of camera, studio and lab techniques for black and white photography. Pre: 207 and positive portfolio review or consent. **DA**

ART 308 (Alpha) Advanced Photographic Techniques (3) Emphasis on aesthetic and critical analysis. (B) color; (C) hand-applied emulsion. Pre: 207 and positive portfolio review. **DA**

ART 309 Image in Motion Studio II (3) Advanced theory, practice, and techniques for sequential imagery with synchronized sound, using animation and live action video. Repeatable. A-F only. Pre: 209 and positive portfolio review; or consent. **DA**

ART 407 Advanced Photography: BFA Seminar (3) Advance study in photography leading to the development, exhibition and documentation of individual projects. A-F only. Pre: five of the following: 109, 207, 209, 307, 308B, 308C, 309, or 409; and positive BFA review. **DA**

ART 409 Image in Motion Studio III (3) Studio/lecture course focusing on conceptualization and production of computer generated three-dimensional animation. A-F only. Pre: 309 or consent. **DA**

PRINTMAKING

ART 104 Introduction to Printmaking (3) Foundation explorations in the processes of relief, intaglio, and stencil printmaking. Direct workshop studio experience in the basic techniques and concepts of wood cut, linoleum cut, drypoint, monotype, and basic stencil processes. **DA**

ART 215 Intaglio Printmaking (3) Studio practice in concepts and techniques of making prints from metal plates including etching, engraving, aquatint, and drypoint. Pre: 104 or 113. **DA**

ART 216 Lithography (3) Studio practice in concepts and techniques of making prints from lithographic limestone and plates. Pre: 104 or 113. **DA**

ART 217 Screenprinting (3) Studio practice in screenprinting on paper. Copy camera and basic photo-stencil techniques introduced. Pre: 104 or 113. **DA**

ART 218 Relief Printmaking (3) Studio practice in the techniques and concepts of woodblock, linoleum cut, monotype, and collagraph printmaking. Emphasis on both traditional and contemporary practices. Pre: 104 or 113, or consent. **DA**

ART 318 Intermediate Printmaking (3)

Intermediate level specialization in either intaglio, lithography, screenprinting, or relief printmaking. Concentration on the techniques and formats of color printing and sequential image development. Repeatable. Pre: two printmaking courses and portfolio review, or consent. **DA**

ART 418 Advanced Printmaking (3) Advanced work in intaglio, lithography, screenprinting, or relief printmaking. Emphasis on experimental processes, large-scale execution, and technical research. Repeatable. Pre: 318 and portfolio review, or consent. **DA**

SCULPTURE

ART 254 Sculpture—Metal Casting (3) Metal casting and development of associated practices and concepts. Repeatable. Pre: one of 103, 105, 116, or 130; or consent. **DA**

ART 255 Sculpture—Carving, Mixed Media (3) Investigations of traditional and contemporary carving concepts and methods. Repeatable. Pre: one of 103, 105, 116, or 130; or consent. **DA**

ART 351 Sculpture—Figure Modeling (3) Figure modeling, mold making, and casting. Repeatable. Pre: 214 or 243, or consent. **DA**

ART 352 Kinetic Sculpture (3) The design and construction of objects incorporating movement as an integral element of their content. Repeatable once. Pre: any two of 254 (or concurrent), 356, or 357; or consent. **DA**

ART 356 Sculpture—Metal Fabrication (3) Metal fabrication and development of associated practices, concepts, and historical references. Repeatable. Pre: one of 103, 105, 116, or 130; or consent. **DA**

ART 357 Sculpture—Small-Scale (3) Fabrication and casting of forms on a small scale such as jewelry. The development of related practices, concepts, and historical references. Repeatable. Pre: one of 103, 105, 116, or 130; or consent. **DA**

ART 358 Utilitarian Sculpture (3) The design and construction of objects intended for use/interaction. Emphasis on wood and synthetic materials. Repeatable once. Pre: 116 or consent. **DA**

ART 452 Advanced Sculpture (3) Individual projects. Seminar. Repeatable. Pre: five courses from 230, 243, 254, 255, 337, 351, 352, 356, 357 or 358; or consent. **DA**

ART 453 Advanced Sculpture II (3) (6 hr Lec/Lab combined) Advanced study in sculpture leading to the development, installation, and documentation of individual projects. Pre: 452 or consent. **DA**

VARIABLE CREDIT COURSES

ART 399 Directed Work (V) Individual projects; tutorial. Maximum: 3 credit hours per semester; total 6 for BA, 9 for BFA. Pre: two 200-level or above art courses in area of directed work, as well as consent of instructor and department chair.

ART 400 Special Projects (V) Intensive and specialized work at advanced level in fields of special interest of visiting or resident faculty. Repeatable. Pre: advanced standing and consent.

ART 630 Graduate Studio Teaching Practicum

(3) Observation, analysis and participation in teaching a lower division course under the direction of an instructor in the student's area of concentration. Repeatable one time. A-F only. Pre: 690, admitted to candidacy for MFA in art, and consent.

GRADUATE STUDIOS

Studio concentrations for the Master of Fine Arts degree: ceramics, electronic arts, glass, fiber, graphic design, painting, photography, printmaking, and sculpture. Three sequential course levels are offered in each area, normally with 6 credit hours at level I prerequisite to level II, etc. Courses are repeatable; each carries a maximum of 6 credit hours per semester, and each requires consent of instructor. Conditional and unclassified students enroll at level I only.

Content at level I emphasizes creative exploration through research and evaluation in a personal direction; level II encourages development through analysis and definition; level III focuses on refinement and synthesis.

ART 500 Master's Plan B/C Studies (1)

Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

ART 601, 602, 603 Electronic Arts I, II, III (V)**ART 607, 608, 609 Photography I, II, III (V)****ART 615, 616, 617 Printmaking I, II, III (V)****ART 623, 624, 625 Painting I, II, III (V)****ART 631, 632, 633 Glass I, II, III (V)****ART 637, 638, 639 Fiber I, II, III (V)****ART 641, 642, 643 Ceramics I, II, III (V)****ART 653, 654, 655 Sculpture I, II, III (V)****ART 665, 666, 667 Graphic Design I, II, III (V)**

ART 699 Directed Work (V) Advanced individual projects; advanced tutorial. Maximum: 3 credit hours per semester; total 6 for MA Plan A, 9 for MA Plan B, 15 for MFA. Pre: consent of instructor and department chair.

ART 700 Thesis Research (V)**Arts and Humanities (AH)**

College of Arts and Humanities

AH 100 Introduction to the Arts (3) Team-taught interdisciplinary exploration of dance, music, theater, and visual art as means of perceiving, organizing, and communicating. Lectures, performances, field trips, group and individual participation. **DA**

AH 100A Introduction to the Arts (3) Team-taught interdisciplinary exploration of dance, music, theater, and visual art as means of perceiving, organizing, and communicating. Lectures, performances, field trips, group and individual participation. **DA**

Arts and Sciences (CAS)

Colleges of Arts and Sciences

CAS 101 RAP Foundation Course (3) Focus on communication and research skills. Multilevel work with technology, community service, linking with K–12 students, creation of museum exhibits. A–F only. Open only to RAP students.

CAS 102 RAP Foundation Course (3) Focus on communication and research skills. Multilevel work with technology, community service, linking with K–12 students, creation of museum exhibits. A–F only. Open only to RAP students.

CAS 110 Integrating Seminar I (1) An introduction to the university community; topics include critical thinking, the value of higher education, cultural and transition issues. A–F only.

CAS 110A Integrating Seminar I (1) An introduction to the University Community; topics include critical thinking, the value of high education, cultural and transitional issues. A–F only. Fall only.

CAS 111 Integrating Seminar II (1) Through the use of a unifying theme, students explore linkages with academic disciplines represented in Freshman Learning Communities. Theme examples: diversity, epistemology. A–F only. Spring only.

CAS 111A Integrating Seminar II (1) Through the use of a unifying theme, students explore linkages with academic disciplines represented in freshman learning communities. Theme examples: diversity, epistemology. A–F only. Spring only.

CAS 200 (Alpha) Scholar Seminars (1)

Discussion-based seminar led by senior faculty/administrator. Students meet with instructor for 1 hour once a week. Freshmen may take up to three alphas.

AS

See Aerospace Studies

Asian Studies (ASAN)

School of Hawaiian, Asian, and Pacific Studies

ASAN 201 Introduction to Asian Studies: East Asia (3)

Understanding East Asia through multidisciplinary approaches. Examines the interrelationship of policies, economy, literature, religion, the arts, and history as the basis for such an understanding. **DH**

ASAN 202 Introduction to Asian Studies: South/Southeast Asia (3)

Understanding South and Southeast Asia through multidisciplinary approaches. Examines the interrelationship of policies, economy, literature, religion, the arts, and history as the basis for such an understanding. **DH**

ASAN 241 Civilizations of Asia (3) Historical survey of major civilizations of Asia from earliest times: East Asia, Southeast Asia, and South Asia. (Cross-listed as HIST 241) **DH**

ASAN 242 Civilizations of Asia (3) Continuation of 241. (Cross-listed as HIST 242) **DH**

ASAN 310 Asian Humanities (3)

Multidisciplinary. Classics of literature, philosophy, and religion shaping Asian beliefs and values. Pre: 201 and 202, or consent. **DH**

ASAN 312 Contemporary Asian Civilization (3)

Multidisciplinary examination of problems and issues affecting peoples and institutions of contemporary Asia: ethnic, language, religious,

and cultural differences; population growth; public health; economic development; political and social change; environmental problems; etc. Pre: 201 and 202, or consent. **DS**

ASAN 320 (Alpha) Asian Nation Studies (3) Multidisciplinary examination of major Asian countries; cultural, social, economic, and political lives of their peoples. (C) China; (I) South Asia; (J) Japan; (K) Korea; (P) Philippines; (S) Southeast Asia; (Z) Other. Pre: 201 and 202, or consent. **DS**

ASAN 323 The Way of Tea in Japanese History and Culture (3) History and culture of Japan as revealed in study and practice of tea ceremony: Zen, aesthetics, calligraphy, architecture, ceramics, gardens, politics. Pre: HIST 151 and HIST 152. (Cross-listed as HIST 323) **DH**

ASAN 325 (Alpha) Japanese Film: Art and History (3) Study and analysis of Japanese film; its history and relationship to cultural, social, philosophical, and aesthetic contexts. (B) 1900-1960; (C) 1960-present; (D) special topics. Pre: upper division standing or consent. (Cross-listed as EALL 325) **DH**

ASAN 330 Chinese Film: Art and History (3) Study and analysis of Chinese film; its history and relationship to cultural, social, philosophical, and aesthetic contexts. Pre: 201 and 202, or consent. **DH**

ASAN 393 (Alpha) Field Study in Asia (3) Students may submit proposals to have academic course work, field research, or work experience in Asia. See specific center for guidelines and procedures. (C) China; (I) South Asia; (J) Japan; (K) Korea; (P) Philippines; (S) Southeast Asia; (Z) Other.

ASAN 458 Russia in Asia and the Pacific (3) Covers the economic, political, and social development of Russian Asia (Siberia) and Russian relations with the countries of Asia and the Pacific. Pre: HIST 306 or HIST 310; or consent. **DH**

ASAN 463 Gender Issues in Asian Society (3) Construction of gender identities in contemporary Asia. How these interface with other aspects of social difference and inequality (e.g., with class, religion, ethnicity). Pre: 201 and 202, or any WS course, or consent. (Cross-listed as WS 463) **DS**

ASAN 465 American Experience in Asia (3) Comparison of American experiences in Japan, China, and Southeast Asia within historical and perceptual framework. (Cross-listed as AMST 465) **DH**

ASAN 467 Americans in China (3) Exploration of contemporary Chinese-American relationship against 19th- and 20th-century background. **DH**

ASAN 469 Ethnic Diversity in China (3) Surveying Tibetans, Mongols, Manchus, Muslims, and other minorities, as well as analyzing the nature of minority/majority identity in China from an anthropological perspective. Pre: 201 and 202, or consent. **DS**

ASAN 480 Culture and Economy of Southeast Asia (3) An exploration of the cultural and economic development of the countries of Southeast Asia from early times to the present day, with an emphasis on the effects of outside influences. Pre: 201 and 202, or consent. **DH**

ASAN 482 The Political Economy of Japan (3) Examination of the institutions of the contemporary Japanese political economy including economic policy and politics, labor-management

relations, and international dimensions. Pre: 201 and 202, or consent. **DS**

ASAN 484 Society and Politics in China (3) Interdisciplinary review and analysis of the social and political issues in contemporary China, the interchange between state and society in national policies, the relationship between cultural tradition and technological modernization in the social transformation process. Pre: 310 or 312 or SOC 356 or consent. (Cross-listed as POLS 308) **DS**

ASAN 485 Contemporary Chinese Development (3) Development and planning in contemporary China: economic policy and institutional structure in the development and urbanization process; urban and rural transformation in a socialist economy. Pre: upper division standing or consent. **DS**

ASAN 486 Contemporary Vietnam (3) Vietnam's 20th-century intellectual and organizational transformation, wars, revolution, social change, and development dilemmas in historical, cultural, and international perspective. **DS**

ASAN 491 (Alpha) Topics in Asian Studies (3) Selected topics in Asian studies. (B) Buddhist studies; (C) China; (G) Asia; (I) South Asia; (J) Japan; (K) Korea; (P) Philippines; (S) Southeast Asia; (Z) Other. Pre: 201 or 202, or consent. **DS**

ASAN 493 Globalization in Asia (3) Globalization affects the economic, political, and cultural lives of people in Asia. Transformations by capitalism in agricultural and industrial sectors of contemporary societies. Perspective is historical and global; approach is interdisciplinary. Repeatable twice. Pre: 201 and 202, or consent. **DS**

ASAN 495 Encountering Tourism in Asian-Pacific Societies (3) A critical examination and current impact of tourism on contemporary Asian and Pacific Island societies. Topics include colonial antecedents, social impacts, cultural and environmental concerns, case studies (including Hawai'i). Pre: 201 or 202, or consent. (Cross-listed as PACS 495) **DS**

ASAN 496 Religions of Island Southeast Asia (3) A comparative, interdisciplinary examination of indigenous beliefs, Islam, Christianity, and Hinduism in island Southeast Asia, and how they have been adjusted because of economic and social change. Pre: 201 and 202, or consent. **DH**

ASAN 499 Directed Reading (V) Pre: consent.

ASAN 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

ASAN 501 Practicum in Asian Studies (V)

ASAN 600 Asian Studies Seminar: Scope and Methods (3) Scope of Asian studies as a field; contributions of major disciplines to study of Asia; resources and methods of research; preparation of research proposal. (C) China; (I) South Asia; (J) Japan; (K) Korea; (P) Philippines; (S) Southeast Asia. Pre: graduate standing.

ASAN 603 Japanese Studies Seminar (3)

ASAN 605 Contemporary Korean Studies Seminar (3) Critical examination and study of selected aspects of modern and contemporary Korea. Pre: HIST 328.

ASAN 608 Politics and Development: China (3) Political economy of market transformation in China; developmental context of human resource,

cultural tradition, ideology, policy issues of agriculture industry transfer, decentralization, dualism, market reform in urbanization, social service, foreign investment, and Greater China. Pre: one of POLS 341, ASAN 484, POLS 484, ASAN 600, ASAN 635, or PLAN 635; or consent. (Cross-listed as POL 645C)

ASAN 611 Comparative Muslim Societies in Asia (3) This course will compare Muslim societies and cultures in Asia with each other and with the so-called "core" Middle Eastern Muslim societies. Pre: 600 or consent.

ASAN 618 Contemporary China: Development and Culture (3) Selected topics on contemporary China. Center for Chinese Studies has details of current offering. May be repeated with permission of instructor. Pre: 312 or 320C, or consent.

ASAN 620 Problems/Issues of Contemporary Asia (3) Analysis from multidisciplinary perspective: rural development, urbanization, international relations, ethnicity, religion, language, etc. Pre: 312 or consent.

ASAN 624 Culture and Colonialism (3) Analysis of theories and debates (cultural studies, feminist writings, post-colonial issues). Case studies of the transformation and creation of "traditional" cultures under colonialism. Pre: 310 or 312, or consent.

ASAN 625 Comparative Development in East and Southeast Asia (3) Comparative developmental analysis of Asia's leading economic powers. Considers Japanese political and economic developmental model; discusses problems for continued Asian growth; examines Korea, Taiwan, China, Indonesia, Thailand, Philippines and other Asian nations. Pre: 312, 600, or consent.

ASAN 626 Capitalism in Contemporary Asia (3) Historically grounded theoretical examination of capitalism in 20th-century Asia; multidisciplinary approach to fundamental change in political and economic structures and institutions, prospects for the future. Pre: 600 or 625, or consent.

ASAN 627 Ethnic Nationalism in Asia (3) Contemporary theories of ethnic and cultural nationalism from perspective of Asia. Issues of nation-state, power hierarchies, modernity, and identity in contemporary societies. Pre: 310 (or concurrent) or 312 (or concurrent), or consent.

ASAN 628 Southeast Asian Development: Costs and Benefits (3) Interdisciplinary approach to broad economic, social, and political issues. Focus on benefits and costs of economic development and effects on local cultures. Exploration of dilemmas of modernization and comparison of societal responses to development. Repeatable. Pre: 312 or consent.

ASAN 635 Industrialization and Development Planning in Asia and Pacific (3) Political economy of industrialization and development, state and society under industrialization and post-industrialization, evolution of development planning, and policy making in Asia under global economy. Pre: 600 or PLAN 630, or consent. (Cross-listed as PLAN 635)

ASAN 636 Culture and Urban Form in Asia (3) Cultural and historical impact on urban form, contention of tradition and modernity in urban space, spatial expression of state and society, perception and utilization of urban design, evolution of urban form in selected Asian capitals.

Pre: 312, PLAN 310, or PLAN 600. (Cross-listed as PLAN 636 and ARCH 687)

ASAN 651 East Asia Now (3) Views East Asia as an interactive region. Examines common historical and cultural, economic, and political themes including various experiences with the West. Focus upon present state of the region. A-F only. Pre: 310, 312, or consent.

ASAN 652 Contemporary Japanese Studies Seminar (3) Selected human and physical features that represent economic, social, and political life. Pre: consent. (Cross-listed as GEOG 652)

ASAN 671 The Splendor that was Southeast Asia (3) Interdisciplinary examination of the classical civilizations of Southeast Asia, the 9th to 14th centuries. Includes Pagan, Sukhothai, Angkor, Dai Viet, Srivijaya, and Majapahit. Considers historical themes and patterns, issues in Southeast Asian studies. A-F only. Pre: 310, 312, or consent.

ASAN 672 Demographic History of Southeast Asia (3) Southeast Asian population histories. Contrasts with East and South Asian population histories. Links among demography, subsistence activities and social institutions. Evolution of indigenous and colonial population records. Practical applications of historical demographic methodology. A-F only. Pre: graduate standing or consent. (Cross-listed as PPST 672)

ASAN 694 Topics in Buddhist Studies (3) Seminar on selected topics in Buddhist studies. Pre: PHIL 360, PHIL 406, REL 475, or REL 490; or consent.

ASAN 699 Directed Research (V) Individual problems and research. Pre: consent.

ASAN 700 Thesis Research (V)

ASAN 705 Asian Research Materials and Methods (3) Bibliography, reference tools, and research methods in sources on Asia in Western and Asian languages. Discussion of published and archival repositories. (Cross-listed as HIST 705 and LIS 705)

ASAN 750 (Alpha) Research Seminar in Asian Studies (3) (C) China; (I) South Asia; (J) Japan; (K) Korea; (P) Philippines; (S) Southeast Asia. Pre: 600 or consent.

Astronomy (ASTR)

College of Natural Sciences

ASTR 110 Survey of Astronomy (3) Introduction to the astronomical universe for nonscience students. Credit not given for both 110 and 240. **DP**

ASTR 240 Foundations of Astronomy (3) Introduction to the astronomical universe for science or engineering students. Satisfies requirements for non-introductory level credit. Pre: PHYS 151 or PHYS 170; or consent. Credit not given for both 110 and 240. **DP**

ASTR 280 Evolution of the Universe (3) The Big Bang, origin of the elements, formation and evolution of galaxies and stars. Pre: 110 or 140 or 240. **DP**

ASTR 281 Space Exploration (3) Current topics in planetary exploration, space resources and colonization, extraterrestrial life. Pre: 110 or 140 or 240. **DP**

ASTR 399 Directed Study (V) Individual reading in astronomy and astrophysics. Pre: a minimum cumulative GPA of 2.5 and two astronomy courses, or consent.

ASTR 500 Master's Plan B/C Studies (1)

ASTR 622 The Interstellar Medium (3) Astrophysics of diffuse matter, HII regions, molecular clouds, etc. Pre: consent. (Alt. years)

ASTR 623 Stellar Interiors and Evolution (3) Structure and evolution; energy sources, radiative processes; relations to observables. Pre: consent. (Alt. years)

ASTR 626 Galaxies (3) Observations and stellar dynamics of elliptical and spiral galaxies including our galaxy, globular clusters, and dark matter. Galaxy formation and evolution. Active galactic nuclei. Pre: consent. (Alt. years)

ASTR 627 Cosmology (3) Geometry and evolution of the universe. Dark matter. Early universe. Formation of large-scale structure, galaxies, and clusters. Cosmological models. Pre: consent. (Alt. years)

ASTR 630 The Solar System (3) Survey of observational data and physical concepts on planets and smaller bodies; formation of planetary systems; solar activity. Pre: consent. (Alt. years)

ASTR 631 Radiative Transfer Stellar Atmospheres (3) Excitation, ionization, and radiative transfer in stellar atmospheres; model atmospheres, formation of line and continuum radiation. Pre: consent. (Alt. years)

ASTR 633 Astrophysical Techniques I (3) Telescopes, positional astronomy, photon detection, error analysis, photometry, spectroscopy. Pre: consent.

ASTR 635 Fundamentals of Astrophysics (3) Applications of fundamental physics to astrophysical situations. Elements of general relativity. Basics of hydrodynamics and shock waves. Radiative processes, high energy astrophysics. Modern dynamics. Pre: consent. (Alt. years)

ASTR 699 Directed Research (V) Pre: consent.

ASTR 700 Thesis Research (V)

ASTR 734 Astronomy Seminar I (V) Selected advanced topics in astronomy and astrophysics. Available for 1 to 3 credit hours by arrangement. Repeatable. Pre: consent.

ASTR 735 Astronomy Seminar II (V) Selected advanced topics in astronomy and astrophysics. Available for 1 to 3 credit hours by arrangement. Repeatable. Pre: consent.

ASTR 736 Astronomy Seminar III (V) Selected advanced topics in astronomy and astrophysics. Available for 1 to 3 credit hours by arrangement. Repeatable. Pre: consent.

ASTR 800 Dissertation Research (V)

BE

See BioEngineering

BEC

See Business Economics

Biochemistry (BIOC)

School of Medicine

Adequate preparation in chemistry (through physical chemistry), physics, and mathematics is required, and a background in biological sciences is desirable.

BIOC 241 Fundamentals of Biochemistry (3) Biological chemistry stressing integration of concepts of general, inorganic, and biochemistry and application to life chemistry. Pre: beginning algebra and high school science. **DB**

BIOC 341 Elements of Biochemistry (3) Biochemical principles and concepts as applied to living systems, including sufficient organic chemistry to understand these principles. Pre: 241 or consent. **DB**

BIOC 441 Basic Biochemistry (4) Function and composition of biological substances and their metabolic transformation in animals, plants, microorganisms. Pre: BIOL 275/275L, CHEM 272 and CHEM 273, or consent. (Cross-listed as BIOL 441) **DB**

BIOC 441L Basic Biochemistry Lab (1) Experiments working with substances discussed in 441. **DY**

BIOC 471 Clinical Biochemistry (4) Biochemical processes in human health and disease states. Repeatable one time. Pre: 441 or BIOL 405 or CMB 405. Spring only. (Cross-listed as MEDT 471) **DB**

BIOC 481 Introduction to Molecular Biology (3) Biochemical basis of life presented in terms of the structure and function of the gene in the production of biological catalysts. Pre: 441 or consent. **DB**

BIOC 499 Directed Research and Reading (V) Independent research or selected reading of current literature in the area of biochemistry and biophysics. Pre: consent.

BIOC 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

BIOC 512 (Alpha) Unit II Electives in Biochemistry (1) Concurrent electives in biochemistry. (B) carbohydrate biochemistry (review and clinical correlation of important aspects of biochemistry and carbohydrate chemistry); (D) introduction to magnetic resonance imaging (how the generation and processing of the magnetic signal produces strikingly clear anatomical images); (E) topics in carcinogenesis (review of current understanding of cancer cause and prevention). Repeatable. Pre: BIOM 551.

BIOC 513 (Alpha) Unit III Electives in Biochemistry (1) Concurrent electives in biochemistry. (B) carbohydrate biochemistry (review and clinical correlation of important aspects of biochemistry and carbohydrate chemistry); (D) introduction to magnetic resonance imaging (how the generation and processing of the magnetic signal produces strikingly clear anatomical images); (E) topics in carcinogenesis (review of current understanding of cancer cause and prevention). Repeatable. Pre: BIOM 551.

BIOC 514 (Alpha) Unit IV Electives in Biochemistry (1) Concurrent electives in biochemistry. (B) carbohydrate biochemistry (review and clinical correlation of important aspects of biochemistry and carbohydrate chemistry); (C) basic biochemical aspects (as applied to clinical cases); (D) introduction to magnetic resonance imaging (how the generation and processing of the magnetic signal produces strikingly clear anatomical images); (E) topics in carcinogenesis (review of current understanding of cancer cause and prevention). Repeatable. Pre: BIOM 551.

BIOC 515 (Alpha) Unit V Electives in Biochemistry (1) Concurrent electives in biochemistry. (B) carbohydrate biochemistry (review and clinical correlation of important aspects of biochemistry and carbohydrate chemistry); (D) introduction to magnetic resonance imaging (how the generation and processing of the magnetic signal produces strikingly clear anatomical images); (E) topics in carcinogenesis (review of current understanding of cancer cause and prevention). Repeatable. Pre: BIOM 551.

BIOC 525 Unit V Block Elective (V) Required elective for medical students. The objectives will be determined by contract; however, one option is a review for NBME Part I. CR/NC only. Pre: BIOM 551.

BIOC 545 Topics in Biochemistry (V) Fourth-year elective in which medical students take an in-depth study of selected topics in biochemistry. Pre: fourth-year medical student or consent.

BIOC 601L Biochemistry-Biophysics Lab (2) Basic biochemical experimental techniques; enzyme kinetics; active-site identification; amino acid sequence determination; radioimmunoassay, *in vivo* studies of nucleic acids. Pre: 441 or consent.

BIOC 624 Protein Interactions (2) Thermodynamics of protein-ligand and protein-protein interactions: protein dynamics. Pre: 441 and CHEM 351, or consent.

BIOC 643 Bioenergetics and Carbohydrates (3) Current topics on mechanism of energy production and transformation. Advanced survey of structure and metabolism of carbohydrate biochemistry. Pre: 441 or consent.

BIOC 644 Metabolic Biochemistry (3) Organization and function of metabolic pathways of proteins, heme, nucleotides, and lipids. Pre: 441 or consent.

BIOC 671 Seminar (1) Weekly discussions and reports on various subjects; current advances in biochemistry and biophysics.

BIOC 699 Directed Research (V) Pre: consent.

BIOC 700 Thesis Research (V) Research for master's thesis. Pre: consent.

BIOC 705 Special Topics in Biochemistry (V) Advanced treatment of frontiers in biochemistry. Repeatable. Pre: consent.

BIOC 710 Enzyme Regulation (2) Control of biocatalytic activity at molecular, cellular, and organismal levels. Pre: consent. (Alt. years)

BIOC 730 Phage, Plasmids, and Recombinant DNA (2) Plasmid replication, transmission, and compatibility; gene cloning, gene transfer, and genetic engineering. Pre: consent. (Alt. years)

BIOC 800 Dissertation Research (V) Research for doctoral thesis. Pre: consent.

BioEngineering (BE)

College of Tropical Agriculture and Human Resources

BE 351 Energy Conversion and Power Units (3) Fundamentals of energy conversion for engineering and biological systems. Engineering design and performance analysis of electrical, mechanical, and hydraulic energy conversion and power transmission systems. Practical problems related to power unit selection and optimal performance. A-F only. Co-requisite: 351L. Pre: CHEM 171, MATH 241, and PHYS 170; or consent. **DP**

BE 351L Energy Conversion and Power Units Lab (1) (1 3-hr Lab) Laboratory experience in design and analysis of power devices and energy conversion systems. Field trips focused on field and industrial applications. A-F only. Co-requisite: 351. **DY**

BE 360 Mass and Energy Balances (3) Introduction of the principles of mass and energy conservation; development of systematic approaches to apply these principles in calculations for design and analysis of biochemical, chemical, and physical processes. Pre: CHEM 171, PHYS 170, and MATH 242. **DP**

BE 401 Microcomputer Use in Biosystems (3) (2 Lec, 1 3-hr Lab) Use of microcomputers for problem solving in technical writing; data acquisition, management, and analysis; expert system models. Pre: MATH 241.

BE 411 Food Engineering (3) (2 Lec, 1 3-hr Lab) Principles and application of thermodynamics, electricity, fluid mechanics, heat transfer, psychrometry, and material and energy balances to food processing and preservation. Pre: one year physics. (Cross-listed as FSHN 411) **DP**

BE 413 Transport Phenomena (3) Fundamental principles and applications relating to mass, momentum, and energy transfers in biosystems and other systems for engineers and scientists. Pre: CHEM 161, PHYS 170, and MATH 242; or consent. **DP**

BE 431 Environmental Biotechnology (3) Environmental impact and control; the micro-organism and its nutrition and growth conditions; microbial growth and substrate removal kinetics; bioreactors; biological treatment systems; biodegradation of xenobiotic organic chemicals; case studies. A-F only. Pre: consent. Spring only. **DP**

BE 435 Irrigation Principles and Practices (3) Basic principles of irrigation science with applications to irrigation methods, furrow, sprinkler, and drip; water conveyance, distribution, measurement; soil-water relations and movements; water requirements of crops; and irrigation efficiency emphasis in the Hawaiian situation. **DP**

BE 436 Structures and Environments (3) Functional design of agricultural structures, including shadehouses and environmental control for production, treatment, and storage of plants and animals. Repeatable. Pre: consent. **DP**

BE 437 Biosystems Unit Operations (2) Pumps and fans; size reduction; cleaning and sorting; materials handling; processing of fruits, nuts,

vegetables, animals, and other bio-products. Pre: PHYS 151. **DP**

BE 440 Bioremediation: Principles and Practices (3) (2 Lec, 1 3-hr Lab) Soil environment, fate and transport of contaminants; microbial ecology, metabolism, and energy production; biodegradation of selected compounds. In situ treatment, solid-phase bioremediation, slurry-phase bioremediation, and vapor-phase biological treatment. Open to nonmajors. Repeatable once. Pre: 360, CHEM 161, MATH 241 and 206, PHYS 170, or consent. **DP**

BE 460 Bioreactor Design and Analysis (3) Application of mass/energy balances and reaction kinetics for the design and analysis of bioreactors for microbial, plant, and animal cell cultures. Pre: CHEM 161, PHYS 170, and MATH 241; or consent. **DP**

BE 481 Senior Engineering Design I (3) (1 1-hr Lec, 2 3-hr Lab) First of a two-semester course sequence that provides a major design experience for senior students in biosystems engineering. Design process; project management; design methods; modeling and simulation; design optimization; engineering economics; engineering statistics, initiation of an open-ended design project. Pre: 351/351L, 360, or consent. **DP**

BE 482 Senior Engineering Design II (3) (1 1-hr Lec, 2 3-hr Lab) Continuation of 481. Properties of biological materials; risk and reliability; design ethics; guest lectures on engineering design by practicing engineers; extension and completion of the design project with submission of a final design report. Pre: 481 or consent. **DP**

BE 491 Biosystems Engineering Topics (V) Study and discussion of significant topics and problems. Offered by visiting faculty and/or for extension programs. Repeatable.

BE 492 Internship (4) Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/ employer. Pre: consent.

BE 499 Directed Research (V) Research in the area of biosystems engineering. Pre: consent.

BE 604 Aquaculture Systems (3) Study and review of fundamental principles and mechanisms critical to understanding and operating aquaculture systems. Engineering, business, and operating analyses. Pre: CEE 320, CHEM 151, and MATH 241.

BE 606 Instrumentation and Measurement (3) Measurement concepts and operating principles applied to the selection and use of instruments important to scientists and engineers dealing with biological systems, including automatic data acquisition and processing. Pre: CHEM 151, MATH 241, and ME 311; or consent.

BE 610 Advanced Food Processing Technology (3) Principles and applications of new methods of food preservation. Repeatable. Pre: FSHN 401 and FSHN 403, or equivalent; or consent. (Cross-listed as FSHN 610)

BE 622 Experimental Methods in Cause-Effect Modeling (3) Factorial designs and fractional factorial designs for screening variable and response optimization. Response surface methodology. Experimental designs appropriate to

building and testing multi-variable behavior relationships. Sequential experimental designs.

BE 634 Biological Treatment (3) Fundamentals of applied microbiology and biochemical reactor engineering, quantitative description of microbial growth, operational theory and design basis of aerobic, anoxic and anaerobic treatment processes. Applications for water, wastewater, air, solid wastes, and soil. A-F only. Pre: consent. Fall only. (Cross-listed as CEE 634)

BE 635 Irrigation System Design (3) Hydraulics of surface irrigation, volume balance analysis and irrigation efficiency, optimal length of run and irrigation scheduling; sprinkler irrigation system design, distribution, and uniformity; drip irrigation system design and related problems. Pre: 435 or consent.

BE 638 Biosystems Modeling (3) Introduction to system thinking, procedures for developing system models, characteristics of important agricultural system models, computer approach to evaluation and optimization of system models. Pre: MATH 242.

BE 648 Biosystems Simulation (3) Discrete and continuous simulation models and their application in design and management of engineering and biological systems.

BE 660 Bioseparation Processes (3) Design, analysis, and scale-up of separation process that incorporates unit operations such as filtration, cell distribution, and chromatography for the purification of biological products. Pre: CHEM 253 and MATH 241, or consent. Fall only.

BE 699 Directed Research (V)

BE 700 Thesis Research (V)

BE 750 Seminar (1) Use of computer and video technology in technical presentation, review of current biosystems engineering research. Pre: consent.

Biology (BIOL)

College of Natural Sciences

Courses for Non-Science Majors

BIOL 101 Biology and Society (3) Characteristics of science, historical development of scientific concepts, and interaction of society with science illustrated by topics from biological science. Credit not given for both 101 and 123. **DB**

BIOL 101L Biology and Society Laboratory (1) (1 3-hr Lab) Lab experiments illustrating topics and methods in the biological sciences. Pre: 101 (or concurrent). **DY**

BIOL 102 General Botany (3) Growth, functions, and evolution of plants; their relations to the environment and particularly to humans and human activities. (Cross-listed as BOT 101) **DB**

BIOL 102L General Botany Laboratory (1) (1 3-hr Lab) Lab observations and experiments illustrating basic principles of plant biology. Pre: 102 (or concurrent). (Cross-listed as BOT 101L) **DY**

BIOL 103 Principles of Zoology (3) Structure, development, physiology, reproduction, evolution, behavior, and ecology of animals. (Cross-listed as ZOOL 101) **DB**

BIOL 103L Principles of Zoology Laboratory (1) (1 3-hr Lab) Laboratory to accompany 103. Pre: 103 (or concurrent). (Cross-listed as ZOOL 101L) **DY**

BIOL 123 Hawaiian Environment Science (3) Characteristics of science and interaction with society illustrated by topics in geology, astronomy, oceanography, and biology of Hawaiian Islands. Credit not given for both 123 and 101. **DB**

BIOL 123L Hawaiian Environment Science Lab (1) (1 3-hr Lab) Lab experiments illustrating topics and methods in science; examples from Hawaiian natural history. Pre: 123 (or concurrent). **DY**

BIOL 124 Environment and Ecology (3) Biological and physical principles affecting human/environment interaction; impact of science, technology, value, and perceptions on global society and ecology; projections and options about human ecology. **DB**

BIOL 124L Environment and Ecology Lab (1) (1 3-hr Lab) Lab experiments and projects illustrating topics in human ecology. Pre: 124 or concurrent. **DY**

BIOL 201 The Biotechnology Age: Issues and Impacts (3) Introduction to the basic concepts, goals and practical impacts of biotechnology. Real-life case studies are used to explore socio-ethical, economic, and environmental issues raised by cloning, DNA testing, gene therapy and genetically engineered food, medicines, and vaccines using microbes, plants and animals. Pre: 101 or consent. (Cross-listed as MBBE 201) **DB**

BIOL 310 Environmental Issues (3) Global environmental problems in historical perspective; physical, biological, sociocultural views. Pre: one of 101, 123, or GEOG 101; or consent. **DB**

BIOL 320 The Atoll (3) Atoll as ecosystem and as human environment. Formation, structure, distribution, biota. Pre: two semesters of introductory science or consent. **DB**

BIOL 340 Genetics, Evolution and Society (3) The role of genetics in evolution, medicine, behavior, plant and animal breeding and technology; its impact on today's society. Pre: One semester of biological science at college level or consent. (Cross-listed as CMB 351)

BIOL 350 Sex Differences in the Life Cycle (3) Human sex differences, their biological basis and significance; genetic, hormonal, and behavioral determinants of sexual differentiation; biology of gender, sexuality, parenting, menopause, and aging. Pre: one semester of biological science. (Cross-listed as WS 350) **DB**

BIOL 360 Island Ecosystems (3) Characteristics of island biota; examples from Hawai'i and the Pacific. Impact of island and continental cultures; policy and ecosystem endangerment; contemporary legislation, policy, and management practices. Pre: one semester of biological science or consent. **DB**

BIOL 410 Human Role in Environmental Change (3) Human impacts through time on vegetation, animals, landforms, soils, climate, and atmosphere. Special reference to Asian/Pacific region. Implications of long-term environmental change for human habitability. Pre: one of 123, 124, or GEOG 101 and either 310 or GEOG 326; or consent. (Cross-listed as GEOG 410) **DB**

BIOL 430 Seminar in the Biology of Women (3) Embryological, anatomical, and physiological development of human female; hormonal, neural,

and behavioral determinants of female sexual behavior; psychobiology of pregnancy, ovariectomy, and menopause. Pre: 172, 350 or WS 350, WS 377; or consent. (Cross-listed as WS 430) **DB**

BIOL 440 Psychoactive Drug Plants (3) Taxonomy, ecology, biochemistry, distribution, cultural history, and contemporary use of mind-altering drug plants; examples from primitive, traditional, and modern societies. Pre: junior standing, one semester of biological science, and either ANTH 200 or GEOG 151; or consent. **DB**

Courses for Life Science Majors

BIOL 171 Introductory Biology (3) Introductory biology for all life science majors. Cell structure and chemistry; growth, reproduction, genetics, evolution, viruses, bacteria, and simple eukaryotes. Pre: CHEM 151 or 161 (or concurrent) or consent. Co-requisite: 171L. **DB**

BIOL 171L Introductory Biology Lab (1) (1 3-hr Lab) Laboratory to accompany 171. Pre: CHEM 151 or 161 or 161L (or concurrent) or consent. Co-requisite: 171. **DY**

BIOL 172 Introduction to Biology II (3) Continuation of 171. Anatomy, physiology, and systematics of plants and animals; behavior; ecosystems, populations, and communities. Pre: 171/171L. Co-requisite: 172L. **DB**

BIOL 172L Introduction to Biology II Lab (1) (1 3-hr Lab) Laboratory to accompany 172. Co-requisite: 172. **DY**

BIOL 201 The Biotechnology Age: Issues and Impacts (3) Introduction to the basic concepts, goals and practical impacts of biotechnology. Real-life case studies are used to explore socio-ethical, economic, and environmental issues raised by cloning, DNA testing, gene therapy and genetically engineered food, medicines, and vaccines using microbes, plants and animals. Pre: 101 or consent. (Cross-listed as MBBE 201) **DB**

BIOL 265 Ecology and Evolutionary Biology (3) Principles of ecology and evolution for life science majors stressing integrated approach and recent advance. Pre: 171/171L and 172/172L; or consent. Co-requisite: 265L. **DB**

BIOL 265L Ecology and Evolutionary Biology Lab (1) (1 3-hr Lab) Laboratory to accompany 265. Recommended: ICS 101/101L. Co-requisite: 265. **DY**

BIOL 275 Cell and Molecular Biology (3) Integrated cell and molecular biology for life science majors. Modern advances in recombinant DNA technology. A-F only. Pre: 171/171L, 172/172L, and CHEM 272/272L; or consent. Co-requisite: 275L. **DB**

BIOL 275L Cell and Molecular Biology Lab (1) (1 4-hr Lab) Laboratory for Cell and Molecular Biology. A-F only. Pre: 171/171L, 172/172L, and CHEM 272/272L; or consent. Co-requisite: 275. **DY**

BIOL 299 Service Learning for Biology Majors (V) Directed participation on tutorials and related activities in public schools and approved community and UHM organizations. A-F only. Repeatable one time. Pre: 265/265L, 275/275L and consent.

BIOL 363 Biological Field Studies (V) Biological survey, collection, and analysis techniques will be reviewed and applied through

field studies. Students will be introduced to the uniqueness of the Hawaiian environment and its diversity of life. Emphasis on diversity, evolution and ecology. Pre: 171/171L, 172/172L, and 265/265L or equivalent; or consent. **DB**

BIOL 375 Concepts of Genetics (3) Genetic concepts at advanced undergraduate level; genetic transmission, recombination, gene action, mutation, population and evolutionary genetics. Pre: 171/171L, 172/172L, and 275/275L; or consent. Co-requisite: 375L. Repeatable once. **DB**

BIOL 375L Concepts of Genetics Lab (1) (1 4-hr Lab) Experiments with a variety of organisms to illustrate principles discussed in BIOL 375. Pre: 171/171L, 172/172L, and 275/275L; or consent. Co-requisite: 375. **DY**

BIOL 399 Directed Studies in Biology Teaching (2) Supervised laboratory internship in the preparation and demonstration of laboratory experiments in selected laboratory courses. Repeatable one time. Pre: consent.

BIOL 401 Molecular Biotechnology (3) General principles, applications, and recent advances of the rapidly growing science of biotechnology. Topics include impact of biotechnology on medicine, animal sciences, environment, agriculture, forensics, and economic and socio-ethical issues. Pre: 275 or consent. (Cross-listed as MBBE 401) **DB**

BIOL 402 Principles of Biochemistry (4) Molecular basis of living processes in bacteria, plants, and animals; emphasis on metabolism of carbohydrates, lipids, proteins, and nucleic acids. Pre: 275, 275L, CHEM 272, and CHEM 273; or consent. (Cross-listed as MBBE 402 and PEPS 402) **DB**

BIOL 405 Biochemistry (4) Structure of biological molecules and molecular mechanisms of biological and physiological processes. Pre: 275 and 275L, and CHEM 272 and 273, or consent. (Cross-listed as CMB 405) **DB**

BIOL 406 Cellular Biology (3) Cell structure and function. Structure, chemistry, and functions of organelles and macromolecules. Pre: 275 and CHEM 273, or consent. **DB**

BIOL 406L Cellular Biology Laboratory (2) (2 3-hr Lab) A laboratory to accompany 406. Pre: 275L or consent. Co-requisite: 406. **DY**

BIOL 407 Molecular Biology (3) Relationship between structure and function at macromolecular level. Pre: 275 and CHEM 273; or consent. **DB**

BIOL 407L Molecular Biology Laboratory (2) (2 3-hr Lab) A laboratory to accompany 407. Pre: 275L or consent. Co-requisite: 407. **DY**

BIOL 409 Biology Seminar (1) Study and discussion of current or significant topics and problems in biology. Open to graduating seniors in biological sciences. A-F only. Pre: consent.

BIOL 425 Wildlife and Plant Conservation (3) Principles of conservation biology and wildlife management techniques, illustrated with animal, plant, and ecosystem examples. Examination of ethical, cultural, legal, political, and socio-economic issues impinging on conservation policy and practice. Group project and field trips. Pre: 171/171L, 172/172L, and 265/265L; or consent. **DB**

BIOL 441 Basic Biochemistry (4) Function and composition of biological substances and their metabolic transformation in animals, plants,

microorganisms. Pre: 275/275L, CHEM 272, and CHEM 273; or consent. (Cross-listed as BIOC 441)

BIOL 499 Biological Problems (V) Directed reading and research. For seniors whose research interests are not served by MICR 499, ZOO 499, or BOT 399. Limited to senior majors in biology (BA and BS) with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in biology courses.

Professional Development Courses for Science Teachers

BIOL 461 Ecology, Evolution and Conservation for High School Teachers (2) Principles of ecology, evolution and conservation for in-service teachers to learn about the integrated approach and recent advances in these areas. Pre: 171/171L, 172/172L, in-service teachers; or consent. **DB**

BIOL 462 Biogeography and Biodiversity in Hawai'i for Science Teachers (2) Principles of adaptive radiation, unique adaptations, and coevolution of Hawai'i's flora and fauna; and alien plants and animals impact on native species. Pre: 171/171L, 172/172L, or consent.

BIOL 463 Biological Field Studies for Science Teachers (2) Biological survey, collection, and analysis techniques will be reviewed and applied through field studies. Participants will be introduced to the uniqueness of the Hawaiian environment and its diversity of life. Emphasis on diversity, evolution, and ecology. A-F only. Pre: 171/171L, 172/172L, in-service teachers; or consent. **DB**

BIOL 466 Cell Biology for High School Teachers (2) Structure, function of cells, cell organelles and macromolecules. For in-service teachers to learn about the current developments in cell biology. A-F only. Pre: 171/171L, 172/172L, in-service biology teachers; or consent.

BIOL 466L Cell Biology Laboratory for High School Teachers (1) A laboratory to accompany BIOL 466. A-F only. Pre: in-service biology teachers or consent. Co-requisite: 466.

BIOL 467 Molecular Biology for High School Teachers (2) An in-depth study of gene structure and gene regulation, important cellular macromolecules and techniques used in their analyses. For in-service teachers to learn about current developments in molecular biology. A-F only. Pre: 466 or in-service biology teachers or consent.

BIOL 467L Molecular Biology Laboratory for High School Teachers (1) A laboratory to accompany BIOL 467. A-F only. Pre: in-service biology teachers or consent. Co-requisite: 467.

BIOL 501 (Alpha) Biology Workshop for Science Teachers (V) Principles taught in a conceptual and/or hands-on manner either in a laboratory setting or in the field. (B) biotechnology; (C) ecology, evolution and conservation; (D) marine biology; (F) general biology. A-F only. Repeatable. Pre: 171/171L, 172/172L, in-service teachers; or consent.

See other science professional development courses NSCI 501, 502, 503, 504, 505, 619, and 620 under the Natural Sciences (NSCI) course listing in this section of the Catalog.

Biomedical Sciences (BIOM)

School of Medicine

BIOM 401 Scientific Basis of Medicine (2) Introduction to medical science stressing key historical figures and significant events to exemplify the development of scientific methods. Special emphasis on writing skills, health team concept, and culture and contributions of the Pacific. CR/NC only. Pre: admission to Imi Ho'ola Post-Baccalaureate Program.

BIOM 402 Scientific Basis of Medicine (2) Continuation of 401. CR/NC only. Pre: 401.

BIOM 403 Review of Premedical Biology (5) (2 Lec, 2 Tutorial, 1 3-hr Lab) Biological principles fundamental to further study in the health sciences with emphasis on structure and function of cells, tissues, and organs. CR/NC only. Pre: admission to Imi Ho'ola Post-Baccalaureate Program.

BIOM 404 Review of Premedical Biology (5) (2 Lec, 2 Tutorial, 1 3-hr Lab) Continuation of 403. CR/NC only. Pre: 403.

BIOM 405 Review of Premedical Chemistry (4) Review of selected topics in biochemistry. Designed to reinforce chemical foundations of medical biochemistry. CR/NC only. Pre: admission to Imi Ho'ola Post-Baccalaureate Program.

BIOM 406 Review of Premedical Chemistry (4) Continuation of 405. CR/NC only. Pre: 405.

BIOM 499 Directed Research and Reading (V) To provide elective courses for undergraduates in the biomedical sciences specialties.

BIOM 500 Master's Plan B/C Studies (1)

BIOM 512 (Alpha) Unit II Concurrent Electives (1) Elective courses for first-year medical students. (B) histopathology; (C) medical ethics; (D) introduction to student research. CR/NC only. Pre: 551 and consent.

BIOM 513 (Alpha) Unit III Concurrent Electives (1) Elective courses for first-year medical students. (B) medical ethics; (C) introduction to student research. CR/NC only. Pre: 551 and consent.

BIOM 514 (Alpha) Unit IV Concurrent Electives (1) Elective courses for second-year medical students. (B) community medicine; (C) medical ethics; (D) introduction to student research. CR/NC only. Pre: 551 and consent.

BIOM 515 (Alpha) Unit V Concurrent Electives (V) Elective courses for second-year medical students. (B) community medicine; (C) medical ethics. CR/NC only. Pre: 551 and consent.

BIOM 525 Unit V Block Electives (V) Required electives for second-year medical students; objectives to be determined by contract. One option is a review for USMLE Step 1. CR/NC only. Pre: 551.

BIOM 531 Clerkship Assessment (1) Required comprehensive interdepartment multidisciplinary assessment program for third-year medical students. Pre: 555. Co-requisite: 566 and FPCH, MED, OBN, PED, PSTY, SURG 531 or 532.

BIOM 545 (Alpha) Unit VII Interdisciplinary Electives (V) An elective for senior students to enhance skills in student-centered teaching, to review the sciences basic to the clinical problems,

and to prepare students for their role as teachers during residency. CR/NC only. (B) medical education elective; (C) ambulatory primary care; (D) primary care continuity clinic; (E) primary care weekly seminar; (F) native Hawaiian health-care. Pre: FPCH, MED, OBGN, PED, PSTY, SURG 531 or 532.

BIOM 548 Senior Seminars (4) In-depth review of issues and subjects for fourth-year medical students to strengthen skills in art of medicine. Subjects include medical ethics, decision analysis, medical economics, and diagnostic imaging. CR/NC only.

BIOM 551 Unit I Health and Illness (11) Introductory series of problem-oriented small group tutorials for medical students stressing concepts of health and disease, supplemented by colloquia and resource sessions intended to broaden the perspectives of the Unit I health-care problems. Repeatable twice. CR/NC only. Co-requisite: 571, and 581B or 581C.

BIOM 552 Unit II Cardiovascular, Respiratory, and Renal Problems (10) Advanced series of problem-oriented small group tutorials for medical students focusing on cardiovascular, respiratory, and renal topics, supplemented by conferences, colloquia, labs, and resource sessions intended to broaden the perspectives of the Unit II health-care problems. Repeatable twice. CR/NC only. Pre: 551 or consent. Co-requisite: 572 and 582B or 582 C.

BIOM 553 Unit III Gastroenterology, Endocrinology, and Hematology Problems (10) Advanced series of problem-oriented small group tutorials for medical students focusing on gastroenterology, endocrinology, and hematology topics, supplemented by conferences, colloquia, labs, and resource sessions intended to broaden the perspectives of the Unit III health-care problems. Repeatable twice. CR/NC only. Pre: 551 or consent. Co-requisite: 573 and 583B or 583C.

BIOM 554 Unit IV Locomotor System, Nervous System, Behavioral Problems (11) Advanced series of problem-oriented small group tutorials for medical students focusing on locomotor system, nervous system, and behavioral topics, supplemented by conferences, colloquia, labs, and resource sessions intended to broaden the perspectives of the Unit IV health-care problems. Repeatable twice. CR/NC only. Pre: 551 or consent. Co-requisite: 574.

BIOM 555 Unit V The Life Cycle (8) Advanced series of problem-oriented small group tutorials for medical students focusing on topics across the life cycle, supplemented by conferences and colloquia intended to broaden the perspectives of the Unit V health-care problems. Repeatable twice. CR/NC only. Pre: 551, 552, 553, and 554. Co-requisite: 575.

BIOM 561 Unit I Topics in Health and Illness (2) A series of lecture-discussions intended to broaden the perspective of the Unit I health-care problems. CR/NC only. Co-requisite: 551.

BIOM 566 Unit VI Topics in Health and Illness (2) A series of lecture-discussions intended to broaden the perspectives of the Unit VI experiences and health-care problems. Repeatable. CR/NC only. Pre: 551 and 555.

BIOM 571 Introduction to Clinical Skills and Clinical Anatomy (4) An integrated presentation of the clinical skills and anatomy necessary to perform the basic physical examination linked to

the health-care problems in Unit I. CR/NC only. Co-requisite: 551.

BIOM 572 Unit II Clinical Skills (2) History taking and physical exam skills pertinent to the health-care problems in Unit II. CR/NC only. Pre: 571. Co-requisite: 552.

BIOM 573 Unit III Clinical Skills (2) History taking and physical exam skills pertinent to the health-care problems in Unit III. CR/NC only. Pre: 571. Co-requisite: 553.

BIOM 574 Unit IV Clinical Skills (3) History taking and physical exam skills pertinent to the health-care problems in Unit IV. CR/NC only. Pre: 551 and 571.

BIOM 575 Unit V Clinical Skills (3) History taking and physical exam skills pertinent to the health-care problems in Unit V. CR/NC only. Pre: 571. Co-requisite: 554.

BIOM 581 (Alpha) Unit I Primary Care and Community Medicine (2) Field experience placing student in community settings to work with health-care professionals as they provide services to patients. (B) primary care; (C) Ke Ola O Hawai'i. CR/NC only. Co-requisite: 551.

BIOM 582 (Alpha) Unit II Primary Care and Community Medicine (2) Field experience placing students in community settings to work with health-care professionals as they provide service to patients. (B) primary care; (C) Ke Ola O Hawai'i. CR/NC only. Pre: 551. Co-requisite: 552.

BIOM 583 (Alpha) Unit III Primary Care and Community Medicine (2) Field experience placing students in community settings to work with health-care professionals as they provide service to patients. (B) primary care; (C) Ke Ola O Hawai'i; (D) Ke Ola O Hawai'i hospice. CR/NC only. Pre: 551. Co-requisite: 553.

BIOM 593 Primary Care Preceptorship (3) Students will work with a primary care physician and develop an understanding of primary care practice as well as gain experience in clinical skills. Repeatable one time. CR/NC only. Pre: 551, 571, 572, and 573; or consent. Spring only.

BIOM 594 Student Research Project (3) Students will identify a research project and conduct an in-depth study that will form the focus of a formal paper and a poster presentation. Course work will be integrated into Units 1 through 4. Repeatable one time. CR/NC only. Pre: 551, 552, and 553; or consent. Fall only.

BIOM 595 Evidence-Based Medicine (2) The critical appraisal track is designed to improve the student's ability to seek and evaluate new medical knowledge. CR/NC only. Pre: 551. Co-requisite: 555.

BIOM 599 Research in Basic Sciences (V) An elective for medical students to work on a basic science research project under the direction of a preceptor of the biomedical sciences graduate faculty.

BIOM 699 Directed Reading (V) Students may register on approval of department. CR/NC only. Repeatable.

BIOM 700 Thesis Research (V) Research for master's thesis. Repeatable. CR/NC only. Pre: consent.

BIOM 800 Dissertation Research (V) Research for doctoral dissertation. Repeatable. CR/NC only. Pre: consent.

Biophysics (BIOP)

School of Medicine

Adequate preparation in chemistry (through physical chemistry), physics, and mathematics is required, and a background in biological sciences is desirable.

BIOP 499 Directed Research and Reading (V) Independent research or selected reading of current literature. Emphasizes experimental approaches in biophysics. Pre: consent.

BIOP 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

BIOP 602L Biochemistry-Biophysics Lab (2) Basic biophysical techniques: spectroscopic methods for macromolecular characterization; ultracentrifugation; receptor methodology; *in vitro* studies of nucleic acids. Pre: BIOC 441 or consent.

BIOP 629 Bioenergetics and Membrane Function (2) Energy transducing membrane systems; relationships of structure to function. Pre: BIOC 441, CHEM 351, or consent.

BIOP 633 Nucleic Acids (2) Chemical, physical-chemical, and metabolic principles involved in the study of primary, secondary, and tertiary structures of nucleic acids. Principles of bacterial molecular genetics, restriction, and recombination; DNA-protein interaction studies. Pre: BIOC 441, CHEM 351, or consent.

BIOP 641 Structures and Interactions (3) Proteins, nucleic acids, and membranes are examined to understand the physical and chemical bases of their structures, binding, kinetics, and interactions between biomolecular components. Pre: BIOC 441 and CHEM 351 (or concurrent); or consent.

BIOP 642 Biophysical Techniques (3) Survey of spectroscopies, light scattering, and direct visualization; study of the properties of biomolecules in solution. Pre: BIOC 441 and CHEM 351 (or concurrent); or consent. Spring only.

BIOP 699 Directed Research (V) Pre: consent.

BIOP 700 Thesis Research (V) Research for master's thesis. Pre: consent.

BIOP 705 Special Topics in Biophysics (V) Advanced treatment of frontiers in biophysics. Repeatable. Pre: consent.

BIOP 800 Dissertation Research (V) Research for doctoral thesis. Pre: consent.

BLAW

See Business Law

Botany (BOT)

College of Natural Sciences

BOT 101 General Botany (3) Growth, functions, and evolution of plants; their relations to the

environment and particularly to humans and human activities. (Cross-listed as BIOL 102) **DB**

BOT 101L General Botany Lab (1) (1 3-hr Lab) Lab observations and experiments illustrating basic principles of plant biology. Pre: 101 (or concurrent). (Cross-listed as BIOL 102L) **DY**

BOT 105 Ethnobotany (3) (2 Lec, 1 Demonstration) Plants and their influence upon culture of Hawai'i and Pacific; uses of cultivated and wild plants. Co-requisite: 105L. **DS**

BOT 105L Ethnobotany Laboratory (1) Laboratory exercises, experiments, and analysis in ethnobotany. A-F only. Co-requisite: 105.

BOT 135 Magical Mushrooms and Mystical Molds (3) Impact of fungi in nature and on humankind. Selected historical events in which fungi played a significant role, their activities as decomposers and pathogens, and their uses as sources for mind altering drugs in religious ceremonies and in food and beverage production in various societies. **DB**

BOT 160 Campus Plants (2) Nontechnical course emphasizing recognition of the many interesting tropical plants seen on campus; origin, status in Hawai'i, and cultural and economic uses of campus plants. **DB**

BOT 201 Plant Evolutionary Diversity (3) Significance of evolutionary trends in the plant world, including reproductive, morphological, and life history adaptations by algae, fungi, and vascular plants. Pre: 101 or college general biology. Co-requisite: 201L. **DB**

BOT 201L Plant Evolutionary Diversity Lab (1) (1 3-hr Lab) Lab exercises in the morphology and systematics of land plants, fungi, and algae. Co-requisite: 201. **DY**

BOT 311 Form and Function in Algae and Plants (3) Structural and functional adaptations of algae and plants, with an emphasis on their ecological significance in aquatic and terrestrial environments. Emphasis on bryophytes and peridiphytes. Marine macrophytes, gymnosperms and angiosperms will also be included. Both vegetative and reproductive structures considered. Pre: 201 and 201L, or consent. **DB**

BOT 350 Resource Management and Conservation in Hawai'i (3) Management of native Hawaiian organisms and terrestrial ecosystems with particular attention to strategies, planning, research, and management actions necessary to control alien influences and promote native species. Pre: college general biology. **DB**

BOT 351 Inside Tropical Ecosystems (3) Ecology of tropical ecosystems; biodiversity and its values; energy flow, successional stages and nutrient cycles; approaches to conservation and resource management. Emphasis on Hawaiian ecosystems via field trips to study local examples. Pre: 101, or BIOL 171 and BIOL 172; or consent. **DB**

BOT 351L Inside Tropical Ecosystems Lab (1) Introduction to ecological methods and common plant species of Hawaiian marine and terrestrial ecosystems. Pre: consent. Co-requisite: 351. **DY**

BOT 399 Botanical Problems (V) Individualized directed research. Intended for upper division botany majors. Repeatable six times. Pre: 101, BIOL 172, or consent.

BOT 410 Plant Anatomy (3) Structure of vascular plants; origin and differentiation of

tissues; relation of structure to function. Pre: 201. Co-requisite: 410L. Recommended: 470. **DB**

BOT 410L Plant Anatomy Lab (1) (1 3-hr Lab) Lab study of plant structure. Co-requisite: 410. **DY**

BOT 430 Mycology (2) Morphology, physiology, ecology of fungi; their identification. Pre: 201, BIOL 172, or consent. **DB**

BOT 430L Mycology Lab (2) Laboratory to accompany 430. Pre: 430 (or concurrent) or consent. **DY**

BOT 440 Advanced Ethnobotany (3) Advanced studies of plant uses in cultural contexts, focusing upon impacts of plant-culture interactions in development of cultures, cultivars, medicinals, ethnoecologies, ethics, and intellectual property. Pre: 105 and one of 461, ANTH 200, BIOL 172, BIOL 201, BIOL 361; or consent. **DS**

BOT 442 Medical Ethnobotany (3) Survey and theory of plants used as medicines, cultural perspectives of herbal medicine, and the botanical/chemical basis of allopathic and naturopathic medicine. Pre: 105 or consent. Recommended: CHEM 272 or BIOC 341. **DS**

BOT 444 Ecological Ethnobotany (3) Ecological implications of cultural uses of plants. Examines the biological basis for, and ecological effects of traditional and local resource management systems. Pre: one of 101, 105, 453, ANTH 200, BIOL 101, GEOG 328; or consent.

BOT 446 Hawaiian Ethnobotany (3) (2 Lec, 1 3-hr Lab) Methods and techniques of handling and identifying plant materials used by early and modern Hawaiians for house and canoe construction, clothing, household and fishing items, medicine, and food preparation. Reading, laboratory, and fieldwork. Pre: 101 or 105, ANTH 200 or ANTH 210, and consent. **DS**

BOT 450 Natural History of Hawaiian Islands (3) (2 Lec, 1-hr Lab) Geography, geology, climatology, biotic environment of Pacific Basin and Hawaiian Islands; endemism and evolution in terrestrial and marine biota of islands. Pre: one semester of biological sciences at college level. (Cross-listed as ZOO 450) **DB**

BOT 453 Plant Ecology and Environmental Measurements (4) (2 Lec, 2 3-hr Lab) Influence of natural environments on plant behavior (autecology). A field-oriented course to complement 454. Field trips. Should precede 454. Pre: one of 101, BIOL 172, or ZOO 101. **DB**

BOT 454 Vegetation Ecology (4) (2 Lec, 2 3-hr Lab) Analysis and synthesis of plant communities and ecosystems (synecology). Field trips to develop local examples. Integrated with 453. Pre: one of 101, BIOL 172, or ZOO 101. Recommended: 453. **DB**

BOT 455 Analysis of Biological Data (3) Application of computers to analysis of biological data; preparation and storage, report production, database analysis procedures, univariate and bivariate statistical analyses. Pre: BIOL 172 or consent.

BOT 456 Plant-Animal Interactions (3) Interdependence of plants and animals, emphasizing the influence of animals on plant fitness and evolution. Topics include pollination, fruit/seed dispersal, herbivory, and ant-plant mutualisms. Pre: 201/201L or BIOL 265/265L. **DB**

BOT 461 Systematics of Vascular Plants (4) "Hands-on" experience with Hawai'i's unique tropical flora; emphasis on recognition and identification of vascular plant families and the principles and methodologies that define them; evolution of biodiversity. Pre: 101 or college general biology. **DB**

BOT 462 Plant Evolution (3) Major events and principles; includes the blue-green algae and fungi. Pre: 201 or BIOL 172. (Alt. years) **DB**

BOT 470 Plant Physiology (3) Integration of form and function from cellular to whole plant levels in processes from seed germination, through photosynthesis, growth, and morphogenesis, to flowering and senescence. A-F only. Pre: CHEM 152 and BIOL 171; or consent. Co-requisite: 470L. (Cross-listed as TPSS 470) **DB**

BOT 470L Principles of Plant Physiology Lab (1) (1 3-hr Lab) Principles of experimentation in plant physiology, includes individual investigations. A-F only. Pre: consent. Co-requisite: 470. (Cross-listed as TPSS 470L) **DY**

BOT 480 Algal Diversity and Evolution (4) (3 Lec, 1 3-hr Lab) Principles of algal diversity, structure, and evolution. Identification of common Hawaiian algae. Pre: one of 101, BIOL 172, MICR 351, ZOO 101, or consent. **DB**

BOT 482 Adaptations of Plants to Marine Environment (3) Morphological, physiological, cellular, and molecular examples of adaptation to marine environments by marine macroalgae, phytoplankton, and sea grasses. Pre: 480. (Alt. years) **DB**

BOT 482L Adaptations of Plants to Marine Environment Lab (1) (1 3-hr Lab) Laboratory exercises emphasizing current research tools and opportunities in algal/sea grass physiological ecology. Repeatable once. Pre: 482 (or concurrent); or consent. **DY**

BOT 500 Master's Plan B/C Studies (1)

BOT 606 Graduate Research Skills (2) (1 Lec, 1 3-hr Lab) Survey of major research areas in the botanical sciences with emphasis upon research opportunities in Hawai'i and an overview of 1) skills needed by botanical researchers including writing scientific papers and proposals, practicing ethical research procedures, and collection of specimens, and 2) equipment used by botanical researchers including computers, cameras, measuring and monitoring equipment, and global positioning systems. Lecture/discussion, laboratory. Repeatable one time. Pre: graduate standing in biological science or approval.

BOT 610 Botanical Seminar (1) Study and discussion of significant topics and problems in botany. Repeatable three times.

BOT 612 Advanced Botanical Problems (V) Investigation of any botanical problem; reading and laboratory work. Repeatable nine times. Pre: consent.

BOT 620 Perspectives in Modern Botany (2) Lectures by distinguished visiting professor on contemporary botanical topics in the lecturer's area of expertise. No more than 6 credit hours may be counted toward the MS degree requirements. Repeatable five times.

BOT 640 Quantitative Ethnobotany (3) Modern ethnobotanical field research project design, execution, data analysis, and documentation methods. Intended for students preparing to

conduct field research studies. Lecture/discussion, term paper. Pre: 105 and one of 201, 461, ANTH 200, or BIOL 172.

BOT 644 Ethnoecological Methods (3) Field techniques for assessing the ecological effects of cultural uses of plants. Emphasis on documenting traditional and local patterns of plant use and measuring the effects on plant individuals, populations, communities, and landscapes. Pre: previous course work in anthropology or biology.

BOT 650 Ecology Seminar (2) Literature reviews of concepts and methods in physiological and vegetation ecology. Repeatable three times. Pre: graduate standing; consent for well-prepared undergraduates.

BOT 651 Invasion Biology (3) Theories, models, patterns, and predictive methods relating to the introduction, establishment, and spread of introduced organisms. Application of principles of invasion biology to conservation and natural resource management. Pre: one of 453, 456, 482, MICR 485, or ZOO 439; and 462 or BIOL 375; or consent.

BOT 652 Population Biology (3) Theory and applications of population biology; behavior of population models, as revealed by analytical methods and computer simulation; application to population problems such as endangered species; discussion of classical and current literature in population biology. Pre: an upper-level ecology course and MATH 215 or MATH 241; or consent. (Cross-listed as ZOO 652)

BOT 661 Hawaiian Vascular Plants (3) (2 Lec, 1 3-hr Lab) Identification, systematics, evolution, and biogeography of native plants. Field trips. Pre: 461 or consent.

BOT 662 Advanced Systematics (4) (2 Lec, 2 3-hr Lab) Combined lecture-lab oriented course in the application of molecular protocols used in systematics and population genetics studies; emphasis on data gathering, data analysis, and presentation of results. Recommended: 669. Pre: ENBI 402 (or concurrent), or BIOC 441 (or concurrent); or consent. (Spring only)

BOT 663 Plant Cytotaxonomy (2) (1 Lec, 1 3-hr Lab) Aspects of cytogenetics most relevant to vascular plant taxonomy. Emphasis on student participation and mastery of cytogenetic techniques. Pre: 461 or consent. (Alt. years)

BOT 669 Molecular Systematics and Evolution (3) Molecular approaches to evolution, phylogenetics, and systematics. Basic use of chloroplast DNA, mitochondrial DNA, nuclear DNA, and electrophoresis. Phylogenetic analysis using parsimony, distance, and comparative methods. Recommended: 201. Pre: BIOL 172 and BIOL 275, or ENBI 402, or BIOC 441; or consent.

BOT 676 Environmental Physiology Seminar (2) Environmental stress; pollution; salinity, geobotany, and other interactions between the environment and plant processes. Current literature emphasized at multidisciplinary and interdisciplinary levels. Pre: graduate status in a biological science, geosciences, etc.; consent for well-prepared undergraduates.

BOT 680 Marine Macrophytes Seminar (2) Discussion of current literature in physiological ecology, cellular and molecular adaptations to environmental factors by marine plants. Repeatable four times. Pre: 480.

BOT 690 Conservation Biology (3) Theories and concepts of ecology, evolution, and genetics for conservation of biological diversity. Topics will include restoration ecology, management planning, laws and policies, biological invasions. Pre: 453 or ZOO 439, 462 or ZOO 480. (Cross-listed as ZOO 690)

BOT 699 Directed Research (V) Research preliminary to thesis or dissertation research. CR/NC only. Pre: consent of graduate committee.

BOT 700 Thesis Research (V) Pre: candidacy for MS degree and approval of thesis proposal.

BOT 750 Topics in Conservation Biology (V) Advanced topics in conservation and environmental biology. Repeatable three times. A–F only. Pre: consent. (Cross-listed as ZOO 750)

BOT 800 Dissertation Research (V) Pre: candidacy for PhD and approval of dissertation proposal.

Burmese (BURM)

College of Languages, Linguistics and Literature

BURM 101 Elementary Burmese (4) Listening, speaking, reading, writing. Structural points introduced inductively. Meets one hour daily, Monday–Friday. Lab work. **HSL**

BURM 102 Elementary Burmese (4) Continuation of 101. **HSL**

BURM 112 Intensive Elementary Burmese (4) **HSL**

BURM 201 Intermediate Burmese (4) Continuation of 102. Conversation, reading, writing. Meets one hour daily, Monday–Friday. Lab work. Pre: 102. **HSL**

BURM 202 Intermediate Burmese (4) Continuation of 201. **HSL**

BURM 212 Intensive Intermediate Burmese (10) **HSL**

BURM 303 Accelerated Third-Level Burmese (6)

Business (BUS)

College of Business Administration

BUS 099 International Exchange Study/Research (V) Study overseas in an approved international exchange or similar program. Repeatable four times. CR/NC only. Pre: consent of academic adviser.

BUS 209 Written Communication in Business (3) An interactive writing class stressing persuasive writing in the context of memos, letters, and business reports. A–F only. Pre: ACC 201 and ENG 100. Students may not earn credit for both BUS 209 and ENG 209.

BUS 250 Applied Math in Business (3) The algebra and geometry of linear, quadratic, exponential, and logarithmic functions. Mathematics of finance—annuities, perpetuities, present value. Derivatives, graphical analysis, mathematical models as applied to business. Selected coverage of algebra, geometry, and calculus emphasizing business applications and decision making. Pre: two years high school algebra and one year plane geometry.

BUS 300 Business Issues (3) Designed to familiarize non-business students with basic business concepts and skills. Topics include business organization, management, marketing, accounting, and finance. Pre: sophomore standing and non-business major.

BUS 305 Introduction to Marketing (3) Introduction to the field of marketing designed for non-business students. Emphasis given to explaining marketing from the social, consumer, and managerial point of view. Pre: sophomore standing and non-business major.

BUS 310 Statistical Analysis for Business Decisions (3) Problem recognition and formulation; stress on cross-disciplinary complex problem solving and communication; computer intensive. Coverage of descriptive statistics, probability and hypothesis testing with emphasis on quality, productivity, and regression analysis. Must be taken in first semester of BBA program. Pre: MATH 241 or equivalent. **DS**

BUS 311 Information Systems for Global Business Environment (3) Skills and strategies for using external information resources applied to local and global business issues; advanced skills in computer-based analytical techniques and information management; impact of information technology on business operations. Must be taken in first semester of BBA program. Pre: ICS 101 or equivalent, or consent.

BUS 312 Principles of Marketing (3) Concepts, problems, and opportunities in marketing within its competitive, political-legal, economic, social and global environments. Social responsibility and ethics. Marketing research. Consumer and business-to-business segmentation and positioning. Strategic marketing planning. Students may not earn credit for BUS 312 and TIM 304.

BUS 313 Economic and Financial Environment of Global Business (3) International trade, financial flows, and direct investment. Public and private institutions including government policies and capital markets. Emphasis on Asia Pacific issues, with attention to the cultural differences among countries. Must be taken in first year of BBA program. **DS**

BUS 314 Business Finance (3) Introduction to the theory and practice of financial management: analysis and decision making for asset management, capital budgeting, capital structure, and dividend policy. Prerequisite for all other finance courses. Pre: ACC 202 or consent.

BUS 315 Global Management and Organizational Behavior (3) Analysis of theories and concepts underlying domestic and global organizational management, including behavioral and personnel issues. Emphasis on leadership, team-work, cultural differences in the Asia Pacific region. Prerequisite to all other advanced management courses. Students may not receive credit for BUS 315 and TIM 303. Pre: PSY 100 or SOC 100.

BUS 345 Strategic Management (3) Applications of strategy to domestic and global business problems using an interdisciplinary approach. Emphasis on Asia Pacific business, assessment of risk, integration of all business core disciplines. Extensive writing expected. Pre: all core courses and graduating senior standing.

BUS 367 Business Study Abroad (V) Study abroad experience emphasizing international business issues. Course content varies depending

on where the course is taught and by which professor. Course qualifies as an international business elective. Repeatable four times. CR/NC only.

BUS 395 (Alpha) Internship (V) On-the-job experience in the business community. Term paper and meetings with faculty adviser required. (C) accounting; (D) MIS; (F) finance; (G) management; (I) international business; (K) marketing; (M) human resource management; (R) real estate. CR/NC only. Repeatable one time. Pre: consent and RE 300 for (R) only.

BUS 477 Dynamics of Asian Finance (6) Analysis of selected key industries of Asian countries: business/economic trends, shifting product mix, technological changes, joint ventures, international competition, and productivity strategy, including contrasting management styles, worker/management relationships, and decision-making processes under different cultural settings. Industry observations conducted in Asian countries for three weeks during the summer. Pre: 6 credit hours of economics or business, PAMI participant, or consent.

BUS 500 Master's Plan B/C Studies (1) Enrollment required for degree completion. Pre: master's Plan B or C candidate and consent.

BUS 610 (Alpha) Analytical Tools for the MBA (2) Integrative course providing foundation skills in business. (B) accounting tools for the MBA; (C) statistical tools for the MBA; (D) economic tools for the MBA. 610B, 610C, and 610D must be taken concurrently. A–F only.

BUS 613 (Alpha) Organization and External Environments of Asia-Pacific Business (3) Integrative course covering, from an Asia-Pacific cross-cultural perspective, the organizational behavior in business settings along with the external and technological business environment. (B) organizational behavior; (C) external environment of Asia-Pacific business. 613B and 613C must be taken concurrently. A–F only. Pre: 610B, 610C, and 610D (or concurrent).

BUS 614 (Alpha) Managerial Finance and Accounting (3) Integrative course covering managerial accounting tools and finance. (B) managerial accounting; (C) managerial finance. 614B and 614C must be taken concurrently. A–F only. Pre: 610B, 610C, and 610D (or concurrent).

BUS 615 (Alpha) Marketing Management and Information Technologies (3) An integrative course covering marketing and the use of information technologies. (B) marketing management; (C) information technologies. 615B and 615C must be taken concurrently. A–F only. Pre: 610B, 610C, and 610D (or concurrent).

BUS 660 Business Policy and Strategy (3) Integration of learning through analysis of comprehensive business problems, resolution of policy issues, and the study of competitive strategies in the international setting. Pre: all required MBA courses.

BUS 677 Field Study in Asia (6) Industry observations conducted entirely in Asian countries for three and a half weeks. Pre: consent.

BUS 695 Internship (3) On-the-job experience in the business community. Project paper and meetings with faculty adviser required. Pre: consent.

BUS 696 (Alpha) Field Studies in the Enterprise (3) Comprehensive study of (B) audit of existing organizations. Problems and solutions, or feasibility, of personally experienced organizations, as opposed to text case studies. Pre: 660.

BUS 696C Entrepreneurship (3)

BUS 699 Directed Reading and Research (3) Outline (including methodology or sources, results expected, and means of measurement) must be prepared by student and approved by supervisor and chair of graduate programs before registration.

BUS 700 Thesis Research (V) Required for Plan A candidates only; 6 credit hours required, 1 of which must be taken during semester in which degree is awarded.

Business Law (BLAW)

College of Business Administration

BLAW 200 Legal Environment of Business (3) Introduction to the legal environment of business operations with particular attention to business law and ethics and to principles of law relating to contracts, agency, partnerships, and corporations.

BLAW 311 Business Enterprise and Government (3) Critical study of the legal environment of business administration including competition, monopolies, mergers, securities, taxation, and regulatory agencies. Pre: 200.

BLAW 360 International Business Law (3) Overview of international and national law as it applies to international trade. Readings and case studies focus on the legal environment of selected areas in the Asia Pacific region and strategies for doing business overseas. Pre: 200.

BLAW 604 Social and Legal Aspects of Management (3) Study of the legal environment of management with particular attention to the sources, principles, and form of the law; contracts, business organizational structures, agency, and partnership.

Cambodian (CAM)

College of Languages, Linguistics and Literature

CAM 101 Introduction to Modern Khmer (4) Listening, speaking, reading, writing. Structural points introduced inductively. Meets five hours weekly; daily lab work. HSL

CAM 102 Introduction to Modern Khmer (4) Continuation of 101. HSL

CAM 112 Intensive Elementary Khmer (10) HSL

CAM 201 Intermediate Modern Khmer (4) Continuation of 102. Conversation, reading, writing. Meets five hours weekly; daily lab work. Pre: 102. HSL

CAM 202 Intermediate Modern Khmer (4) Continuation of 201. HSL

CAM 212 Intensive Intermediate Khmer (10) HSL

CAM 303 Accelerated Third-Level Cambodian (6)

CEE

See Civil and Environmental Engineering

Cell and Molecular Biology (CMB)

School of Medicine

CMB 351 Genetics, Evolution and Society (3) The role of genetics in evolution, medicine, behavior, plant and animal breeding and technology; its impact on today's society. Pre: One semester of biological science at college level or consent. (Cross-listed as BIOL 340) DB

CMB 405 Biochemistry (4) Structure of biological molecules and molecular mechanisms of biological and physiological processes. Pre: BIOL 275, BIOL 275L, CHEM 272, and CHEM 273; or consent. (Cross-listed as BIOL 405) DB

CMB 411 Human Genetics (3) Principles of human genetics. Designed for pre-medical or pre-dental students or others who require a course with emphasis on human genetics. Pre: BIOL 171 and BIOL 171L, or BIOL 172 and BIOL 172L; or consent. DB

CMB 499 Genetical Problems (V) Directed reading and research in genetics. Pre: 351 or 411.

CMB 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

CMB 515 Unit V Topics in Genetics (1) First-year elective course in which medical students may take an in-depth study of genetics. Pre: first-year medical student or consent.

CMB 601 Probability and Statistics in Genetics (3) Basic concepts of probability theory and statistical inferences in genetic applications. Pre: 411 or consent.

CMB 604 Evolutionary Genetics (2) Genetic changes involved in the processes of adaptation and in species formation. Pre: 411 or equivalent. Recommended: population and/or quantitative genetics.

CMB 606 Introduction to Neurosciences (4) An interdisciplinary overview of the central nervous system, drawn from current knowledge and research on vertebrate and invertebrate neurobiology. Pre: consent.

CMB 611 Seminar in Biomedical Sciences (1) Presentation and discussion of research topics in biomedical science. Repeatable six times. CR/NC only. Pre: graduate standing or consent. (Cross-listed as REPR 611)

CMB 618 Cytogenetics (3) (2 Lec, 1 1-hr Lab) Correlation of genetic and cytological phenomena. Pre: 411.

CMB 621 Cell Molecular Biology I (4) Molecular approaches to cell structure and function emphasizing cells in multicellular plants and animals. Pre: graduate standing, BIOC 441 or ENBI 402, and BIOL 406; or consent. Recommended: CHEM 351.

CMB 622 Cell Molecular Biology II (4) Molecular approaches to cell structure and function emphasizing cells in multicellular plants and animals. Pre: one of 621, BIOC 441, or ENBI 402; and BIOL 406; or consent.

CMB 625 Advanced Topics in Genetics (2)

Advanced treatment of frontiers in genetics. Pre: graduate standing in genetics or consent.

CMB 631 Research Rotations (3)

Individualized research project in three laboratories of CMB faculty with a written report on each project. Faculty laboratories will be selected by consultation with student's graduate committee and individual faculty. Pre: 621 (or concurrent), 622 (or concurrent), or consent.

CMB 650 Population Genetics (3)

Mathematical, observational, experimental results on effects of mutation, selection, and systems of mating on distribution of genes. Analysis of non-experimental populations. Pre: 601 or consent.

CMB 654 (Alpha) Genetics Seminar (1)

Research and topical literature reports in genetics. May be repeated. (B) molecular genetics; (C) molecular biology of cancer; (D) human genetics; (E) cytogenetics; (F) evolutionary genetics; (G) molecular biology of the cell; (H) drosophila genetics; (I) population/statistical genetics; (J) developmental genetics; (K) insect molecular biology; (M) genetics and molecular biology of fungi. Pre: graduate standing in genetics or consent.

CMB 671 (Alpha) Techniques in Genetics (V)

Laboratory training in procedures used in diagnosis of genetic diseases, cytogenetics, immunogenetics, and dermatoglyphics. Pre: graduate standing in genetics or consent.

CMB 672 Techniques in Genetics (3)

Continuation of 671.

CMB 680 Molecular Genetics (3)

Structure of proteins and nucleic acid to genetic fine structure, mutagenesis, transfer of genetic information, and control of development. Pre: 411 and BIOC 441 or equivalent; or consent.

CMB 699 Directed Research (V)

Pre: graduate standing and consent.

CMB 700 Thesis Research (V)

Research for master's thesis. Pre: acceptance of thesis topic.

CMB 701 Human Polymorphisms (3)

(2 Lec, 1 1-hr Lab) Phenotypic, serum protein, isozymic, and other polymorphisms; pharmacogenetics, theory of polymorphisms; disease associations; evidence for and against selection; significance. Pre: 650 or consent.

CMB 702 Immunogenetics (3)

(2 Lec, 1 1-hr Lab) Immunological and genetic analysis of antigenic variation; cellular and soluble antigenic systems; transplantation; genetic control of immune response. Pre: 680 or consent.

CMB 705 Special Topics in Neurosciences (V)

Advanced topics in neuroscience, from basic neurobiology to clinical neurology and psychiatry. Emphasis on current investigations at the cellular or molecular level. Pre: consent.

CMB 712 Quantitative Methods in Human**Family Genetic Analysis (3)**

(2 Lec, 1 1-hr Lab) Lecture and laboratory sessions covering probability models and statistical methods used in genetic analysis of human family data. Pre: a course in genetics and calculus, or consent.

CMB 750 Human Population Genetics (3)

Comprehensive treatment of the genetics of human populations with emphasis on population structure. Pre: 650.

CMB 800 Dissertation Research (V)

Pre: acceptance of dissertation topic.

Chamorro (CHAM)

College of Languages, Linguistics and Literature

CHAM 101 Elementary Chamorro (4)

Introduction to Chamorro, emphasis on listening and speaking, language structure. Meets five hours weekly. Lab work. **HSL**

CHAM 102 Elementary Chamorro (4)

Listening, speaking, reading, and writing skills; emphasis on oral and reading proficiency. Meets five hours weekly. Lab work. Pre: 101 or equivalent, or consent. **HSL**

CHAM 201 Intermediate Chamorro (4)

Continuation of 102. Emphasis on comprehension and language production (speaking). Meets five hours weekly. Lab work. Pre: 102 or equivalent, or consent. **HSL**

CHAM 202 Intermediate Chamorro (4)

Continuation of 201. Emphasis on comprehension and language production. Lab work. Pre: 201 or equivalent, or consent. **HSL**

Chemistry (CHEM)

College of Natural Sciences

Credit allowed for only one of CHEM 151, 161, 171, or 181A.

CHEM 151 Elementary Survey of Chemistry (3)

Nonrigorous but adequate background in fundamentals. Preparation for technical training in life sciences. **DP**

CHEM 151L Elementary Survey of

Chemistry Lab (1) (1 3-hr Lab) Experiments introducing laboratory techniques and illustrating chemical principles. Pre: 151 (or concurrent). **DY**

CHEM 152 Survey of Organic and Bioorganic

Chemistry (3) Structure, nomenclature, properties, reactions of organic compounds emphasizing those of practical importance in related fields. Pre: 151, 162, or 171. (Cross-listed as ENBI 152) **DP**

CHEM 152L Survey of Organic and Bioorganic

Chemistry Lab (1) (1 3-hr Lab) Techniques of preparation, purification, identification of organic compounds. Pre: 151L, 162L, or 171L; and 152 (or concurrent). **DY**

CHEM 161 General Chemistry I (3)

Basic principles of chemistry. Introduction to electronic structure, chemical bonding, solutions, kinetics, equilibrium, phases, and energy changes in matter. Pre: two years high school algebra, high school chemistry, and placement exam. **DP**

CHEM 161L General Chemistry Lab I (1)

(1 3-hr Lab) Laboratory experiments introducing techniques and fundamental principles of chemistry. Pre: 161 (or concurrent). **DY**

CHEM 162 General Chemistry II (3)

Continuation of 161. Basic principles of chemistry. Introduction to electronic structure, chemical bonding, solutions, kinetics, equilibrium, phases, and energy changes in matter. Pre: 161. **DP**

CHEM 162L General Chemistry Lab II (1)

(1 3-hr Lab) Laboratory experiments introducing techniques and fundamental principles of chemistry. Pre: 161L and 162 (or concurrent). **DY**

CHEM 171 Principles of Chemistry (4)

Principles, theories, elementary analytical methods

of chemistry. Intended for physical science majors and engineers. Pre: high school chemistry and MATH 215 or MATH 241 or MATH 251. **DP**

CHEM 171L Principles of Chemistry Lab (1)

(1 3-hr Lab) Laboratory experiments illustrating fundamental principles of chemistry. Pre: 171 (or concurrent). **DY**

CHEM 181A Honors General Chemistry (4)

Rigorous, in-depth introduction to chemical principles with emphasis on experimental and applied aspects of modern chemistry. Pre: high school chemistry and MATH 215 or MATH 241 or MATH 251. Fall only. **DP**

CHEM 181L Honors General Chemistry

Laboratory (1) Laboratory experiments illustrating chemical principles involving advanced techniques and modern instrumentation. Co-requisite: 181A. **DY**

CHEM 253 Survey of Analytical Chemistry (4)

(2 Lec, 2 3-hr Lab) Practical introduction to analytical techniques, lab manipulations, data handling, choice and limitations of methods. Pre: 152L. **DP**

CHEM 272 Organic Chemistry I (3)

Molecular structure, stereochemistry, spectroscopy, mechanisms, reactions, and synthesis of organic compounds. Pre: 162 or 171. **DP**

CHEM 272L Organic Chemistry I Lab (2)

(1 5-hr Lab) Techniques, synthesis and qualitative analysis, applications of spectroscopy. Pre: 162L or 171L, and 272 (or concurrent). **DY**

CHEM 273 Organic Chemistry II (3)

Continuation of 272. Molecular structure, stereochemistry, spectroscopy, mechanisms, reactions, and synthesis of organic compounds. Pre: 272. **DP**

CHEM 273L Organic Chemistry II Lab (1)

(1 4-hr Lab) Techniques, synthesis and qualitative analysis, applications of spectroscopy. Pre: 272L and 273 (or concurrent). **DY**

CHEM 274 Principles of Analytical Chemistry

(3) Selected methods and principles, e.g., phase equilibria, ionic equilibria, electrode equilibria, separations, spectroscopy, automation, and process control. Pre: 272 and MATH 216 or MATH 242 or MATH 252. **DP**

CHEM 274L Principles of Analytical Chemistry

Lab (2) (2 3-hr Lab) Phase separations, chromatography, titrimetry, spectrophotometry, etc. Pre: 274 (or concurrent). **DY**

CHEM 333 Instrumental Analysis (3)

Methodology and instrumentation; UV/VIS spectrometry, emission and absorption spectrometry, HPLC, potentiometry, voltammetry, and coulometry. Pre: 274/274L and 351 (or concurrent). **DP**

CHEM 333L Instrumental Analysis Lab (2)

(2 3-hr Lab) Principles and applications of instrumentation for electrochemical and spectrometric analysis. Pre: 333 (or concurrent). **DY**

CHEM 351 Physical Chemistry I (3)

Principles and theories; physico-chemical procedures. Pre: 162L or 171L or 181L, MATH 243 or MATH 253, and PHYS 272 and PHYS 272L. **DP**

CHEM 352 Physical Chemistry II (3)

Continuation of 351. Pre: 351. **DP**

CHEM 352L Physico-Chemical Measurements

(2) (2 3-hr Lab) Modern laboratory techniques. Pre: 333L, 352 (or concurrent), and ICS 101 or equivalent. **DY**

CHEM 399 Directed Reading or Research (V)
Pre: chemistry major, and minimum cumulative GPA of 2.7 or minimum GPA of 3.0 in chemistry. Repeatable.

CHEM 422 Intermediate Inorganic Chemistry (3) Classification, description, fundamental theory. Pre: 352 (or concurrent). DP

CHEM 423 Synthesis: Inorganic Compounds (2) (2 Lec, 2 3-hr Lab) Advanced lab techniques and descriptive chemistry of inorganic compounds. A–F only. Pre: 351 (or concurrent and 422 (or concurrent)). Co-requisite: 443. DP

CHEM 443 Synthesis: Organic Compounds (2) (2 Lec, 2 3-hr Lab) Advanced contemporary synthetic techniques. A–F only. Pre: 273/273L. Co-requisite: 423. DP

CHEM 445 (Alpha) Intermediate Organic Chemistry (3) (B) synthesis; (C) mechanisms; (D) natural products. Pre: 273. DP

CHEM 601 Theory of Chemical Bonding (3) Application of quantum mechanics and symmetry principles to descriptions of chemical bonding. Pre: 352.

CHEM 602 Chemical Applications of Spectroscopy (V) Introduction to magnetic resonance, infrared, UV, and visible spectroscopy, emphasizing applications to organic and inorganic chemistry. Three topics each semester—1 credit hour per topic. Repeatable in different topics. Pre: 601.

CHEM 621 Advanced Inorganic Synthesis (3) A survey of the periodic table examining the characteristics and reactivities of representative elements. A–F only. Pre: 423 or consent.

CHEM 622 Organometallic and Main Group Chemistry (3) Types and reactions of metal carbon bonds, catalysis, compounds and reactions of main group elements. Pre: 352 and 422.

CHEM 623 Coordination Chemistry (3) Survey of Lewis acids and bases, coordination numbers, geometries, stereochemistry, ligand field theory, formation constants, and bio-inorganic chemistry. Pre: 601 and 602 (or concurrent).

CHEM 631 Methods of Instrumental Analysis (V) Theory, instrumentation, applications. Three areas each semester—1 credit hour per area. Repeatable in different areas. Pre: 333.

CHEM 633 Molecular Spectroscopy (3) Experimental and theoretical principles underlying x-ray spectroscopy. Pre: 601.

CHEM 641 Organic Structure Determination (3) Interpretation of chemical and physical (primarily spectral) data in the identification of organic compounds. Pre: consent.

CHEM 642 Organic Synthesis (3) Modern synthetic methods with emphasis on the design and execution of multi-step sequences. Pre: 445 or consent.

CHEM 643 Physical Organic Chemistry (3) Theory of molecular structure, stereochemistry, and reaction mechanisms. Pre: 445 and 601, or consent.

CHEM 651 Chemical Thermodynamics and Statistical Mechanics (3) Includes statistical thermodynamics, with application to chemical systems. Pre: 352.

CHEM 653 Quantum Chemistry (3) Rigorous introduction to quantum mechanics, including

operator formalism, matrix formation, group theory, and perturbation theory; introduction to the electronic structure of atoms and molecules. Pre: 352 and MATH 244 or MATH 253.

CHEM 658 Crystallography (3) Crystal symmetry. Elementary x-ray physics. Diffraction theory and its application to crystal and molecular structure determination. Pre: 352 and MATH 244 or MATH 253.

CHEM 691 (Alpha) Seminar (1) Current topics in (D) analytic-inorganic-physical; (E) organic. Repeatable. Pre: graduate standing.

CHEM 692 (Alpha) Seminar (1) Continuation of 691. Current topics in: (D) analytic-inorganic-physical; (E) organic. Repeatable. Pre: graduate standing.

CHEM 699 Directed Research (V) Repeatable. Pre: consent.

CHEM 700 Thesis Research (V) Pre: candidacy for MS degree and consent of thesis chair.

CHEM 721 Special Topics: Inorganic Chemistry (V) Theory and applications. Repeatable. Pre: consent.

CHEM 731 Special Topics: Analytical Chemistry (V) Theory and applications. Repeatable. Pre: consent.

CHEM 741 Special Topics: Organic Chemistry (V) Theory and applications. Repeatable. Pre: consent.

CHEM 751 Special Topics: Physical Chemistry (V) Theory and applications. Repeatable. Pre: consent.

CHEM 753 Advanced Quantum Chemistry (3) Continuation of 653. Application of quantum mechanics to atoms and molecules, solid surfaces, with emphasis on electronic structure and chemical bond formation. Pre: 653.

CHEM 800 Dissertation Research (V) Pre: candidacy for PhD degree and consent of dissertation chair.

Chinese (CHN)

College of Languages, Linguistics and Literature

All students taking language courses in this program for the first time must take a regularly scheduled placement test; those with no background must come to the Department of East Asian Languages and Literatures for a brief interview. A grade of C or better is required in the prerequisite courses for continuation.

CHN 101 Elementary Mandarin (4) Listening, speaking, reading, writing, grammar. Meets one hour daily, Monday–Friday, plus daily lab work. Pre: placement test. HSL

CHN 102 Elementary Mandarin (4) Continuation of 101. Pre: 101 or consent. HSL

CHN 103 Accelerated Elementary Mandarin (8) Content of 101 and 102 covered in one semester. Meets two hours daily, Monday–Friday, plus daily lab work. Pre: placement test. HSL

CHN 111 Elementary Conversational Mandarin I (3) The purpose of this course is to offer the student the basic knowledge (listening, speaking and grammar) of spoken Mandarin, and

to train the student to handle some familiar everyday topics.

CHN 112 Elementary Conversational Mandarin II (3) Continuation of 111. Pre: 111 or consent.

CHN 131 Beginning Cantonese (4) Introduction to standard dialect of Canton, emphasis on conversational skills. Meets one hour daily, Monday–Friday, plus daily lab work. Pre: consent. HSL

CHN 132 Beginning Cantonese (4) Continuation of 131. Pre: 131 or consent. HSL

CHN 201 Intermediate Mandarin (4) Continuation of 101 and 102. Meets one hour daily, Monday–Friday, plus daily lab work. Pre: 102, or 103, or consent. HSL

CHN 202 Intermediate Mandarin (4) Continuation of 201. Pre: 201 or consent. HSL

CHN 204 Accelerated Intermediate Mandarin (8) Content of 201 and 202 covered in one semester. Meets two hours daily, Monday–Friday, plus daily lab work. Pre: 102, or 103, or consent. HSL

CHN 211 Intermediate Conversational Mandarin I (3) The purpose of this course is to further strengthen the student's listening and speaking skills in Mandarin. The student is expected to be able to comprehend and produce speech at the paragraph level. Pre: 112 or consent.

CHN 212 Intermediate Conversational Mandarin II (3) Continuation of 211. Pre: 211 or consent.

CHN 231 Intermediate Cantonese (3) Continuation of 131 and 132; meets three hours a week, plus lab work. Pre: 132 or consent. HSL

CHN 232 Intermediate Cantonese (3) Continuation of 231. Pre: 231 or consent. HSL

CHN 251 Reading and Writing Chinese (I) (3) This is the first half of a year-long course designed for those who can handle daily conversation in Mandarin Chinese but cannot read or write in the language. Pre: 212 or consent.

CHN 252 Reading and Writing Chinese (II) (3) This is the second half of a year-long course designed for those who can handle daily conversation in Mandarin Chinese but cannot read or write in the language. Pre: 251 or consent.

CHN 301 Third-Level Mandarin (4) Vocabulary building and extended mastery of sentence structures of modern Chinese through reading and related conversation. Meets one hour daily, Monday–Friday, plus lab work. Pre: 202, or 204, or consent.

CHN 302 Third-Level Mandarin (4) Continuation of 301. Pre: 301 or consent.

CHN 303 Accelerated Third-Level Mandarin (8) Content of 301 and 302 covered in one semester. Meets two hours daily, Monday–Friday, plus daily lab work. Pre: 202, or 204, or consent.

CHN 311 Mandarin Conversation (3) Systematic practice on everyday topics of conversation. Lab work. Pre: 202, or 204, or consent.

CHN 312 Mandarin Conversation (3) Continuation of 311. Pre: 202, or 204, or consent.

CHN 313 Mandarin for Cantonese Speakers (3) For Cantonese speakers only. Competence in spoken Mandarin through comparison of Cantonese and Mandarin (pronunciation, romanization, vocabulary, idioms, and syntax). Translation from Cantonese to Mandarin. CR/NC only. Pre: placement test.

CHN 314 Mandarin for Cantonese Speakers (3) Continuation of 313. Pre: placement test.

CHN 315 Spoken Taiwanese (3) The purpose of this course is to offer the student the basic knowledge (listening, speaking, romanization and grammar) of spoken Taiwanese and to train the student to handle some familiar everyday topics. Pre: 202 or consent.

CHN 316 Spoken Taiwanese (3) Continuation of 315. Pre: 315 or consent.

CHN 319 Chinese Dialect Studies (V) Advanced Cantonese or other Chinese dialects. Repeatable one time. CR/NC for native Chinese speakers. Pre: consent.

CHN 399 Directed Third-Level Reading (V) For those who need special assistance, e.g., in reading texts in their area of specialization or at a pace more rapid than those of standard courses. CR/NC only. Repeatable. Pre: consent.

CHN 401 Fourth-Level Mandarin (4) Extensive reading in academic topics. Meets one hour daily, Monday–Friday, plus lab work. Pre: 302 or consent.

CHN 402 Fourth-Level Mandarin (4) Continuation of 401. Pre: 401 or consent.

CHN 404 Accelerated Fourth-Level Mandarin (8) Content of 401 and 402 covered in one semester. Meets two hours daily, Monday–Friday, plus lab work. Pre: 302, or 303, or consent.

CHN 411 Advanced Mandarin Conversation (3) Systematic practice on academic topics of conversation. Lab work. Pre: 302 or consent.

CHN 412 Advanced Mandarin Conversation (3) Continuation of 411. Pre: 411 or consent.

CHN 413 Advanced Mandarin for Cantonese Speakers (3) Systematic practice for spontaneity, accuracy, and depth in conversation. CR/NC only. Pre: 313 and 314, or consent.

CHN 414 Advanced Mandarin for Cantonese Speakers (3) Continuation of 413. Pre: 413 or consent.

CHN 421 (Alpha) Chinese Translation (3) Training in techniques; theory of translation. (B) Chinese–English; (C) English–Chinese. Pre: 402 or consent.

CHN 431 Readings in Taiwanese (3) This year-long course is designed for those who have the spoken ability of Taiwanese and a good knowledge of Chinese characters to learn and practice reading Taiwanese. Pre: 316 or consent.

CHN 432 Readings in Taiwanese (3) Continuation of 431. Pre: 431 or consent.

CHN 451 Structure of Chinese (3) Introduction to phonology and morphology of Mandarin Chinese; some discussion of usage and linguistic geography. Pre: 202, or 204, or consent. **DH**

CHN 452 Structure of Chinese (3) Introduction to syntax and semantics of Mandarin Chinese; some discussion of usage and linguistic geography. Pre: 202, or 204, or consent. **DH**

CHN 453 Study of Chinese Characters (3) Origin, structure, and evolution. Pre: 402, 461, or consent. (Alt. years)

CHN 454 Study of Chinese Characters (3) Continuation of 453. Pre: 453 or consent. (Alt. years)

CHN 461 Introduction to Classical Chinese (3) Analysis of basic structural patterns through selected readings in various texts. Pre: 302 or consent.

CHN 462 Introduction to Classical Chinese (3) Continuation of 461. Pre: 461 or consent.

CHN 470 Language and Culture of China (3) Extensive exposure—chiefly through tape recordings, classroom conversation, and outside readings—to history, culture, and institutions. Pre: 401 or consent. **DH**

CHN 485 Selected Readings in Chinese (3) Readings in modern Chinese in various disciplines. Pre: 402 or consent.

CHN 486 Selected Readings in Chinese (3) Continuation of 485. Pre: 485 or consent.

CHN 487 (Alpha) Readings in 20th Century Chinese Literature (3) Representative works of writers from People's Republic of China, Taiwan, and Hong Kong. (B) short stories; (C) poetry and drama; (D) novels and essays. Repeatable two times. Pre: 402 and 485 or 486; or consent.

CHN 491 Oral Fluency Through Chinese Films (3) This course is designed for students to further their listening and speaking skills through discussion of Chinese films. Students will be required to watch the films before class. Pre: 402 or consent. **DH**

CHN 499 Directed Fourth-Level Reading (V) For those who need special assistance, e.g., in reading texts in area of specialization or at a pace more rapid than those of standard courses. CR/NC only. Repeatable. Primarily for graduate students from other departments. Pre: consent.

CHN 610 (Alpha) Chinese Poetry (3) Critical study of major traditional Chinese poetic forms. (B) ancient (to 5th century); Pre: 462, 483, or consent (C) medieval (5th–10th century); Pre: 610B or consent (D) late imperial (10th–19th century); Pre: 610C or consent.

CHN 611 (Alpha) 20th Century Chinese Literary Studies (3) Critical discussion of scholarship in the field and formal analysis of literature from the People's Republic of China, Taiwan, and Hong Kong. (B) short stories; (C) poetry and drama; (D) novels and essays. Repeatable one time. Pre: 402 and 487; or consent.

CHN 612 Traditional Chinese Fiction (3) Formal and thematic analysis of short stories, historical romances, and novels. Repeatable once with consent. Pre: 402 or consent.

CHN 613 (Alpha) Traditional Chinese Drama (3) Major plays. (B) Yuan period (1271–1368); (C) Ming and Ching periods (1368–1911). Pre: 402 or consent.

CHN 631 (Alpha) History of Chinese Language (3) (B) phonology; (C) syntax. Pre: 451, LING 421, or consent for (B); 452 or consent for (C).

CHN 633 Chinese Dialects (3) Synchronic description of a Chinese dialect other than Cantonese and Mandarin; contrastive and

comparative studies with Mandarin. Repeatable once with consent. Pre: 451 and 452, or consent.

CHN 634 Chinese Syntax and Semantics (3) Verbal categories, aspects, focus devices, resultative and directional compounds, coverbial constructions. Interaction between syntax and semantics. Pre: 452 or consent.

CHN 641 Contrastive Analysis of Mandarin and English (3) Pre: 451.

CHN 642 Contrastive Analysis of Mandarin and English (3) Pre: 452.

CHN 643 Methods in Teaching Chinese as Second Language (3) Problems in language learning and teaching. Practice in preparing and presenting lessons with materials based on comparative linguistic analysis. Materials, teaching aids, test construction. Pre: 451 and 452, or consent.

CHN 650 (Alpha) Topics in Chinese Language (3) (B) teaching and testing: specific problems in teaching Chinese including characters and cultural elements; proficiency and communicative ability. Pre: 451 and 452, or consent.

CHN 661 Advanced Classical Chinese (3) Pre: 461, 462, and consent.

CHN 662 Advanced Classical Chinese (3) Pre: 661 and consent.

CHN 699 Directed Research (V) CR/NC only. Pre: consent.

CHN 750 (Alpha) Research Seminar in Chinese Language (3) (B) teaching methods; Pre: 643 (C) structure; Pre: 452 (D) classical grammar; Pre: 452 (E) sociolinguistics; Pre: 451.

CHN 753 (Alpha) Research Seminar in Chinese Literature (3) Study of authors, a genre, a period, or a problem. (M) modern; (T) traditional. Pre: 611 or consent for (M); 612, 613, or consent for (T).

CIS

See Communication and Information Sciences

Civil and Environmental Engineering (CEE)

College of Engineering

Preference in registration is given to declared engineering majors. Please consult the current Schedule of Classes for confirmed offerings each semester.

CEE 123 Computer-Aided Design and Drafting (1) Introductory course in engineering drawing employing the computer. Topics include theory of projections, multiview representations, sectional views, auxiliary views, and dimensioning. Restricted to majors.

CEE 211 Surveying I (2) Basic principles of plane surveying, including reference planes and surfaces, use of instruments for distance and angular measurements, traverse adjustment, heights, measurement theory, computer applications, and topographic surveying. A–F only. Pre: computer programming, MATH 243 or 252, and civil engineering major; or consent.

CEE 211L Surveying I Lab (1) Distance, angle, and height measurements. Traverse design,

measurements and computations. A–F only. Pre: 211 (or concurrent).

CEE 270 Applied Mechanics I (3) Forces, resultants, and equilibrium; analysis of trusses, frames, and machines; centroids, moments of inertia; friction. A–F only. Pre: grade of C or better in PHYS 170, and MATH 243 or MATH 252 (or concurrent); or consent. **DP**

CEE 271 Applied Mechanics II (3) Dynamics of particles and rigid bodies; force, acceleration, impulse-momentum, work-energy. A–F only. Pre: grade of C or better in 270, and MATH 244 or MATH 253 (or concurrent); or consent. **DP**

CEE 305 Applied Probability and Statistics (3) Description of sample data; correlation and regression; probability and statistical distributions; estimations of population parameters; fittings distributions to histograms; hypothesis testing. A–F only. Pre: MATH 244 or MATH 253; or consent.

CEE 320 Fluid Mechanics Fundamentals (4) (3 Lec, 1 2-hr Lab) Compressible and incompressible fluid properties; fluid statics; kinematics, energy and momentum considerations in steady flows; application of steady flow concepts to various fluid processes. A–F only. Pre: 271 and PHYS 310. Fall only. **DP**

CEE 330 Environmental Engineering (3) Parameters and indices of environmental quality; transport and fate of contaminants in the environment; water and air pollution control; solid waste management. A–F only. Pre: 305 and 320. **DP**

CEE 355 Geotechnical Engineering I (4) Introduction to geotechnical engineering; soil characterization, index properties, seepage and flow in soil, stresses in soils, compressibility, consolidation, shear strength. A–F only. Pre: 320, 370, or consent. **DP**

CEE 361 Fundamentals of Transportation (3) Transportation modes: land, air, water, pipelines. Tourist, urban transportation. Geometric design, human factors, vehicular flow models, capacity analysis. Overview: traffic impact, air quality, parking studies. A–F only. Pre: 271. **DS**

CEE 370 Mechanics of Materials (3) Elastic stress-strain relation and behavior of members under flexural, torsional, and axial loading. A–F only. Pre: 271 and MATH 244 or MATH 253; or consent. **DP**

CEE 370L Mechanics of Materials Lab (1) Tension, compression, and torsion of bars, and bending of beams. A–F only. Pre: 370 (or concurrent). **DY**

CEE 375 Construction Materials (3) (2 Lec, 1 2-hr Lab) Introduction to the crystalline and molecular structure of materials. Properties of metals, concrete, concrete admixtures, asphalt, wood, and other materials commonly used in construction. A–F only. Pre: 305 and 370. **DP**

CEE 381 Structural Analysis (3) Analysis of statically determinate plane and space trusses and frames; deflections; introduction to matrix methods; computer applications. A–F only. Pre: 370. **DP**

CEE 405 Engineering Economics (3) Economic analysis in engineering and management decision-making, interest, depreciation, income tax, cost classification, break-even analysis, economic

comparisons of alternatives, benefit-cost analysis. A–F only. Pre: ECON 120 or 130, and senior standing; or consent.

CEE 412 Surveying II (3) (2 Lec, 1 3-hr Lab) Advanced course in surveying; project design and specifications; measurements, errors, and adjustments; land surveying; state plane coordinate systems; modern instrumentation. A–F only. Pre: 211 or consent.

CEE 417 Computer Methods in Engineering Systems (3) Numerical solutions of engineering problems using digital computers. Regression analysis; numerical differentiation and integration; solutions of algebraic, transcendental, and differential equations; and analysis of large structural systems. Pre: computer programming and senior standing.

CEE 421 Engineering Hydraulics (3) Analytical and computer solutions of engineering hydraulics problems. Hydraulics of closed conduits and open channels, well hydraulics, introduction to coastal hydraulics. Pre: 320. **DP**

CEE 422 Environmental Fluid Mechanics (3) Introduction to basic concepts of pollutant transport phenomenon through theoretical modeling, lab and field experiments and observations. Specific topics include mass balance, jets and plumes, mixing and transport in rivers, reservoirs, groundwater and estuaries; non point course pollution. A–F only. Pre: 320, and MATH 244 or MATH 253 or equivalent; or consent. (Alt. years) **DP**

CEE 424 Applied Hydrology (3) Introduction to occurrence, distribution, circulation of surface and groundwater through precipitation, streamflow, evaporation, transpiration, infiltration. Engineering applications. A–F only. Pre: 305 and 320; or consent. **DP**

CEE 426 Hydraulic Design (4) (3 Lec, 1 2-hr Lab) Basic hydraulic structures design; feasibility studies; computer-aided optimal design for water surface profiles, pipe network, and urban storm-water drainage systems; optimal design of multipurpose reservoir systems. Pre: 421 and 424 (or concurrent).

CEE 431 Water and Wastewater Engineering (3) Hydrologic fundamentals of water demand and supply; water and wastewater distribution; collection systems; quality characterization; analytical methods for water quality management. Pre: 320 and 330. **DP**

CEE 432 Water and Wastewater Treatment Design (3) Physical operations; chemical and biological processes; design flow and process loading rates; treatment plant design. Pre: 431.

CEE 433L Water Quality Laboratory (3) Analysis and characterization of typical water and wastewater samples for organic and inorganic constituents such as alkalinity, hardness, solids, biochemical oxygen demand, nitrogen and phosphorous species, coliform bacteria, and trace organic chemicals. Relevance of these measurements to water and wastewater regulations and engineering design. A–F only. Pre: 330 and either CHEM 171 and 171L or CHEM 161, 161L and 162, and senior standing. **DY**

CEE 441 Air Pollution Control Design (3) Operational theory, design basis, and capital and operating costs of air pollution control devices for stationary sources of particulates, gases, and

vapors. Overview of sources and effects of air pollution and current regulations. Introduction to atmospheric dispersion modeling. A–F only. Pre: 320, 330, and senior standing.

CEE 450 Soils and Foundation Engineering (3) Analysis and design of soil retaining systems, shallow and deep foundations. A–F only. Pre: 355 or consent. **DP**

CEE 451 Soil and Site Improvement (3) Methods of improving engineering properties of soils and sites through use of mechanical stabilization, soil admixtures, pre-consolidation, deep densification, and earth reinforcement. A–F only. Pre: 355 or consent. **DP**

CEE 455 Geotechnical Engineering II (3) Continuation of 355 introducing geotechnical engineering topics including: field exploration, lateral earth pressures, bearing capacity theory, slope stability theory, use of geosynthetics, earthquake effects and ground modification. A–F only. Pre: 355 or consent. **DP**

CEE 462 Traffic Engineering (3) Design/analysis of signalized, unsignalized intersections, urban networks. Traffic impact studies; analysis steps and applications. Design/redesign options. Parking studies: demand, alternative designs (lot layouts). Pre: 361 or consent.

CEE 464 Urban and Regional Transportation Planning (3) Application of travel demand forecasting models to transportation planning. Evaluation and decision-making, microcomputer applications. Term projects. Pre: 361 or consent. **DS**

CEE 465 Traffic Network Simulation (3) Introduction to computer simulation; Monte Carlo techniques; application of traffic simulation packages. Term project required. Pre: 361 or consent. **DS**

CEE 466 Traffic Operations and Safety (3) Traffic operations and control, in conformance with the manual of uniform traffic control devices. Safety appurtenances and accident analysis. Pre: 361.

CEE 469 Photogrammetric Engineering (3) (2 Lec, 1 1-hr Lab) Fundamentals of metric photogrammetry, vertical and oblique photographs, flight planning, stereoscopy and parallax, mosaics, orthophotography, photo interpretation, remote sensing. Pre: consent. (Alt. years) **DS**

CEE 471 Construction Methods (3) Methods of construction, primarily buildings. Construction types: light and heavy wood; steel; plain, reinforced, and prestressed concrete; masonry. Foundations; associated details of frames, walls, roofs, floors, openings, finishes. Disasters, failures, and their causes. Industrialization of the building process. Pre: 375.

CEE 472 Construction Management (3) Introductory treatment of the management of construction. Construction supervision, contract documents, estimating and bidding, organization, planning and scheduling, administration, business methods, safety, and labor. Pre: 375 or consent.

CEE 473 Construction Equipment and Methods (3) Methods and equipment used on horizontal/heavy engineering projects. Available equipment, their production, and how they are used to excavate, move, process, and place the earth. Pre: senior standing or consent.

CEE 474 Construction Estimating and Bidding (3) Estimating science; techniques of estimating quantities and pricing of work for construction contracting; classification of costs, analysis of plans and specifications for estimating; computerized estimating; cash flow, bidding strategy, preparation and submission. A–F only. Pre: 375 or consent.

CEE 476 Construction Planning and Scheduling (3) To teach the theory and the practice of planning, scheduling, and reporting a construction project through the use of bar chart and CPM. The course format to include lectures, text, outside speakers, site visits, discussions, case study, and computers. Pre: 375 or consent.

CEE 482 Indeterminate Structures (3) Analysis of statically indeterminate beams, frames, trusses, arches, and space structures by classical and matrix methods; computer applications. Pre: 381. **DP**

CEE 483 Field Experience (1)

CEE 485 Reinforced Concrete Design (3) Behavior and design of reinforced concrete beams, columns, one-way slabs, and footings. Pre: 381 or consent. **DP**

CEE 486 Structural Steel Design (3) Basic properties of steel; behavior and design of steel beams, columns, and connections; introduction to rigid frames. Pre: 381. (Alt. years) **DP**

CEE 488 Forensic Engineering (3) Introduction to failure analysis, engineering safety and reliability, and professional liability. Topics covered include professional licensing, liability insurance, arbitration, and litigation. Junior standing. Pre: 375 or ME 331, and ME 371.

CEE 489 Reinforced Masonry Design (3) Analysis of reinforced masonry structural systems. Design of reinforced masonry curtain, bearing, and shear walls, columns, and beams. Advantage of masonry design compared with other structural materials. Pre: 485 (or concurrent). (Alt. years) **DP**

CEE 490 Senior Design Project (3) Design problem involving several areas of civil engineering and requiring a team approach for a solution. A–F only. Pre: completion of degree requirements in the semester of registration.

CEE 491 (Alpha) Special Topics in Civil and Environmental Engineering (3) Course will reflect special interests of visiting and/or permanent faculty. Pre: junior or senior standing, and consent.

CEE 492 (Alpha) Special Topics in Civil and Environmental Engineering (3) Course will reflect special interests of visiting and/or permanent faculty. Pre: junior or senior standing, and consent.

CEE 499 Special Problems (V) Individual investigation in civil and environmental engineering topics as approved by instructor. Pre: senior standing, and minimum cumulative GPA of 2.7 or minimum GPA of 3.0 in engineering.

CEE 500 Master's Plan B/C Studies (1)

CEE 602 Construction Scheduling and Claims (3) Precedence networks, CPM, float, updating, resource leveling, least cost scheduling, scheduling case studies, computerized scheduling, exclusion reports, sorting, term project; contract law, types of claims, proving claims, delay claims, impact of changes, Eichleay Formula, acceleration, overtime, stacking, crowding, efficiency losses, contract interpretation, Leonard Study, Kuiper model, labor escalation, claims case studies, term paper. A–F only. Pre: graduate standing in civil and environmental engineering and consent.

CEE 604 Cost Engineering and Quality Control (3) Study and applications of cost/schedule control systems criteria, earned value analysis, probabilistic cost estimating, construction risk management, construction quality control, and operations research in construction. Pre: 472 and 474; or consent.

CEE 606 Analysis of Construction Operations (3) A study for design of construction processes. Topics include line of balance, queuing, delay models, and process simulation with CYCLONE. Pre: 472 or consent. (Alt. years)

CEE 610 Construction Productivity Improvement (3) Design of productivity and safety improvement programs in a construction company. Time-lapse techniques, crew balancing, work sampling, data gathering and analysis, worker fatigue, quality circles, motivation and project leadership, construction automation. Pre: 472 and one other senior-level construction course, or consent.

CEE 614 Negotiation and Alternative Dispute Resolution (V) Lawyers negotiate settlements in almost all their cases. This class presents a "hands-on," skill-building approach to the newest ideas, as well as centuries-old techniques, about the skill lawyers will use most often in their private practice - negotiation. The class also examines the rapidly developing field of alternative dispute resolution (ADR), including mediation, facilitation, arbitration, and court-annexed ADR. (Cross-listed as LAW 508)

CEE 620 Reforming Public Organizations (3) Explores the possibilities for reducing the most difficult aspects of the bureaucratic form in public organizations while increasing effectiveness and accountability. Repeatable one time. A–F only. Pre: graduate standing or consent. Fall only. (Cross-listed as PUBA 620)

CEE 622 Fluid Mechanics (3) Theory of fluid dynamics in differential form, covering equation of motion, vortex generation, flow in rotating frame, potential theory, laminar flow, and introduction to turbulence. Pre: 320 or equivalent.

CEE 623 Groundwater Modeling (3) Introduction to the finite-difference method; steady-state and transient groundwater flow in saturated and unsaturated media; applications to groundwater recharge and aquifer evaluation. A–F only. Pre: 627 or consent. Fall only. (Cross-listed as GG 655)

CEE 624 Transport Modeling (3) Introduction to the finite-element; transport of mass and heat in groundwater flow systems; applications to groundwater contamination. A–F only. Pre: 623 or consent. Spring only. (Cross-listed as GG 656) (Alt. years)

CEE 625 Vadose Zone Hydrology (3) Fundamentals of fluid flow in porous media, Darcy's law, Richards' equation, characterization of soil hydraulic parameters, mathematical modeling of unsaturated flow, monitoring of vadose zone, solute transport equations, numerical and analytical solution of advection-dispersion-reaction equation. A–F only. Pre: 424 or consent. Co-requisite: 617 and 627. Fall only. (Alt. years)

CEE 626 Surface Water Hydrology (3) Quantitative studies of water cycle and relationships among principal hydrologic elements: precipitation, runoff, infiltration, and evapotranspiration, with emphasis on engineering and

management of surface waters. Pre: consent. (Alt. years)

CEE 627 Groundwater Hydrology (3) Groundwater occurrence, movement, quality, and resource evaluation, development, and management. Emphasis on saltwater encroachment, well evaluation, aquifer protection, recharge with wastewater, and Hawai'i type hydrology. Pre: 424 or consent.

CEE 630 Water Resources Systems Planning and Management (3) Planning and management of multiobjective water resources systems to achieve a sustainable development. Using EIA/EIS for project alternatives evaluation to attend optimal balance in economic development and environmental quality enhancement. A–F only. Pre: students with a B.S. degree or senior standing in civil and environmental engineering; or consent.

CEE 634 Biological Treatment (3) Fundamentals of applied microbiology and biochemical reactor engineering, quantitative description of microbial growth, operational theory and design basis of aerobic, anoxic and anaerobic treatment processes. Applications for water, wastewater, air, solid wastes, and soil. A–F only. Pre: consent. Fall only. (Cross-listed as BE 634)

CEE 635 Environmental Chemistry (3) Basic concepts of chemistry as related to the environment, with more emphasis on water. Topics include chemical kinetics, equilibrium, acid-base, precipitation and dissolution redox reactions, sorption, organic chemicals in the environment. Pre: consent.

CEE 636 Water Quality Biology (3) Fundamental microbiology involved in environmental engineering processes and research with special emphasis on mixed culture systems, biochemistry, and microbiological aspects of water supply protection and wastewater treatment. Pre: consent.

CEE 637 Sanitary Engineering Laboratory (3) (2 Lec, 1 3-hr Lab) Laboratory studies of chemical, physical, and biological treatment of water and wastewater for development of design criteria and system operation. Pre: 635 or consent.

CEE 641 Marine Disposal of Wastewaters (3) Types of wastes, their treatment and disposal; water quality standards; oceanographic variables and related data collection; diffusion and dispersion of effluent; ocean outfall design; ecological problems with pollutants; engineering problems with outfalls. Pre: consent. (Alt. years)

CEE 643 Hazardous Waste Remediation (3) Introduces the national problems dealing with the contamination of groundwater and presents remedial measures. Such measures include pump and treat (PAT) technology, in-situ bioremediation, soil vapor extraction, air sparging, electrokinetics, hydraulic fracturing, reactive walls, and phytoremediation. A–F only. Pre: 627 or consent. Co-requisite: 634 and 635. Fall only.

CEE 644 Water Quality Modeling (3) Mathematical formulation of pollutant transport and mixing in the water environment. Kinetics formulation and parameter identification, model calibration and verification. Design projects. Pre: 422 and 431, or consent.

CEE 650 Seepage, Drainage, and Dewatering (3) Theory of seepage, field and laboratory methods of measurement; graphical and numerical methods; design of drainage structures; construc-

tion dewatering. A-F only. Pre: 455 or consent. Fall only. (Alt. years)

CEE 651 Deep Foundations (3) Analysis and design of deep foundations; driven piles and drilled shafts. A-F only. Pre: 455 or consent. (Alt. years)

CEE 652 Experimental Soil Mechanics (3) Advanced laboratory testing and application of analyses using test data for solution of a hypothetical geotechnical project. A-F only. Pre: 455 or consent. (Alt. years)

CEE 653 Advanced Soil Mechanics (3) Soil continuum mechanics principles; elastic, plastic and cam clay soil behavior; critical state and strength; interpretation of laboratory test results. A-F only. Pre: 455 or consent. (Alt. years)

CEE 654 Geotech Seismic Engineering (3) Soil and site response to dynamic loading, earthquake ground motions; stress waves and soil shear moduli; soil liquefaction theory, evaluation, analyses, and preventative design. A-F only. Pre: 455 or consent. (Alt. years)

CEE 655 Slope and Earth Structures (3) Classification of landslides and triggering mechanisms; field investigation procedures; limit equilibrium slope stability methods; numerical techniques; seepage and dynamic considerations; case studies. A-F only. Pre: 455 or consent. (Alt. years)

CEE 656 Marine Geotechnics (3) Principles of geotechnical engineering applied to marine environments; marine geology; surveying and sampling methods; seabed sediment types, properties, and behavior; scour, erosion, and sediment transport; coastal and offshore foundations; seafloor stability; dredging and waste disposal. A-F only. Pre: 455 or consent. (Alt. years)

CEE 657 Designing with Geosynthetics (3) An overview of geotechnical uses of geosynthetics, including product descriptions, applications, design methods, and case studies. A-F only. 455 or consent. (Alt. years)

CEE 658 Earth Pressures (3) Estimation of lateral earth pressures; analysis and design of retaining walls and excavation support systems. A-F only. Pre: 455 or consent. (Alt. years)

CEE 660 Transportation Evaluation and Logistics (3) Evaluation of transportation alternatives. Efficiency and effectiveness analysis. Logistics, network problems, exact and heuristic solution algorithms. Computer applications on evaluations and logistics. A-F only. Pre: either 462 or 464; or consent.

CEE 661 Intelligent Transportation Systems (3) Definition, technologies and their attributes. Analysis and implementation based on FHWA's User Services. Automated incident detection algorithms. Machine vision applications to traffic engineering. A-F only. Pre: 462 or 464.

CEE 662 Highway Capacity Analysis (3) Application of manual and computer-based techniques to the estimation of capacity and level of service. Recent research findings in capacity analysis are reviewed. A-F only. Pre: 462 or consent.

CEE 664 Advanced Transportation Modeling and Statistics (3) Demand modeling, discrete choice and activity-based modeling. Demand forecasting by simulation. Transportation surveys

and sampling methods. Application of cluster, factor, regression, logistic and ARIMA analyses to transportation. A-F only. Pre: 305 and 464, or consent.

CEE 671 Continuum Mechanics (3) Cartesian tensors in mechanics; coordinate transformations; analysis of stress and strain; principal values, invariants, equilibrium and compatibility equations; constitutive relations; field equations. Problems in elasticity. Pre: 370 or ME 371, or consent. (Cross-listed as ME 671)

CEE 672 Project Management Systems (3) Project Integration and PMIS; organizational power; conflict, strategic, and life-cycle management in construction management; matrix structure compared to projectized structure; project success; team building; change and culture in construction organizations; competitive bidding. Pre: consent.

CEE 675 Theory of Vibrations (3) Principal modes and natural frequencies of discrete and continuous elastic systems. Approximate methods. Forced motions, damping effects, wave propagation. Pre: consent.

CEE 676 Structural Dynamics (3) Free and forced vibrations of structures with single and multi-degrees of freedom, analysis and design of structures to dynamic loads. Pre: 675. (Alt. years)

CEE 680 Advanced Mechanics of Materials (3) Advanced topics in structural mechanics including three-dimensional stress and strain, torsion of non-circular sections, curved beams, fracture mechanics, beams on elastic foundation, and plates. Pre: 485 and 486; or consent.

CEE 681 Theory of Modern Structural Analysis (3) Fundamentals of modern structural analysis theory, with emphasis on frame structures. Virtual work. Member stiffness/flexibility. Matrix formulation of stiffness and flexibility methods. Computer modeling issues. Pre: 381 or consent.

CEE 682 Numerical Methods in Engineering (3) Numerical methods commonly used to solve civil and environmental engineering problems: linear and nonlinear equations, numerical integration, integration of ODEs, eigensolvers. Emphasis on implementation. Pre: programming background and graduate standing.

CEE 683 Advanced Reinforced Concrete Design (3) Slender columns; biaxial bending; combined shear and torsion. Building lateral load resisting frame analysis and design—shearwalls, rigid frames. Floor system analysis and design—flat slabs, joist systems. Computer applications. A-F only. Pre: 485.

CEE 684 Nonlinear Structural Analysis (3) Computational methods and concepts in nonlinear structural analysis. Geometric and material nonlinearities. Solution strategies. Program development. Nonlinear structural behavior. Pre: 681 and 682, or consent.

CEE 685 Advanced Structural Steel Design (3) Load and resistance factored design (LRFD); steel building modeling and analysis; moment-resisting frames; bracing systems; beam-columns; moment connections; composite construction; and plate girders. A-F only. Pre: 482 (or concurrent) and 486; or consent.

CEE 686 Finite Elements in Structures (3) Finite element method in structural engineering. Extension of structural theory. Virtual work.

One- two-, and three-dimensional elements; axisymmetric elements; plate bending. Application to linear problems. Pre: 671 (or concurrent) and 681, or consent.

CEE 687 Prestressed Concrete (3) Behavior of prestressed concrete members, including prestress losses. Analysis and design of prestressed beams, slabs, and composite sections. Anchorage zone design; continuous systems. Pre: 485.

CEE 688 Concrete Technology (3) Mixture proportioning with and without pozzolanic materials, aggregate testing, concrete testing, effects of admixtures, admixture side effects, nondestructive testing, and durability issues. A-F only. Pre: 485 or consent.

CEE 690 GIS in Civil and Environmental Engineering (3) Fundamental principles and components of vector-based GIS applications including spatial models, topological overlays, planar coordinate systems and projections, non-spatial (attribute) data models, and spatial analysis; hands-on exercises; individual term project required. A-F only. Pre: consent.

CEE 691 Seminar in Civil and Environmental Engineering (1) Discussions and reports on literature, research, developments and activities in civil engineering. Two units required of all graduate students. Repeatable two times. Pre: graduate standing and consent.

CEE 696 Selected Topics in Civil and Environmental Engineering (3) Highly specialized topics in structures, soils, hydraulics, sanitary, water resources, applied mechanics, transportation. Repeatable. Pre: consent.

CEE 699 Directed Readings or Research (V) Pre: consent.

CEE 700 Thesis Research (V) Research for master's thesis.

CEE 800 Dissertation Research (V) Research for doctoral dissertation. Pre: candidacy for PhD in civil engineering.

Communication (COM)

College of Social Sciences

COM 201 Introduction to Communication (3) An overview of communication emphasizing the interpersonal, intercultural, organizational and international communication, management, multimedia, mass media, and telecommunication perspectives. **DS**

COM 320 Organizational Communication (3) Communication in formal organizational contexts; research and theory of communication within organizations; role of communication in organizational effectiveness. Pre: 201 or consent. **DS**

COM 330 Telecommunication Concepts and Technologies (3) Basic electronics and concepts of telecommunication; orientation to telecom technologies including television, radio, cable, video disc, and telecom/computer convergence. Pre: 201 or consent.

COM 331 Fundamentals of Visual Media (3) Orientation to techniques of production. Emphasis on history, language, and theory of the creative process and application to video productions and multimedia. Pre: 201 or consent.

COM 335 Mass Communication (3) Introduction to mass communication theory. Emphasis placed on theoretical approaches to societal effects of media, human communication, and research traditions in mass communication. Pre: 201 or consent. **DS**

COM 337 Introduction to Multimedia (3) Combined lecture-lab course providing an orientation to, and examination of, procedures and techniques of multimedia. Emphasis on new media literacy, human-computer interaction, and basic design of electronic multimedia. Pre: 201 or consent.

COM 340 Intercultural Communication (3) Problems and opportunities of communication in a variety of intercultural contexts. Focus on theory, research, and managing intercultural effectiveness. Pre: 201 or consent. **DS**

COM 341 International Communication (3) Problems and opportunities of communication in a variety of international contexts. Focus on commerce, diplomacy, and mass communication. Pre: 201 or consent. **DS**

COM 350 Communication in Interpersonal Relationships (3) Theory and practice of interpersonal communication from a social science perspective. Pre: 201 or consent. **DS**

COM 401 Introduction to Communication Research Methods (3) Exploration of quantitative and qualitative research methods commonly used in communication studies. Practical experience will be offered. Pre: 201 or consent. **DS**

COM 420 Communication in Multicultural Organizations (3) Cultural diversity in multicultural and multinational organizations is examined regarding communication-related aspects of working life. Pre: 320 and 340, or consent. **DS**

COM 423 Applied Organizational Communication (3) Principles of organizational communication applied in organizational assessment, intervention, training, and development. Pre: 201 and junior standing, or consent.

COM 431 Video Production Lab I (3) Production of studio and remote video programming including news/information, instructional/educational, and dramatic formats. Lighting, sound, blocking, and equipment competency. Pre: 331 or consent.

COM 432 Telecommunication Services (3) Understanding human information needs as they relate to telecommunication services developed from new technologies. Pre: 330 or consent.

COM 433 Video Scriptwriting (3) Application of communication theory to creating and revising commercial and dramatic script material for video production. Pre: 331 or consent.

COM 434 Video Production Lab II (3) Creating, scripting, and producing complex programs. Media aesthetics and professional production, preparation, and execution are emphasized. Pre: 331 and 431, or consent.

COM 436 Media Effects (3) Social, political, economic, and cultural effects of broadcast media are examined to understand their impact on human behavior. Pre: 201 and junior standing, or consent.

COM 437 Interactive Multimedia Design and Development (3) The design, development, and evaluation of interactive computer-based

multimedia communication. The course emphasizes authoring and production of such multimedia elements as full-motion images, audio, graphics, etc. Pre: 337 or consent.

COM 438 International Telecommunication (3) Development of international telecommunication with emphasis on political theory, social purposes, legal regulation, and competition among nations. Pre: 330 or consent. **DS**

COM 440 Intercultural Training and Intervention (3) This course describes programs designed to prepare, support, and train individuals, groups, and communities for effective intercultural interaction at home and abroad. Pre: 340 or consent.

COM 441 Communication Policy and Planning (3) Alternative models in policy and planning that bring about or inhibit social, economic, and technical development in communication systems and their environments. Pre: 201 and junior standing, or consent. **DS**

COM 442 Communication in the Pacific Hemisphere (3) Comparative communication processes, development communication, technology, knowledge and skill transfer, and regional communication issues in the Pacific hemisphere. Pre: 201 and junior standing, or consent.

COM 444 Communication and Gender (3) Theories, myths, and the missing links in gendered communication. Application of established and emerging theories of gender and communication to interpersonal, organizational, intercultural, and mass communication. Pre: 201 and junior standing, or consent. **DS**

COM 451 Communication and Law (3) Role of communication in the legal process; impact of law on communication processes. Pre: 201 and junior standing, or consent. **DS**

COM 452 Building Communication Theory (3) Major theories of communication in terms of requirements for a theory, theory development, associated research, and application. Pre: 201 and junior standing, or consent. **DS**

COM 453 Ethnography of Communication (3) The interactional basis of communication in normal everyday living. Students analyze face-to-face and mediated communication using ethnographic methods. Pre: 201 and junior standing, or consent. **DS**

COM 454 Communication Campaigns (3) Communication strategies and research methods that lead to effective campaign programs. Focus on political, marketing, and public communication campaigns. Pre: 201 and junior standing, or consent. **DS**

COM 459 Special Topics (3) Topics of interest to faculty and students; taught by regular and visiting faculty. Repeatable on different topics to 6 credit hours. Pre: 201 and junior standing, or consent.

COM 480 Communication Seminar (3) Application of theoretic and methodological criteria to researchable questions. Topics will vary. Pre: 201 and senior standing, or consent.

COM 490 Senior Thesis Project (3) Completion of the thesis project appropriate to the selected area of concentration within the context of a seminar. Pre: 201 and senior standing, or consent.

COM 495 Communication Internship (V) Analysis of communication processes under faculty supervision through participation in the operations of an organization. Repeatable up to 3 credit hours. Pre: 201 and junior standing, or consent.

COM 499 Special Problems (V) Independent study of selected topics under faculty supervision. Repeatable up to 3 credit hours. Pre: 201 and junior standing, or consent.

COM 500 Master's Plan B/C Studies (1)

COM 611 Communication Theories (3) Systematic study of major theories of communication and current status of communication research.

COM 612 Communication Research Methods (3) Introduction to the major steps in the research process. Emphasis on the methodological approaches to making choices among alternatives at each step of a research cycle.

COM 623 Organizational Communication (3) Communication theory/research applied to formal organizations; assessments of strengths and weaknesses of organizational communications systems. Pre: 611 (or concurrent) or consent.

COM 624 Organizational Communication Training (3) Designing and implementing training systems in organizations; conducting training programs; evaluating training program effectiveness. Pre: 612 (or concurrent) or consent.

COM 633 Telecommunication Architectures (3) Telecommunication structures, processes, and networks as an area of research and study in the social sciences. Pre: 611 (or concurrent) or consent.

COM 634 Telecommunication Services (3) Systematic study from a social science perspective of current and emerging teleservices. Attention to user needs and impact, and to teleservice design. Pre: 612 (or concurrent) or consent.

COM 643 Intercultural Communication (3) Problems and opportunities of intercultural communication from theory and research, consulting and training, and policy and program perspectives. Pre: 611 (or concurrent) or consent.

COM 644 International Communication (3) Principles and practices of international communication from the perspectives of relevant theories, focusing on problems in an information age. Pre: 612 (or concurrent) or consent.

COM 645 Mass Communications (3) An introduction to major mass media theories, research trends and literature. Pre: 611 (or concurrent) or consent.

COM 646 Intercultural Training/Intervention (3) This course describes programs designed to prepare, support, and train individuals, groups, and communities for effective intercultural interaction at home and abroad. A-F only. Pre: 643 or consent.

COM 650 Communication Policy (3) Examination of the formation and implementation of communication policy in world, national, and local arenas. Key concepts; role in development. Pre: 611 (or concurrent) or consent.

COM 660 Communication Planning (3) Processes and methods of planning appropriate to the communication sector, including cultural, information, and media industries and organizations. Pre: 611 (or concurrent) or consent.

COM 691 Communication Topics (3) Coverage in depth of some area of theory and research. Repeatable one time. Pre: 611 and 612, or consent.

COM 692 General Research Seminar (3) Application of theoretic and methodological criteria to a researchable question. Pre: 611 and 612, or consent.

COM 695 Communication Practicum (V) Supervised work experience, study of an organization, and career planning. Required of Plan B students in the main communication program. Repeatable. CR/NC only. Pre: 611 and 612, or consent.

COM 699 Directed Reading and Research (V) Individual reading and/or research. Pre: consent.

COM 700 Thesis Research (V)

Communication and Information Sciences (CIS)

CIS 699 Directed Reading and/or Research (V)

CIS 701 Communication/Information Theories of Society (3) A critical review of major theoretical and empirical traditions in communication and information sciences. Focus on European, American, Third World, and applied research. Pre: consent.

CIS 702 Communication/Information Technologies (3) Technological concepts underlying data communications; information processing and computers; communication channels and networks, information storage and retrieval, and computer hardware and software. Pre: consent.

CIS 703 Communication/Information Research Methods (3) Current research methodologies in decision sciences, computer science, library science, and communication. Emphasis on methodologies suitable for interdisciplinary analysis. Pre: consent.

CIS 720 Interdisciplinary Seminar in Communication and Information Science (1) Exploration of relationships between disciplines in social sciences, science and technology, and humanities. Faculty and student presentations. Pre: consent.

CIS 799 Directed Reading and/or Research (V) Individualized program of directed reading and/or research outside the scope of regularly titled courses. Pre: consent. Plan must include goals and rationale.

CIS 800 Dissertation Research (V)

Counseling and Guidance (EDCG)

College of Education

EDEP 429 is a prerequisite for the graduate program in counseling and guidance and is to be completed before advancement to candidacy.

EDCG 402 Guidance and Classroom Management (3) Guidance principles applied to classroom management for teachers. Pre: consent.

EDCG 470 Ethnic Groups and Education in Hawai'i (3) Identity and learning within and among Hawai'i ethnic groups; study of prejudice and inter-ethnic hostilities as these impact

education and teaching. Pre: consent. (Cross-listed as EDEF 470)

EDCG 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

EDCG 581 (Alpha) Educational Workshop in Guidance (1) For counselors, counseling and guidance teachers, and other personnel to develop new approaches, attitudes, and ideas pertaining to the role and function of counseling and guidance in school, community, and state. (B) elementary school; (C) middle school; (D) high school; (E) college; (F) rehabilitation; (G) career; (H) evaluation and assessment; (I) personal development; (J) research methods; (K) guidance technique for classroom teachers; (M) counseling and social issues; (N) counselor as consultant; (O) program development; (P) geriatric; (Q) adult development. Repeatable with different content. CR/NC only.

EDCG 582 (Alpha) Educational Workshop in Guidance (2) For counselors, counseling and guidance teachers, and other personnel to develop new approaches, attitudes, and ideas pertaining to the role and function of counseling and guidance in school, community, and state. (B) elementary school; (C) middle school; (D) high school; (E) college; (F) rehabilitation; (G) career; (H) evaluation and assessment; (I) personal development; (J) research methods; (K) guidance technique for classroom teacher; (M) counseling and social issues; (N) counselor as consultant; (O) program development; (P) geriatric; (Q) adult development. Repeatable with different content. CR/NC only.

EDCG 583 (Alpha) Educational Workshop in Guidance (3) For counselors, counseling and guidance teachers and other personnel to develop new approaches, attitudes, and ideas pertaining to the role and function of counseling and guidance in school, community, and state. (B) elementary school; (C) middle school; (D) high school; (E) college; (F) rehabilitation; (G) career; (H) evaluation and assessment; (I) personal development; (J) research methods; (K) guidance technique for classroom teacher; (M) counseling and social issues; (N) counselor as consultant; (O) program development; (P) geriatric; (Q) adult development. Repeatable with different content. CR/NC only.

EDCG 603 Introduction to Practicum (3) Pre-practicum training for supervised experiences in school, community, and human service organizations. Focus on the counseling relationship. Includes a specialty observation-participation field experience. Pre: consent.

EDCG 604 Career Development and Vocational Counseling (3) Theory and practice in career development and vocational counseling with individuals and groups; utilization of educational, vocational, and social resources in career counseling. Pre: consent.

EDCG 605 Human Growth and Development—Life Span (3) Life span perspective on psychological, social, and physical development. Major theories and related research on human development; applications in policy planning and service delivery in counseling. Pre: consent.

EDCG 607 Planning and Design of Counseling Research (3) Integration and synthesis of counseling research principles in field settings;

construction and formulation of research proposals. Pre: consent and classified counseling and guidance major.

EDCG 608 Counseling: Group Theory and Practice (3) Theories and techniques of group counseling and guidance as preparation for practicum and internship. Application in school, college, rehabilitation, and community settings. Pre: 603, 610, and consent.

EDCG 609 Tests and Inventories in Guidance (3) Tests and inventories for the assessment of aptitudes, achievement, and interests. Applications to educational, instructional, and career guidance. Pre: consent.

EDCG 610 Counseling: Theory and Practice (3) Theory and techniques of counseling and guidance as preparation for practicum and internship. Application in school, college, rehabilitation, and community settings. Pre: consent.

EDCG 611 Problems of School Adjustment (3) Principles of behavior affecting interpersonal relationships in school with emphasis on application to actual situations. Pre: consent.

EDCG 613 Counseling in the Schools (3) History, philosophy, and organization of school counseling programs. Counselor role and functions, legal and ethical issues, contemporary issues, current methodology and resources. (Meets EdD common core elective.) Pre: consent.

EDCG 614 Theory and Assessment of Intelligence (3) Theory and supervised experience in individual intelligence testing, psychological report writing; psychometric and social issues in intelligence testing. Pre: 609 and consent.

EDCG 615 Theory and Assessment of Personality (3) Personality testing; practice in administration and use of personality assessment; examination of psychometric and social issues. Pre: 609 and consent.

EDCG 620 Cross-Cultural Counseling (3) Significance of cultural factors in counseling relationships, delivery of counseling services in multicultural settings with attention to Hawai'i. Emphasis on process of cultural learning and implications for counselor roles and functions. Pre: consent.

EDCG 630 Introduction to Community Services (3) Philosophy, organization, and function of community service agencies, programs, and institutions as related to professional work in counseling and guidance. Pre: consent.

EDCG 646 American College Student (3) Psychosocial characteristics of American college students and college environment, from viewpoint of student personnel work. Pre: consent. (Cross-listed as EDEA 646)

EDCG 650 Substance Abuse Counseling (3) Major theories on substance abuse behaviors, etiology, developmental aspects, socio-environmental issues, and prognosis. Theory and techniques in counseling, assessment, rehabilitation, prevention, and intervention. Pre: consent.

EDCG 654 Child Abuse: Counseling Practice and Theory (3) Historical aspects and contemporary sociocultural, and political attitudes and practices. Treatment and prevention theories and techniques in context of developmental psychology. Pre: consent.

EDCG 660 Marriage, Family, and Child Counseling (3) Theory/practice of marriage, family, and child counseling, including major model in clinical practice; supervised counseling project by each student. Liability insurance required. Pre: 603, 608, 610, and consent.

EDCG 670 Consultation: Theory and Practice (3) Consultation in educational, business, health, community, and human services agencies. Pre: 603, 608, 610, and consent.

EDCG 680 Principles and Practice of Rehabilitation Counseling (3) Principles, practices of rehabilitation counseling; review of history and influence of legislation on vocational rehabilitation; current issues, developments, with emphasis on local situation. Pre: consent.

EDCG 681 Psychosocial Aspects of Disability (3) Major theoretical and conceptual approaches to the understanding of adjustment to disability. Psychological and societal factors will be considered as they apply to the adult disabled in general, as well as to individuals with specific disabilities. Pre: 680 and consent.

EDCG 682 Medical Aspects of Disability (3) Systematic presentation of medical aspects of most prevalent handicapping conditions. Analysis of rehabilitation process in selected cases. Pre: consent.

EDCG 688 Theory and Techniques of Job Placement (3) Theory, process, and techniques of job readiness, job development, and job placement. Pre: 604 and consent.

EDCG 689 Vocational Evaluation and Assessment in Rehabilitation (3) Theory, process, and techniques of vocational evaluation and assessment. Assessment methods and processes as they relate to vocational choice and adjustment of special groups. Pre: 609 and consent.

EDCG 699 Directed Reading and/or Research (V) Individual reading and/or research. Pre: written consent of instructor and department chair.

EDCG 700 Thesis Research (V) Research for master's thesis. Pre: master's Plan A candidate and consent.

EDCG 701 (Alpha) Seminar in Counseling (3) In-depth study of professional concerns in specialty area. (B) school counseling; (C) college counseling; (D) rehabilitation counseling; (E) community service counseling. Pre: 703, classified counseling and guidance major, and consent.

EDCG 703 (Alpha) Practicum (3) Supervised experience (150 clock hours per semester) in counseling and guidance activities, which includes a weekly class meeting: (B) elementary; (C) middle school; (D) high school; (E) college; (F) rehabilitation counseling; (G) community service. Repeatable. Pre: 603, classified counseling and guidance major, and consent.

EDCG 704 Contemporary Issues in Counseling (3) Current issues and problems. (Meets EdD common required elective.) Repeatable. Pre: consent.

EDCG 733 (Alpha) Internship (6) Supervised post-practicum experience (300 clock hours per semester) in counseling and guidance activities: (B) elementary; (C) middle school; (D) high school; (E) college; (F) rehabilitation; (G) community service. Repeatable. Pre: 703, classified counseling and guidance major, and consent.

Dance (DNCE)

College of Arts and Humanities

DNCE 121 Beginning Ballet Technique (3) Introduction to classical ballet technique. Repeatable three times. **DA**

DNCE 122 Continuing Ballet Technique (3) Continuation of beginning classical ballet technique. Repeatable. Pre: 121 or consent. **DA**

DNCE 131 Beginning Modern Dance Technique (3) Introduction to modern dance technique. Repeatable. **DA**

DNCE 132 Continuing Modern Technique (3) Continuation of beginning modern dance technique. Repeatable. Pre: 131 or consent. **DA**

DNCE 141 Beginning Jazz Technique (3) Introduction to beginning jazz technique. **DA**

DNCE 142 Continuing Jazz Technique (3) Continuation of beginning jazz technique. Repeatable. Pre: 141 or consent. **DA**

DNCE 150 Introduction to Dance (3) Survey the development of major dance styles and their relationship to contemporary choreography. **DA**

DNCE 151 Music Theory for Dancers (3) Elements of music and relationship to dance; emphasis on rhythmic analysis. (Alt. years) **DA**

DNCE 221 Low Intermediate Ballet Technique (3) Low intermediate ballet technique. Repeatable. Pre: 122 or consent. **DA**

DNCE 222 Low Intermediate Ballet Technique (3) Low intermediate ballet technique. Repeatable. Pre: 221 or consent. **DA**

DNCE 231 Low Intermediate Modern Technique (3) Low intermediate modern dance technique. Repeatable. Pre: 131 or consent. **DA**

DNCE 232 Low Intermediate Modern Technique (3) Low intermediate modern dance technique. Repeatable. Pre: 231 or consent. **DA**

DNCE 250 Dance Production (3) Survey of historical, theoretical, and practical aspects; work in scenery, lighting, costume, makeup, and theater management. **DA**

DNCE 255 Dance in World Cultures (3) Multimedia overview of world dance forms, with emphasis on Asia and the Pacific, and related concepts. Pre: sophomore standing or consent. **DA**

DNCE 260 Movement Fundamentals (1) Organized somatic systems as a framework for understanding movement and dance techniques. Required for majors. Repeatable twice. **DA**

DNCE 301 Asian Dance I (V) Performance and techniques at the introductory level. Pre: upper division standing or consent. **DA**

DNCE 302 Chinese Dance I (1) Performance and techniques at the introductory level. Pre: upper division standing or consent.

DNCE 303 Japanese Dance I (1) Performance and techniques at the introductory level. Pre: upper division standing or consent. **DA**

DNCE 304 Javanese Dance I (1) Performance and techniques at the introductory level. Pre: upper division standing or consent. **DA**

DNCE 305 Korean Dance I (1) Performance and techniques at the introductory level. Pre: upper division standing or consent. **DA**

DNCE 306 Okinawan Dance I (1) Performance and techniques at the introductory level. Pre: upper division standing or consent. **DA**

DNCE 307 Philippine Dance I (1) Performance and techniques at the introductory level. Pre: upper division standing or consent. **DA**

DNCE 311 Oceanic Dance I (1) Performance and techniques at the introductory level. Pre: upper division standing or consent. **DA**

DNCE 321 Intermediate Ballet Technique (3) Intermediate ballet technique. Repeatable. Pre: 222 or consent. **DA**

DNCE 331 Intermediate Modern Technique (3) Intermediate modern dance technique. Repeatable. Pre: 232 or consent. **DA**

DNCE 334 Taiji (T'ai Chi) for Actors I (3) Basic Taijiquan (T'ai Chi Ch'uan) movement training. Pre: THEA 221 and THEA 222, or consent. (Cross-listed as THEA 334) **DA**

DNCE 360 Dance Kinesiology (3) Practical information for dance students on diet and nutrition, anatomy, training and conditioning, and injury prevention. Pre: 260 or consent. **DA**

DNCE 361 Elementary Labanotation (3) Elementary theory of Labanotation with practical application in scoring and reconstructing dances. Pre: 151 or MUS 180, or consent. (Alt. years) **DA**

DNCE 362 Intermediate Labanotation (3) Intermediate theory of Labanotation with practical application in scoring and reconstructing dances. Pre: 361 or consent. (Alt. years) **DA**

DNCE 370 Dance Improvisation (3) Improvisation in dance as creative experience, as source of new movement ideas, and as means of developing spontaneity in performance. Repeatable. Pre: 222, 232, or consent. **DA**

DNCE 371 Dance Composition I (3) Elementary techniques and theories for creating and crafting concert dances. Pre: 370 and 231, or consent. **DA**

DNCE 372 Dance Composition II (3) Intermediate techniques and theories for creating and crafting concert dances. Pre: 371 or consent. **DA**

DNCE 401 Asian Dance II (V) Performance and techniques at intermediate level. Repeatable. Pre: 301 or consent. **DA**

DNCE 402 Chinese Dance II (1) Performance and techniques at intermediate level. Repeatable. Pre: 302 or consent. **DA**

DNCE 403 Japanese Dance II (1) Performance and techniques at intermediate level. Repeatable. Pre: 303 or consent. **DA**

DNCE 404 Javanese Dance II (1) Performance and techniques at intermediate level. Repeatable. Pre: 304 or consent. **DA**

DNCE 405 Korean Dance II (1) Performance and techniques at intermediate level. Repeatable. Pre: 305 or consent. **DA**

DNCE 406 Okinawan Dance II (1) Performance and techniques at intermediate level. Repeatable. Pre: 306 or consent. **DA**

DNCE 407 Philippine Dance II (1) Performance and techniques at intermediate level. Repeatable. Pre: 307 or consent. **DA**

DNCE 411 Oceanic Dance II (1) Performance and techniques at intermediate level. Repeatable. Pre: 311 or consent. **DA**

DNCE 421 Advanced Ballet Technique (3) Advanced ballet technique. Repeatable. Pre: 321 or consent. **DA**

DNCE 431 Advanced Modern Technique (3) Advanced modern dance technique. Repeatable. Pre: 331 or consent. **DA**

DNCE 433 Movement Workshop (V) Special workshops in movements relating to specific departmental theatrical productions beyond the scope of movement taught in 437 and 438. Repeatable one time. Pre: one of 435, THEA 435, or consent. (Cross-listed as THEA 433) (Alt. years) **DA**

DNCE 434 Taiji (T'ai Chi) for Actors II (3) Intermediate-level Taijiquan (T'ai Chi Ch'uan) movement training. Pre: 334 or 373, or consent. (Cross-listed as THEA 434) **DA**

DNCE 435 Movement for Actors (3) Training actors to discover experientially the sources of movement; to teach skills for analyzing movement for its mechanical, anatomical, spatial, and dynamic content; and then to apply these skills in a role. Pre: 231 or THEA 222. (Cross-listed as THEA 435) **DA**

DNCE 436 Advanced Movement for Actors (3) Detailed development of material presented in 435. Focus on Bartenieff fundamentals and movement analysis as it applies to the physical interpretation of theatrical roles. Pre: 435 or THEA 435, or consent. (Cross-listed as THEA 436) (Alt. years) **DA**

DNCE 437 Period Movement Styles, 1450–1650 (3) Movement styles and social deportment of European societies in the Renaissance and early Baroque periods. Pre: DNCE 435, THEA 435, one semester of a 100-level dance technique class, or consent. (Cross-listed as THEA 437) (Alt. years) **DA**

DNCE 438 Period Movement Styles, 1650–1800 (3) Movement styles and social deportment of the Baroque and pre-Romantic periods in Europe and the American colonies. Pre: 435, THEA 435, one semester of a 100-level dance technique class, or consent. (Cross-listed as THEA 438) (Alt. years) **DA**

DNCE 439 Musical Theater Dance Forms (3) Theatrical dance forms used in 20th-century musical theater. Pre: one of 221, 231, or THEA 421; or consent. (Cross-listed as THEA 439) (Alt. years) **DA**

DNCE 452 Dance History I: Ritual to Theater (3) Development of Western theatrical dance from Ancient Greece through 19th-century ballet. Pre: upper division standing or consent. **DH**

DNCE 453 Dance History II: 20th Century to the Present (3) Development of modern dance, contemporary ballet, and dance forms of musical theater and film. Pre: upper division standing or consent. **DH**

DNCE 458 Field Experiences in Dance (V) Field experiences in relevant contexts under professional and faculty supervision. Repeatable once. CR/NC only. Pre: upper division standing and consent. **DA**

DNCE 459 Topics in Dance (V) Readings, research, and/or field and movement experiences.

Repeatable if topic changes. Pre: upper division standing and consent.

DNCE 470 Dance Performance (1) Performance in various dance styles and settings. Repeatable. Pre: audition or consent. **DA**

DNCE 480 Dance Repertory (V) Preparation of standard and new works for performance. Repeatable. Pre: consent. **DA**

DNCE 490 Creative Dance (3) Dance activities for young people. Appropriate for teachers, group workers, recreation majors, and others working with children. Also adults with special needs. Supervised field activities. Pre: upper division standing or consent. **DA**

DNCE 495 Senior Project (1) Individual choreographic project; student choreographs, performs, and oversees all technical aspects of a creative project; tutorial. Pre: 372, senior standing, and consent. **DA**

DNCE 499 Directed Work (V) Individual projects, tutorial. Pre: consent.

DNCE 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

DNCE 618 Digital Multimedia Tools for Performance Research (3) Dance, Theatre, Music Majors only. A-F only. Repeatable one time. Pre: consent. (Cross-listed as THEA 618)

DNCE 651 Seminar in Dance Research (3) Research materials and methods; preparation for thesis and scholarly research reporting. Required for graduate concentrations in dance. (Alt. years)

DNCE 652 Seminar: Dance Theory and Criticism (3) Major theories of dance and dance criticism; emphasis on Western ideas. Pre: 452 and 453, or consent.

DNCE 653 Dance Ethnology Seminar (3) Exemplary studies and field research. (Alt. years)

DNCE 654 Regional Dances of Asia (3) Dance content and historico-social context of principal dance traditions. Repeatable. (Alt. years)

DNCE 655 Regional Dances of Oceania (3) Dance content and historico-social context of principal dance traditions. Repeatable. (Alt. years)

DNCE 659 Advanced Topics in Dance (V) Readings, research, and/or field movement experiences. Repeatable if topic changes. Pre: graduate standing or consent.

DNCE 660 Laban Movement Analysis (3) Study and application of Laban Movement Analysis as a framework for enhancing analytical and artistic abilities. Pre: 260 (or concurrent) and 360 (or concurrent); or consent.

DNCE 661 Advanced Problems in Movement Analysis (3) Advanced skills in movement analysis and interpretation of movement scores. Emphasis on Labanotation. Repeatable. Pre: 362. (Alt. years)

DNCE 671 Advanced Choreography (3) Advanced analytic and creative study. Pre: 372 or consent. (Alt. years)

DNCE 672 Dance Performance (V) Graduate performance in various dance styles and settings. By audition only. Repeatable. Pre: consent.

DNCE 679 Directed Choreography (1) Concert choreography for selected performance settings under the direction of a faculty adviser. Repeat-

able. Pre: 372 (or concurrent) or 671 (or concurrent); or consent.

DNCE 684 Theatre Governance (3) Covers the economic and managerial skills for starting a professional and/or non-profit theatre company or performing arts organization: artistic directorship, board development, non-profit legalities, season planning, fundraising, budgeting, publicity, international activities, etc. Pre: THEA 600 or consent. (Cross-listed as THEA 684)

DNCE 691 Seminar in Teaching Dance/Theater (3) Pedagogy and classroom experience in teaching technique and theory. (Cross-listed as THEA 691) (Alt. years)

DNCE 692 Seminar: Theater and Dance for Children (3) Theories and methods applied in theatrical experiences with and for children: creative movement/drama, puppetry, and theater/dance. Pre: one of 490, THEA 470, THEA 474, or THEA 476. (Cross-listed as THEA 779)

DNCE 693 Internship: Youth Theater/Dance (V) Supervised leadership experiences in dance/theater program with children. Students spend nine hours per week in supervised setting and three hours in weekly class meeting. Pre: 490, THEA 470, or THEA 476; or consent. (Cross-listed as THEA 693)

DNCE 695 Dance Colloquium (1) Forum for presentation and discussion of current intellectual and artistic activities in the dance field. Repeatable three times. Pre: consent.

DNCE 699 Directed Reading and Research (V) Individual projects: tutorial. Pre: consent.

DNCE 700 Thesis Research (V)

DNCE 790 Issues in Youth Theater (3) Examination of current issues, problems, and future directions in curriculum theory and design as it applies to theater and dance education. Pre: one of 490, THEA 470, or THEA 474; or consent. (Cross-listed as THEA 778)

Dental Hygiene (DH)

School of Nursing and Dental Hygiene

Dental hygiene courses must be taken in sequence and are open only to those admitted to the program by the Department of Dental Hygiene.

DH 231 Oral Anatomy and Tooth Morphology (2) The study of the structure and functions of the head and neck with emphasis on structures in or related to the oral cavity; of tooth morphology. Repeatable once. A–F only. Pre: BIOC 241, PHYL 103, PHYL 103L, or equivalent. Co-requisite: 231L. **DB**

DH 231L Oral Anatomy and Tooth Morphology Lab (2) (2 3-hr Lab) Application of DH 231 didactic concepts to laboratory activities and practices. Repeatable once. A–F only. Pre: BIOC 241 and PHYL 103, PHYL 103L, or equivalent. Co-requisite: 231. **DY**

DH 238 Basic Dental Hygiene I (2) Relationship to dentistry, problems, trends, issues; role and functions of dental hygienists in prevention and control of chronic oral diseases; preliminary dental hygiene clinical and support procedures including vital signs; team concepts in dentistry. Repeatable once. A–F only. Co-requisite: 238L and 239L. **DB**

DH 238L Basic Dental Hygiene I Lab (1)

Application of preliminary dental hygiene clinical and support procedures including instrumentation, vital signs, and team concepts in dentistry. Repeatable once. A–F only. Co-requisite: 238 and 239L. **DY**

DH 239L Basic Dental Hygiene I Lab (1)

Application of preliminary dental hygiene clinical and support procedures including instrumentation, vital signs, and team concepts in dentistry. Repeatable one time. A–F only. Co-requisite: 238/238L. **DY**

DH 240 Basic Dental Hygiene II (2)

Basic dental hygiene theory and skills including competencies in health history taking, examination, patient care plan, oral prophylaxis, application of caries preventive agents, plaque control and support procedures. A–F only. Pre: 239 and 239L. Co-requisite: 240L, 241L, and 242L. **DB**

DH 240L Basic Dental Hygiene Lab/Clinic (1)

(1 4-hr Lab/Clinic) Laboratory and clinical experiences in basic dental hygiene skills and competencies including history taking, examination, patient care plan, oral prophylaxis, application of caries preventive agents, and clinic procedures. A–F only. Pre: 239 and 239L. Co-requisite: 240, 241L, and 242L.

DH 241L Basic Dental Hygiene Lab/Clinic (1)

(1 6-hr Lab/Clinic) Laboratory and clinical experiences in basic dental hygiene skills and competencies including history taking, examination, patient care plan, oral prophylaxis, application of caries preventive agents, and clinic support procedures. A–F only. Pre: 239 and 239L. Co-requisite: 240, 240L, and 242L. **DY**

DH 242L Basic Dental Hygiene Lab/Clinic (1)

(1 4-hr Lab/Clinic) Laboratory and clinical experiences in basic dental hygiene skills and competencies including history taking, examination, patient care plan, oral prophylaxis, application of caries preventive agents, and clinic support procedures. A–F only. Pre: 239 and 239L. Co-requisite: 240, 240L, 241L. **DY**

DH 250 General and Oral Histology and Embryology (2)

Cells and tissues and their embryologic origin, with particular reference to teeth and their supporting structures. Pre: 231 (or concurrent). Fall only. **DB**

DH 251 General and Oral Histology and Embryology (1)

Continuation of 250. Pre: 250. Spring only. **DB**

DH 281 Dental Radiography (2)

Basic principles of radiation and fundamental information to understand and safely use radiation in dental radiography. A–F only. Repeatable. Pre: 231. Co-requisite: 281L.

DH 281L Dental Radiography Lab/Clinic (1)

(1 3-hr Lab/Clinic) Preparation and evaluation of radiographic survey of patients with varying dentition; methods, and indications of safety considerations in clinical application of roentgen rays. A–F only. Repeatable. Pre: 231. Co-requisite: 281.

DH 361 Health Education and Promotion (2)

Provides an overview of the concepts and application of health education and health promotion theories and principles as applies to individuals, groups and the larger public. Pre:

open to non-nursing majors with consent. (Cross-listed as NURS 361) Fall only.

DH 366 General and Oral Pathology (2)

Nature and causes of disease, progress and termination or associated alterations of tissue, diseases affecting teeth and structures of oral cavity. Pre: 250 and 251 (or concurrent). Spring only. **DB**

DH 367 General and Oral Pathology (1)

Continuation of 366. Pre: 366. Fall only. **DB**

DH 369 Dental Materials (1)

Science of dental materials and its application to dentistry and dental hygiene. Repeatable one time. A–F only. Pre: 231. Co-requisite: 369L.

DH 369L Dental Materials Lab/Clinic (1)

Laboratory and clinical application of concepts in the science of dental materials. Repeatable one time. A–F only. Pre: 231. Co-requisite: 369.

DH 370 Expanded Functions in Dental Hygiene (2)

Basic concepts of expanded functions in dental hygiene. A–F only. Repeatable. Pre: 369. Co-requisite: 370L.

DH 370L Expanded Functions Lab/Clinic (1)

(2 1.5-hr Lab/Clinic) Application of basic concepts of expanded functions in dental hygiene. A–F only. Repeatable. Pre: 369. Co-requisite: 370.

DH 375 Clinical Dental Hygiene I (2)

Development of dental hygiene concepts and skills; emergency procedures; team approach to dentistry, planning, implementing and evaluating total oral hygiene care of patients; review and critical analysis of current dental periodicals and research. Repeatable one time. A–F only. Pre: 240/240L, 241L, 242L, 281/281L, and 389. Co-requisite: 375L, 376L, 377L, and 378L.

DH 375L Clinical Dental Hygiene I Clinic (1)

Clinical instruction and application of dental hygiene concepts and skills; emergency procedures; team approach to dentistry; planning, implementing, and evaluating total oral hygiene care of patients; review and critical analysis of current dental periodicals and research. Repeatable one time. A–F only. Pre: 240/240L, 241L, 242L, 281/281L, and 389. Co-requisite: 375, 376L, 377L, and 378L.

DH 376L Clinical Dental Hygiene I Clinic (1)

Clinical instruction and application of dental hygiene concepts and skills; emergency procedures; team approach to dentistry; planning, implementing, and evaluating total oral hygiene care of patients; review and critical analysis of current dental periodicals and research. Repeatable once. A–F only. Pre: 240/240L, 241L, 242L, 281/281L, and 389. Co-requisite: 375/375L, 377L, and 378L.

DH 377L Clinical Dental Hygiene I Clinic (1)

Clinical instruction and application of dental hygiene concepts and skills; emergency procedures; team approach to dentistry; planning, implementing, and evaluating total oral hygiene care of patients; review and critical analysis of current dental periodicals and research. Repeatable one time. A–F only. Pre: 240/240L, 241L, 242L, 281/281L, and 389. Co-requisite: 375, 375L, 376L, and 378L.

DH 378L Clinical Dental Hygiene I Clinic (1)

Clinical instruction and application of dental hygiene concepts and skills; emergency procedures; team approach to dentistry; planning, implementing, and evaluating total oral hygiene care of patients; review and critical analysis of current

dental periodicals and research. Repeatable once. A–F only. Pre: 240/240L, 241L, 242L, 281/281L, and 389. Co-requisite: 375/375L, 376L, and 377L.

DH 380 Clinical Dental Hygiene II (2)

Continuation of 379. Pre: 379. Spring only.

DH 380L Clinical Dental Hygiene II Clinic (1)

(1 6-hr Clinic) Continuation of 379. Clinical application of dental hygiene concepts and skills; emergency procedures; team approach to dentistry; planning, implementing and evaluating total oral hygiene care to patients. A–F only. Pre: 379. Co-requisite: 380, 381L, 382L, and 383L.

DH 381L Clinical Dental Hygiene II Clinic (1)

(1 6-hr Clinic) Continuation of 379. Clinical application of dental hygiene concepts and skills; emergency procedures; team approach to dentistry; planning, implementing, and evaluating total oral hygiene care to patients. A–F only. Pre: 379. Co-requisite: 380, 380L, 382L, and 383L.

DH 382L Clinical Dental Hygiene II Clinic (1)

(1 4-hr Clinic) Continuation of 379. Clinical application of dental hygiene concepts and skills; emergency procedures; team approach to dentistry; planning, implementing, and evaluating total oral hygiene care to patients. A–F only. Pre: 379. Co-requisite: 380, 380L, 381L, and 383L.

DH 389 Pain Control and Local Anesthesia in Dentistry (2)

Basic concepts of pain control and local anesthesia in dentistry with appropriate emphasis on psychological preparation, pharmacological preparation, and safe and effective administration of anesthesia in the practice of dental hygiene. Pre: 231, 239, and 250. Co-requisite: 240, 251, and 366. Spring only. **DB**

DH 390 Periodontology I (2)

Normal periodontium, etiology, pathogenesis, clinical manifestations and epidemiology of periodontal diseases, and mode of periodontal therapy. Repeatable one time. A–F only. Pre: 240, 251, and 366. Fall only. **DB**

DH 391 Periodontology II (2)

Continuation of DH 390. Normal Periodontium, etiology, pathogenesis, clinical manifestations and epidemiology of periodontal diseases, and mode of periodontal therapy. Repeatable one time. A–F only. Pre: 390. Spring only. **DB**

DH 473 Community Health (3)

Introduction and application of the principles of health education and dental public health into practice in schools, community agencies, and private dental offices (inclusive of problem assessment, planning, implementation and evaluation processes); epidemiology and biostatistics. A–F only. Pre: 361. Fall only.

DH 475 Advanced Clinical Dental Hygiene II (2)

An in-depth knowledge and clinical application of expanded function in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A–F only. Pre: 380/380L, 381L, 382L, 383L, and 391. Co-requisite: 475L, 476L, 477L, 478L.

DH 475L Advanced Dental Hygiene I Clinic A (1)

Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A–

F only. Pre: 380/380L, 381L, 382L, 383L, and 391. Co-requisite: 475, 476L, 477L, and 478L. Fall only.

DH 476L Advanced Dental Hygiene I Clinic B

(1) Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A–F only. Pre: 380/380L, 381L, 382L, 383L, and 391. Co-requisite: 475, 475L, 477L, and 478L. Fall only.

DH 477L Advanced Dental Hygiene I Clinic C

(1) Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A–F only. Pre: 380/380L, 381L, 382L, 383L, and 391. Co-requisite: 475, 475L, 476L, and 478L. Fall only.

DH 478L Advanced Dental Hygiene I Clinic D

(1) Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A–F only. Pre: 380/380L, 381L, 382L, 383L, and 391. Co-requisite: 475, 475L, 476L, and 477L. Fall only.

DH 480 Advanced Clinical Dental Hygiene II

(2) In-depth knowledge development of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modifications in behavior. Repeatable one time. A–F only. Pre: 475, 475L, 476L, 477L, and 478L. Co-requisite: 480L, 481L, 482L, 483L. Spring only.

DH 480L Advanced Clinical Dental Hygiene II Clinic (1)

(1 4-hr Clinic) Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A–F only. Pre: 475, 475L, 476L, 477L, and 478L. Co-requisite: 480, 481L, 482L, 483L. Spring only.

DH 481L Advanced Clinical Dental Hygiene II Clinic (1)

(1 4-hr Clinic) Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A–F only. Pre: 475, 475L, 476L, 477L, and 478L. Co-requisite: 480, 480L, 482L, 483L. Spring only.

DH 482L Advanced Clinical Dental Hygiene II Clinic (1)

(1 4-hr Clinic) Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue curettage, host factors, and modification of behavior. Repeatable one time. A–F only. Pre: 475, 475L, 476L, 477L, and 478L. Co-requisite: 480, 480L, 481L, 483L. Spring only.

DH 483L Advanced Clinical Dental Hygiene II Clinic (1)

(1 4-hr Clinic) Application of knowledge of expanded functions in periodontics with emphasis on principles, techniques, procedures in pain-anxiety control, soft tissue

curettage, host factors, and modification of behavior. Repeatable one time. A–F only. Pre: 475, 475L, 476L, 477L, and 478L. Co-requisite: 480, 480L, 481L, 482L. Spring only.

DH 499 Directed Reading, Field Work, or Research (V) Individualized program of directed reading, field work, or research for major under supervision in related areas of dentistry and dental hygiene. Pre: consent.

DS

See Information Technology Management

Dutch (DUTC)

College of Languages, Linguistics and Literature

Students choosing Dutch for the language requirement should realize it may not be offered if demand is limited.

DUTC 101 Elementary Dutch (4) Conversation, lab drill, grammar, reading. **HSL**

DUTC 102 Elementary Dutch (4) Continuation of 101. **HSL**

DUTC 107 Dutch for Reading Purposes (V) Reading of scholarly and technical Dutch. Does not fulfill the language core requirement.

DUTC 201 Intermediate Dutch (3) Reading, conversation, and composition. Rapid reading skills, listening to lectures in Dutch. Pre: 102. **HSL**

DUTC 202 Intermediate Dutch (3) Continuation of 201. **HSL**

East Asian Languages and Literatures (EALL)

College of Languages, Linguistics and Literature

All students taking language courses in this department for the first time must take a regularly scheduled placement test in the appropriate language; those with no background must come to the department office for a brief interview. A grade of C or better is required in the prerequisite courses for continuation.

EALL 140 Introduction to Chinese Language and Culture (3) The purpose of this course is to provide students with interesting perspectives and some general knowledge of Chinese language, literature, and culture, and to let students sample what the Chinese faculty has to offer. **DH**

EALL 271 Japanese Literature in Translation—Traditional (3) Survey of all major forms from the earliest era to mid-19th century. **DL**

EALL 272 Japanese Literature in Translation—Modern (3) Survey from mid-19th century to present; emphasis on fiction. **DL**

EALL 273 Survey of Japanese Literature—KIC (3) Survey of traditional and modern Japanese literature in translation, covering all major genres. Only offered at Konan University in Japan. Not open to students with 271 or 272. **DL**

EALL 281 Korean Literature in Translation—Traditional (3) Survey of Korean literature from earliest times with emphasis on development and

cultural context; all readings in English translation. Students write essays about the readings. **DL**

EALL 282 Korean Literature in Translation—Modern (3) Survey of 20th-century Korean literature with emphasis on development and cultural context; all readings in English translation. Students write essays about the readings. **DL**

EALL 325 (Alpha) Japanese Film: Art and History (3) Study and analysis of Japanese film; its history and relationship to cultural, social, philosophical, and aesthetic contexts. (B) 1900–1960; (C) 1960–present; (D) special topics. Pre: upper division standing or consent. (Cross-listed as ASAN 325) **DH**

EALL 360 Literary Traditions of East Asia (3) Selected works of Chinese, Japanese, and Korean literature in English; relationships and parallels. Pre: one of ENG 250–257 or consent. **DL**

EALL 361 Chinese Literature: Ancient (3) Survey of all major genres from antiquity until the ninth century. Pre: one of ENG 250–257 or consent. **DL**

EALL 362 Chinese Literature: Pre-modern (3) Survey of all major genres from the ninth into the 20th-century. Pre: one of Eng 250–257 or consent. **DL**

EALL 363 (Alpha) 20th-Century Chinese Literature and Culture (3) Survey of 20th-century Chinese literature in translation. Includes a variety of genres from the People's Republic of China, Taiwan, and Hong Kong: (B) 1919–1949; (C) 1949–present. Pre: 361, 362, or one of Eng 250–257; or consent. **DL**

EALL 364 20th-Century Literature by Chinese Women (3) A survey and critical examination of contemporary Chinese women writers from China, Taiwan, and Hong Kong. This course traces a genealogy of women's writing from the early 1920s up until now through novels, poetry, drama, and film. Pre: one of 271, 361, ENG 250, or WS 151. (Cross-listed as WS 346) **DL**

EALL 365 (Alpha) Traditional Chinese Fiction in Translation (3) Survey of pre-modern Chinese fiction in translation. (B) short story; (C) novel. Pre: 361 or 362 or one of ENG 250–257; or consent. **DL**

EALL 371 (Alpha) Traditional Japanese Literature (3) Reading and analysis of English translations of selected important works in the classical tradition. No knowledge of Japanese required: (B) prose fiction and literary miscellany; (C) drama and poetry. **DL**

EALL 372 (Alpha) Modern Japanese Literature (3) Reading and analysis of English translations of selected important works in modern Japanese literature. No knowledge of Japanese required: (B) fiction; (C) poetry, drama, and criticism. **DL**

EALL 472 East-West Encounter Literature (3) Critical examination of selected literary works depicting East-West encounters from the mid-19th to the mid-20th centuries. Pre: two courses from 271, 272, ENG 250, or ENG 255; or consent of department chair/program director. **DL**

EALL 491 Senior Colloquium in East Asian Literature (3) Comparative perspectives; some works studied in the original. Pre: third-level East Asian language. **DL**

EALL 492 (Alpha) Study of East Asian Languages (V) Less commonly taught languages

of East Asia: (B) Manchu; (C) Mongolian.

Recommended: previous experience in history, linguistics, or languages. Pre: consent.

EALL 500 Master's Plan B/C Studies (1)

EALL 590 Intensive Japanese for Reading Knowledge (4) Open to graduate students only. CR/NC only. Pre: consent.

EALL 591 Intensive Japanese for Reading Knowledge (4) Open to graduate students only. CR/NC only. Pre: 590 or consent.

EALL 601 Method of Teaching East Asian Languages (3) Identification and analysis of problems in language learning, teaching, testing. Development of teaching strategies for East Asian languages. Pre: CHN 451, JPN 451, or KOR 451.

EALL 603 (Alpha) Bibliographical and Research Methods (3) Traditional and modern references and other library materials basic to research in all areas of East Asian studies: (C) Chinese; (J) Japanese; (K) Korean. Pre: CHN 402 for (C); JPN 407 (alpha) for (J); KOR 402 for (K).

EALL 699 Directed Research (V) CR/NC only. Pre: consent.

EALL 700 Thesis Research (V)

EALL 735 Seminar in Comparative East Asian Literature (3) Comparison of authors, modes, topics, and genres in poetry and prose; theoretical and practical criticism. Pre: consent.

EALL 750 Seminar in Comparison of East Asian Languages (3) Comparison of lexicon, phonology, morphology, syntax, semantics, etc., of two or more East Asian languages, contact influence on them. Pre: CHN 451, CHN 452, or JPN 451; or consent.

EALL 800 Dissertation Research (1)

Economics (ECON)

College of Social Sciences

Sophomore standing or consent is prerequisite to all 300-level courses except as noted. No more than 6 credit hours total for 120, 130, 131, and 230.

ECON 120 Introduction to Economics (3) A one-semester survey of the principles of microeconomics and macroeconomics to enable students in all disciplines to understand current economic events. This course cannot be used in lieu of 130 or 131 for students who wish to major or minor in economics or enter the College of Business Administration. **DS**

ECON 130 Principles of Economics (3) How individuals make decisions that affect their income and wealth; how firms make decisions that affect profits and production. Relationship to demand, supply, and prices of goods and natural resources. **DS**

ECON 131 Principles of Economics (3) Economic forces that determine a country's income, employment, and prices. Roles of consumers, businesses, banks, and governments. **DS**

ECON 131A Principles of Economics (3) Economic forces that determine a country's income, employment, and price. Roles of consumers, businesses, banks, and governments. **DS**

ECON 230 Principles of Economics for Business (3) Nature of economics; market economic forces; demand, supply, and price; market adjustment; theories of household and firm behavior; competition and monopoly; national income and price level; fiscal and monetary policy; gains from trade. Pre: MATH 241 or QM 250. **DS**

ECON 300 Intermediate Economics: Macroeconomic Analysis (3) Forces that determine national income, employment, and price levels. Impact of fiscal and monetary policy on the economy. Pre: 130 and 131. **DS**

ECON 301 Intermediate Economics: Price Theory (3) Theory of consumer behavior and theory of the firm. Impact of industrial structure on profits, prices, and allocation of resources. Pre: 130 and 131. **DS**

ECON 310 Economic Development for Nonmajors (3) Introduction to issues in economic development and development planning. Case studies of Asian underdeveloped countries. Pre: 130 and 131. **DS**

ECON 311 The Economy of Hawai'i (3) History of development of Hawaiian economy; current economic problems. Pre: 120 or 130. **DS**

ECON 317 The Japanese Economy (3) Analysis of Japan's growth past and present. Does Japan's economy look different in terms of its international trade structure, industrial structure, labor market, savings patterns, government policies, etc.? Does it matter? Pre: 120 or 130 or consent. **DS**

ECON 320 Introduction to Tourism Economics (3) This course examines tourism from an economic perspective. Topics include: the determinants of consumer demand for leisure travel, structure of competition among suppliers of tourism services, benefits and costs of tourism development to the host community, government's role in the taxation, subsidy, regulation and protection of the tourism industry, tourism's impact on the environment, and sustainable tourism development. A-F only. Pre: 120 or 130 or consent. (Cross-listed as TIM 320)

ECON 321 Introduction to Statistics (3) Basic elements; descriptive statistics, probability, inference, distributions, hypothesis testing, regression, and correlation analysis. **DS**

ECON 340 Financial Markets & Institutions (3) The determination of asset prices; the risk and term structure of interest rates; efficient markets hypothesis; risk management and financial derivatives, asymmetric information models of financial market structure, innovation, regulation and deregulation; and financial crises. Pre: either 130 or 131 (or concurrent). **DS**

ECON 358 Environmental Economics (3) Nature and causes of environmental degradation and economic solutions. Topics include air and water pollution, toxic waste, deforestation, soil erosion, biodiversity, global warming and sustainable economic growth. Pre: 120 or 130. **DS**

ECON 360 International Economic Relations: Nonmajors (3) Survey of theoretical, historical, and institutional aspects of international trade and finance. Gains from trade, balance of payments, capital movements, and international monetary system. Pre: 130 or consent. **DS**

ECON 361 Seminar: Women and International Development (3) Topics: Women's role, status, work and treatment in the Third World;

Economic Development, changing work/family roles, and improvement/deterioration in gender equity across the Third World; global feminization of poverty; efforts to promote gender equity. Open to non-majors. Pre: A 100 level economics course or any women's studies course; or consent. (Cross-listed as WS 361)

ECON 362 The World Trading System (3) Political economy of the world trading system. Case studies of trade cooperation and conflict under the World Trade Organization and other institutions. Future challenges, including investment policies, environmental and labor standards. Pre: 120, 130 or 131; or consent.

ECON 399 Directed Reading (V) Pre: senior majors with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in economics, and recommendation of department chair.

ECON 405 Comparative Economic Systems (3) Structure, institutions, operation, performance, growth of private enterprise of socialist, communist, and mixed economies; U.S., former Soviet republics, underdeveloped economies. Pre: 130 and 131. **DS**

ECON 410 Economic Development (3) Characteristics of underdeveloped economies, theories of economic growth, strategies of economic development, and investment criteria. Pre: 300 and 301, or consent. **DS**

ECON 412 Economic Development of the United States (3) U.S. economy from colonial times: slavery, transportation, education, industrial concentration, regional and urban growth. Pre: 300 and 301. **DS**

ECON 415 Asian Economic Development (3) History and economic development. Resources, population, and income, saving, investment, and consumption patterns. Role of government and private enterprise. Pre: 130 and 131. **DS**

ECON 416 The Chinese Economy (3) The Chinese economy during the imperial and republican periods, under Mao, and into the present reform era, with a brief comparison to Taiwan and Hong Kong. Pre: 130 and 131. **DS**

ECON 418 Pacific Island Economies (3) Historical and current economic development of the Pacific islands (excluding Hawai'i). Analysis of selected economic issues such as tourism, population growth, etc. Pre: 130 and 131. **DS**

ECON 420 Mathematical Economics (3) Mathematical techniques applied to theories of the consumer, the firm, markets. Linear programming, input-output analysis. Pre: 300, 301, and calculus. **DS**

ECON 424 Introduction to Theory of Statistics (3) Descriptive statistics, probability theory, probability distributions, sampling, hypothesis testing, parameter estimations, bivariate regression, correlation analysis. Pre: calculus. **DS**

ECON 425 Introduction to Econometrics (3) Regression analysis, analysis of variance, hypothesis testing, problems in estimation of single equation models, simultaneous equation models, problems and methods of estimation. Pre: 321 and AREC 210 or MATH 241; or consent. **DS**

ECON 429 Computer Programming for Economic Research (3) Introduction to use of computers for economics and agricultural analysis. Employment of BASIC, electronic spreadsheets,

software packages for statistics, regression and linear programming. Pre: 130 or AREC 220, and 321 or AREC 310. **DS**

ECON 430 Economics of Human Resources (3) Economic analysis of labor market. Investment in human capital, education, health, migration, etc. Pre: 301. **DS**

ECON 432 Economics of Population (3) Determinants and consequences of growth and structure of human populations. Relationships between economic factors and fertility, population growth and economic growth. Pre: 301 (or concurrent). (Cross-listed as PPST 432) **DS**

ECON 434 Health Economics (3) Private and public demand for health, health insurance, and medical care; efficient production and utilization of services; models of hospital and physician behavior; optimal public policy. Pre: 301 or consent. **DS**

ECON 440 Monetary Theory and Policy (3) Critical analysis of quantity theory, national income theory, tools of central banking, and debt management. Pre: 300 and 340. **DS**

ECON 450 Public Finance (3) Governmental expenditures, revenues, and debt. Fiscal policy, budgeting, and tax administration. Pre: 300 and 301. **DS**

ECON 452 State and Local Finance (3) Fiscal institutions, operations, and policy questions within state and local governments in U.S. grant programs and other links with central government. Pre: 301. **DS**

ECON 454 Economics and Cooperation (3) Economics is portrayed as the science of cooperation, thus highlighting the role of government as facilitator. The cooperative perspective is applied to such current issues as business management in Asia, global security, and international relations. Pre: 301. **DS**

ECON 458 Project Evaluation and Resource Management (3) Principles of project evaluation and policy analysis. Shadow pricing, economic cost of taxes and tariffs; public policy for exhaustible, renewable, and environmental resources. Pre: 301. (Cross-listed as NREM 458) **DS**

ECON 460 International Trade and Welfare (3) Theory of international specialization and exchange; general equilibrium, tariffs, quotas, common markets. Pre: 301. **DS**

ECON 461 International Monetary Economics (3) Theory of balance of payments, income, price level, and exchange rate determination; international capital movements, reserves, and current monetary problems. Pre: 300. **DS**

ECON 466 Growth and Crisis in the Global Economy (3) Sources of economic growth and technological change; growth experiences of selected countries since the industrial revolution; global economic cooperation; global business cycles and crises. Pre: 120 or 131; or consent. **DS**

ECON 470 Industrial Organizations and Public Control of Business (3) Interrelations of firms within industries in the United States. Determinants of firm and industry size, pricing policies, profits, and growth. Effects of antitrust laws and regulatory laws. Pre: 301. **DS**

ECON 476 Law and Economics (3) Legal issues of property rights, contracts, torts, and crime. Efficiency of U.S. legal process. Economics of law

enforcement, juries, prosecutors; evolution of legal rules. Pre: 301. **DS**

ECON 480 Transportation and Public Utilities (3) Objectives, problems, and effects of government regulation of these industries. Pre: 301. **DS**

ECON 491 Marine Resource Economics (3) Major problems and economic issues facing countries in Asia and the Pacific in effectively developing and managing marine resources. Pre: 120, 130, or consent. **DS**

ECON 495 Land and Housing Economics (3) Microeconomics explains urban land and housing phenomena, and analyzes selected land and housing issues relevant to Honolulu. Pre: 301 and 321. (Cross-listed as PLAN 495) **DS**

ECON 496 Topics in Contemporary Economic Problems (3) Economic analysis of current events. Topics announced each semester, e.g., environmental pollution, crime control, racial discrimination, traffic congestion. Pre: consent. **DS**

ECON 499 Directed Reading/Research (V) Directed readings and research for majors.

ECON 500 Master's Plan B/C Studies (1)

ECON 604 Microeconomics and Policy Analysis (3) Theory of the consumer, firm, and market. Role of governments and analysis of public policy. Applications to both industrialized and developing countries. Pre: 301 and one of AREC 210, MATH 203, or MATH 241; or consent.

ECON 605 Macroeconomics and Policy Analysis (3) Theories of income determination, prices, employment, and economic growth with emphasis on policy. Implications of interregional/international trade and financial linkages are explored. Pre: 300 and one of AREC 210, MATH 203, or MATH 241; or consent.

ECON 606 Microeconomic Theory I (3) Theory of the firm: production, costs, duality; theory of the market: competition, monopoly, oligopoly, monopolistic competition; theory of the consumer: preferences, expenditures, duality; expected utility theory. Pre: 627 and 628, or consent.

ECON 607 Macroeconomic Theory I (3) Neoclassical theory of real and monetary equilibrium, economics of J. M. Keynes, standard IS/LM models and aggregate demand/supply analysis in the closed and open economy, theory of rational expectations. Pre: 627 and 628, or consent.

ECON 608 Microeconomic Theory II (3) General equilibrium analysis: production, consumption, and Walrasian equilibria; Pareto efficiency, fundamental theorems of welfare economics; externalities; public goods; game theory; information theory. Pre: 606 or consent.

ECON 609 Macroeconomic Theory II (3) Models of economic growth and fluctuations; stochastic and dynamic macroeconomic models; econometric testing of rational expectations models; theory of public debt; current topics in macroeconomic theory. Pre: 607 or consent.

ECON 610 Economic Development (3) Nature and causes of economic growth and structural change. Roles of macroeconomic policy and foreign trade. Pre: 606 and 607, or consent.

ECON 611 Economic Development Policy (3) Analysis of policies for the promotion of industrial and agricultural development. Project evaluation, industrial regulation, public administration,

investment and capital market policies, land-use policies, trade policies, pricing, and stabilization. Pre: 604 or 606; or consent.

ECON 614 Economic Development of Japan (3) Analysis of growth from Meiji period to present. Problems of population change, capital formation, income distribution, industrial structure. Pre: 610 or consent.

ECON 616 Economic Development of China (3) Analysis of transition from a planned socialist economy (1949-78) to a market economy in China with a focus on changes in economic policies, foreign trade and investment, labor and financial markets, and the economic structure.

ECON 618 Economic Development of Southeast Asia (3) Analysis of growth, structural change, development patterns, agricultural and industrial development, foreign investment, foreign trade, economic integration in the region. Pre: 610 or consent.

ECON 620 Microeconomic Theory III (3) Game theory and strategic behavior. Economics of information and incentives principal-agent theory. Economic design. Applications include: theory of contracts; incentive compatible mechanism for provision of public goods; auction theory. A-F only. Pre: 606 and 608; or consent.

ECON 627 Mathematics for Economics (3) Sets, functions, limits, convexity, continuity; constrained and unconstrained optimization; difference and differential equations; matrix algebra; simultaneous equations; comparative statics; Kuhn-Tucker theory; game theory; mathematical programming. Pre: one semester of calculus.

ECON 628 Quantitative Method (3) Probability; density and distribution functions; expectation, variance, and co-variance; central limit theorem; maximum likelihood methods; statistical estimation, testing, and inference; bivariate regression. Pre: one of 321, AREC 310 or MATH 241; or consent. (Cross-listed as AREC 626)

ECON 629 Econometrics (3) Specification, statistical estimation, inference and forecasting of econometric models. Includes advanced topics for single-equation models, pooled models, qualitative dependent variables, simultaneous systems, distributed lags, and time series. Pre: 628 or consent. (Cross-listed as AREC 634)

ECON 637 Resource Economics (3) Analysis of problems of development and management of natural resources with emphasis on resources in agriculture and role in economic development. Pre: 608, AREC 634, and NREM 432; or consent. (Cross-listed as NREM 637)

ECON 638 Environmental Resource Economics (3) Principles of policy design and evaluation for environmental resources management, forestry and watershed conservation, and sustainable economic development. Pre: 604 or 606; or consent.

ECON 640 Monetary Economics I (3) Advanced topics in money demand and supply at micro- and macro-levels; theory and empirical evidence; transmission mechanisms; dynamics of adjustments to money market disequilibria. Pre: 607 or consent.

ECON 641 Monetary Economics II (3) Advanced topics in monetary policy for closed and open economies; inflation; financial development;

money and financial markets in economic development; dynamic stabilization models for financially repressed developing countries. Pre: 640 or consent.

ECON 650 Theory of Public Finance—Expenditures (3) Analysis of amount and composition of public spending. Techniques for analyzing and selecting government expenditures; PPBS, cost-benefit, fiscal Federalism. Pre: 450.

ECON 651 Theory of Public Finance—Revenue (3) Principles of taxation and frameworks for tax policy analysis: incidence and excess burden, taxation and individual behavior, taxation and corporate behavior, optimal taxation. Pre: 606 or consent.

ECON 660 International Trade and Welfare (3) Advanced theory of international trade and welfare; international specialization and exchange, general equilibrium, tariffs, quotas, common markets; welfare implications. Pre: 606 and 608 (or concurrent); or consent.

ECON 662 International Monetary Economics (3) Advanced international monetary and macroeconomic theory: balance of payments, output, price and exchange rate determination, international aspects of growth and economic fluctuations, alternative exchange rate regimes, international capital flows. Pre: 605 or 607; or consent.

ECON 663 Trade Policy (3) Theory of international trade and welfare; tariffs; quotas; strategic trade policy; preferential trade areas; international trade agreements; foreign direct investment and multinationals. Pre: 604 or 606.

ECON 670 Labor Economics I (3) Supply of and demand for labor; implications for labor markets and unemployment level. Pre: 606 or consent.

ECON 671 Labor Economics II (3) Economics of human resources; human capital theory, allocation of time, poverty, and discrimination. Pre: 606 or consent.

ECON 672 Economics of Population (3) Economic determinants and consequences of population change. Pre: consent.

ECON 674 Health Economics and Policy (3) Economic analysis of health-care policy; efficient design of health-care financing schemes; private and public demand for health, health insurance, and medical care; provider behavior. Pre: 604 (or concurrent) or 606 (or concurrent), or consent.

ECON 680 Industrial Organization I (3) Structure, performance, and conduct of business firms; determinants of firm and industry size, firm pricing policies, profits, and growth. Pre: 606.

ECON 681 Industrial Organization II (3) Law of property, tort, contracts, crime; effects of antitrust laws and regulations. Pre: 680 or consent.

ECON 686 Strategic Behavior and Experimental Economics (3) Experimental economics: methodology. Experimental game theory. Market experiments. Applications include: topics in industrial organization, provision of public goods, asset markets, auctions. Repeatable one time. Pre: 606 and 608; or consent.

ECON 694 Economics of Marine Resources (3) Economics of fisheries and other uses of seas; resource management and development policies; institutional and legal aspects of ocean use. Pre: consent.

ECON 699 Directed Research (V) Pre: consent of department chair.

ECON 700 Thesis Research (V) Research for master's thesis.

ECON 724 Seminar in Advanced Economics and Quantitative Methods (3) Open only to graduate students writing empirically oriented dissertations or proposals. Methods of empirical research. Repeatable. CR/NC only. Pre: 629 or AREC 634 and completion of all comprehensive examinations. (Cross-listed as AREC 701Q)

ECON 730 Research Seminar (3) Selected issues emphasizing research techniques. Required for students who have passed the two theory qualifying exams and have not passed the comprehensive exam. CR/NC only. Pre: consent.

ECON 731 MA Cooperative Research Seminar (3) Applied research methodology for economics MA students. Student groups choose a topic in consultation with instructor and design conceptual strategies, data collection approaches, and analysis techniques. A–F only. Pre: 604 and 605, or consent.

ECON 732 MA Capstone Research (3) Student applies theoretical and quantitative techniques, critical thinking, and communicative skills to prepare a written and oral presentation of original research on a topic of his or her choice. A–F only. Pre: 420, 425, 604 (or concurrent), and 605 (or concurrent); or consent.

ECON 780 Seminar: Selected Topics in Economic Analysis (3) Topics not covered in other courses. Pre: 606, 607, or consent.

ECON 800 Dissertation Research (V) Research for doctoral dissertation.

EDCG

See *Counseling and Guidance*

EDEA

See *Educational Administration*

EDEP

See *Educational Psychology*

Education (EDUC)

College of Education

EDUC 401 Introduction to Teaching (3) Knowledge base for professional education; elementary and/or secondary school organization; curriculum, and instruction; individual and program goals. A–F only. Pre: admission to PBCSE program or consent.

EDUC 402 Teaching Practicum (V) Observation, analysis, participation and teaching in elementary, middle, and/or high school. One-hour weekly seminar accompanies the field experience. Repeatable once. CR/NC only. Pre: EDEP 311 or EDEP 611 or consent. Co-requisite: 403 and 404; or consent.

EDUC 403 Seminar in Educational Inquiry (3) Study and discussion of general school-related topics and issues, e.g., dimensions of elementary and/or secondary schooling, school governance, curriculum design and development, the student learner, classroom management. Repeatable once. A–F only. Pre: 401 or consent. Co-requisite: 402 and 404; or consent.

EDUC 404 (Alpha) Teaching in the Subject Field (3) Purposes, procedures, curricula, evaluation in secondary school subject field: (B) art; (C) business and marketing; (D) language arts; (E) physical education; (F) industrial arts/agriculture; (G) mathematics; (H) science; (I) social studies; (J) foreign languages; (K) music; (M) home economics; (N) interdisciplinary. A–F only. Pre: 401 or consent. Co-requisite: 402 and 403.

EDUC 405 (Alpha) Teaching Residency (9) Full-time student teaching experience in school. (C) elementary; (D) secondary; (E) community college; (S) elementary/secondary regular education (for dual certification majors only). CR/NC only. Pre: successful completion of all required courses or consent. Co-requisite: 406.

EDUC 406 Seminar in Teaching Residency (3) Analysis and resolution of issues arising in student teaching; teaching skills and strategies; curriculum planning; professional growth and development; integration of teaching experiences with professional standards. A–F only. Pre: successful completion of all required courses or consent. Co-requisite: 405.

EDUC 500 Master's Plan B/C Studies (1) Enrollment for degree completion. CR/NC only. Pre: master's Plan B or C candidate and consent.

EDUC 601 Professional Studies Seminar I (6) Development of theoretical and practical knowledge base and skills for understanding, analyzing, and responding to teaching issues and problems. Co-requisite: 602.

EDUC 602 Field Experience and Seminar I (3) Supervised field study of a school. Co-requisite: 601.

EDUC 603 Professional Studies Seminar II (6) Development of pedagogical skills in planning and implementing instruction for target subject area/grade level. Pre: 601 and 602. Co-requisite: 604.

EDUC 604 Field Experience and Seminar II (3) Team collaboration on responding to identified school need; supervised experience in mini-teaching. Pre: 601 and 602. Co-requisite: 603.

EDUC 610 Pre-internship Practicum (9) Supervised experience in instructional planning and practice teaching. Pre: 603 and 604. Co-requisite: 611.

EDUC 611 Practicum Seminar (3) Planning and methods seminar in conjunction with practice teaching. Pre: 603 and 604. Co-requisite: 610.

EDUC 612 Teaching Internship (9) Full-time supervised teaching experience. Pre: 610 and 611. Co-requisite: 613.

EDUC 613 Internship Seminar (3) Collaborative problem solving of issues and concerns encountered in current teaching experiences. Pre: 610 and 611. Co-requisite: 612.

EDUC 740 Field Project (V) Practicum experience in area of specialization. Variable credit: minimum of 3 credit hours, maximum of 6 credit hours. Repeatable. Pre: consent.

EDUC 799 Internship in College Teaching (V) Introduction to college-level teaching; doctoral students serve as apprentices to professors; responsibilities include supervised teaching, planning and evaluation. Repeatable. CR/NC only. Pre: admission to EdD candidacy and consent.

EDUC 800 Dissertation Research (V) Research for doctoral dissertation.

Educational Administration (EDEA)

College of Education

EDEA 360 Dynamics of Student Leadership (3) Theoretical approaches and an experimental orientation toward leadership in student organizations via classroom activities and practicum experiences with student organizations.

EDEA 460 Emergent Paradigms of Leadership (3) Exploration and application of advanced leadership concepts including emergent theories, issues, trends and empowering leadership. Supervised practicum experience in promoting leadership and organizational development required. Pre: 360 or equivalent; and consent.

EDEA 480 Organization and Administration of Schools (3) Principles and practices of school administration in relation to the function of the teacher. Special emphasis placed on Hawai'i's state organization of public education and its laws and regulations.

EDEA 499 Directed Reading (V) Planned individualized study, reading, research, teaching, and/or projects under direct supervision of instructor. A-F only. Repeatable one time. Pre: consent.

EDEA 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

EDEA 581 (Alpha) Practicum in Educational Administration (1) In-service training for teachers and administrators in specific problem areas in the field of educational administration. Repeatable. CR/NC only. Pre: teaching experience and consent.

EDEA 582 (Alpha) Practicum in Educational Administration (2) Continuation of 581. Repeatable. CR/NC only. Pre: teaching experience and consent.

EDEA 601 Introduction to Education Administration (3) Develops view of administrative process and organization elements in context of system of personal, social, and physical variables. Emphasis on role and functions of school administrator.

EDEA 602 Research in Education Administration (3) Develops basic concepts of research on educational administration: methodology, status of particular topics, communication, and application of findings to problems of school administration. (Meets PhD common core inquiry methods requirement.)

EDEA 604 Qualitative Research Methods in Educational Organizations (3) Introduction to methods of qualitative research in educational administration. (Meets PhD common core requirement.)

EDEA 605 Collective Negotiation in Education (3) Principles and practices of collective negotiations as they apply to public and private education. Special emphasis placed on negotiation practices under Hawai'i's public employee collective bargaining act.

EDEA 608 Survey Research Design and Analysis (3) Survey study designs, survey sampling, questionnaire construction, interviewing, pre-tests, pilot studies, logic of measurement and association, table construction, and elaboration models. Pre: consent. (Cross-listed as SOC 608)

EDEA 610 School-Community Relations (3) Application of principles, techniques, policies, organization of school-community information program.

EDEA 620 Education Finance (3) Educational revenues, apportionments, budgetary procedures, costs, business management, economics of education, measures of productivity.

EDEA 623 Administration in KLS (3) Current problems, trends, and strategies in the administration of physical education, recreation, sport and fitness programs in school and non-school settings. Pre: KLS 423 or consent. (Cross-listed as KLS 623)

EDEA 629 Educational Statistics (3) Statistical inference including applications of parametric and nonparametric methods to educational problems. Pre: EDEP 429 or consent. (Cross-listed as EDEP 629)

EDEA 630 Education Law (3) Status and functions of educational institutions and personnel relative to their legal rights and responsibilities. Includes interpretation of important court decisions, statutes, equity measures.

EDEA 640 Systems Approach—Program Planning (3) Basic concepts and techniques in systems approach to educational management. Emphasizes preparation of program plans required at various organizational levels.

EDEA 642 Information Systems in Education (3) Integration of information systems and computer technology in educational planning, policy analysis, decision-making, and program assessment. Pre: ETEC 442 and consent.

EDEA 645 Principles of School Leadership (3) Examine the emergent theories, issues, practices, and problems relevant for educational leaders in school organizations. Integrates the aspects of management and administration within the context of leadership.

EDEA 646 American College Student (3) Study of psycho-social characteristics of the American college student and college environment, from viewpoint of student personnel work. (Cross-listed as EDCG 646)

EDEA 650 Human Factors in Organization (3) Analysis of the nature of organizations, human nature and needs, and their relationship to leadership, staffing, and staff development. Implications of group structure and human conflict, communications, and supervision and evaluation considered.

EDEA 652 Conflict Management in Education (3) Human factors in administration. Skills in the management of conflict in organizations; theories and practical application techniques. Pre: 601, 650, or consent.

EDEA 655 Intercultural Interactions (3) Theory-based frameworks and training methods of intercultural interaction and their applications to educational administration situations.

EDEA 657 Introduction to Higher Education (3) Salient historic, social, and organizational aspects of higher education; history, philosophy, purposes, governance, administration, structures, financing, faculty and student selection, curricula, legal and social issues. (Cross-listed as EDEF 657)

EDEA 660 Management/Leadership in Higher Education (3) Trends, research, and problems in college and university management. Pre: 657 or consent.

EDEA 661 Student Affairs Administration in Higher Education (3) Philosophy, history, organization, and administration of student personnel services at college and university levels, including admissions, housing, student activities, financial aids, placement, counseling, health services. Pre: 657 or consent.

EDEA 662 Curriculum in Higher Education (3) Traditional and contemporary curriculum issues. Development of performance competencies in curriculum design and evaluation using systems and design theory as central paradigms. Pre: 657 or consent.

EDEA 663 Community College Leadership (3) Development and changing missions of community colleges; in-depth study of emerging leadership issues: planning, financial management, decision-making, governance, and student personnel. Pre: 657, 660, or consent.

EDEA 670 School Supervision (3) Principles of supervision, development of supervisory programs.

EDEA 675 Introduction to Educational Policy Studies (3) Examines theories and models of educational policy and policy making and the contribution of policy analysis to the policy-making and change processes. A-F only. Pre: consent. (Cross-listed as EDEF 675)

EDEA 676 The Politics of Education (3) Examination of the ways in which education can be viewed as political, arising from its connection to the larger political system including local, state, and federal governments. A-F only. Pre: 675, EDEF 675, or consent. (Cross-listed as EDEF 676)

EDEA 677 The Educational System (3) Examination of structure and dynamics of the educational system. Particular focus on how educational policy interacts with principles that explain educational system behavior. A-F only. Pre: 675 or EDEF 675; or consent. (Cross-listed as EDEF 677)

EDEA 699 Directed Reading and/or Research (V) Individual reading and/or research. Pre: consent of instructor and department chair.

EDEA 700 Thesis Research (V) Research master's thesis.

EDEA 704 Advanced Qualitative Research (3) Study in trends, research, and problems. Pre: 604, TECS 632, or comparable; or consent.

EDEA 720 Administrative Internship (V) Supervised intern experience in school and university administration. Emphasizes the development of leadership skills through program and project management. A–F only. Pre: approval of cooperating agencies and department.

EDEA 745 Creative Learning Strategies for Adults (3) Analysis of psychology of adult learner; forces that affect learning in dynamics of individual, group, and organizational behavior; concept of lifelong learning vis-a-vis development of creative strategies that assist maturing, self-directed persons to develop their potentialities. (Cross-listed as EDEP 745 and NURS 745)

EDEA 775 Seminar on the Principalship (3) Series of planned seminar experiences on problems and issues confronting school principals, such as contract administration, program planning and budgeting systems (PPBS), teacher evaluation. Topic to be announced. Repeatable.

EDEA 780 (Alpha) Seminar (3) Study in trends, research, and problems. (B) policy formulation; (C) organizational change; (D) evaluation and research management (meets PhD common required advanced methodology course); (E) program management/PPBS; (F) curriculum administration; (G) school governance; (H) college student affairs administration; (I) higher education administration; (J) administrative theories; (K) administrative problems and issues; (M) facilities planning and management. Pre (for 780H): 646, 657, and 660. Pre (for all others): consent.

Educational Foundations (EDEF)

College of Education

Current TB clearance is a requisite for all students taking courses requiring practicum experiences.

EDEF 201 Introduction to Teaching as a Career (3) An experience-based introduction to careers in education. Repeatable one time. (Cross-listed as EDEP 201)

EDEF 310 Education in American Society (3) Interrelated historical, philosophical, and socio-cultural contexts of education with an emphasis on contemporary problems and applications. Students enrolled in colleges other than the College of Education are asked to confer with the College of Education director of student services before enrolling in 310. A–F only. Pre: TECS 317 or TECS 402 (or concurrently with TECS 402 only). DS

EDEF 360 Introduction to Multicultural Education (3) Concepts and methods to develop sensitivity and awareness of cultural influences on behavior as these relate to the schooling process. Field experience is an integral part of the course. (Cross-listed as TECS 360) DS

EDEF 399 Directed Reading (V) Individual reading or research. Pre: senior majors with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in education, and consent of instructor and department chair.

EDEF 408 Community and Culture (3) Theoretical and practical approaches to understanding the constitution of community life. A focus on the social construction of normative values, social dynamics of organizations, and school-community relations.

EDEF 445 Educational Sociology (3) Introduction to sociological frameworks of analysis of the institutional, cultural and social dynamics of schooling, classroom management, school reform, social group and individual role behavior. DS

EDEF 453 Gender Issues in Education (3) Examination of current and historical issues in education and how they are impacted upon by gender, with particular reference to gender as it intersects with ethnicity and class, locally and globally. Pre: WS 151 or junior standing, or consent. (Cross-listed as TECS 453 and WS 453) DS

EDEF 469 Field Studies in Educational Foundations (V) Field-based analyses of educational problems and issues. Repeatable with different content. Pre: consent.

EDEF 470 Ethnic Groups and Education in Hawai'i (3) Identity and learning within and among Hawai'i ethnic groups; study of prejudice and inter-ethnic hostilities as these impact education and teaching. (Cross-listed as EDCG 470) DS

EDEF 480 Anthropological Applications (3) Education as cultural and cross-cultural learning; universal aspects of the process. Ethnographic study. Applied anthropological theory and practice for educators. (Cross-listed as ANTH 480D) DS

EDEF 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

EDEF 581 (Alpha) Practicum in Problems: School and Community (1) For in-service school personnel to develop new approaches concerning how the school might relate more effectively to problems of a socio-political, ideological, moral, and/or multicultural nature. Repeatable with different content. CR/NC only. Pre: teaching experience or consent.

EDEF 582 (Alpha) Practicum in Problems: School and Community (2) For in-service school personnel to develop new approaches concerning how the school might relate more effectively to problems of a socio-political, ideological, moral, and/or multicultural nature. Repeatable with different content. CR/NC only. Pre: teaching experience or consent.

EDEF 583 (Alpha) Practicum in Problems: School and Community (3) For in-service school personnel to develop new approaches concerning how the school might relate more effectively to problems of a socio-political, ideological, moral, and/or multicultural nature. Repeatable with different content. CR/NC only. Pre: teaching experience or consent.

EDEF 610 Foundations of Educational Theory (3) An in-depth review of social, philosophical, and historical views underlying various theories of education and their applications in teaching and learning.

EDEF 630 Cultural Diversity and Education (3) Examines issues, theories, perspectives and practices in multicultural education and promotes awareness, encourages knowledgeable reflection and develops skills necessary for multicultural practitioners. A-F only. (Cross-listed as TECS 630)

EDEF 650 Education in the Classical Tradition (3) Classical European, Chinese, Indic, and Islamic traditions in the history of education; emphasis on ways in which they shift, interact, and collide from the early modern period to the present.

EDEF 651 Education and the American Experience (3) History of educational thought and practice from European colonialism to revolutionary nationalism to the present.

EDEF 652 History of Education in Hawai'i (3) From pre-contact, ancient Hawai'i to the present. Social and intellectual influences on the development of national, local, and indigenous educational institutions; emphasis on multicultural as well as monocultural directions in Hawai'i's schools.

EDEF 657 Introduction to Higher Education (3) Salient historic, social, and organizational aspects of higher education; history, philosophy, purposes, governance, administration, structures, financing, faculty and student selection, curricula, legal and social issues. (Cross-listed as EDEA 657)

EDEF 660 Philosophy of Education (3) Readings of the original texts of major philosophers impacting American education. Considerations about the conditions of knowing and their extension in everyday practices in education.

EDEF 669 Introduction to Comparative/International Education (3) Introduction to basic methods of comparative studies, focusing on schooling, but also treating broader educational issues.

EDEF 671 Topics in Comparative Education (3) Educational institutions, structures, processes, policies, and problems viewed within the context of political, social, and cultural milieus. Geographic region or theme focus. Repeatable with different content. Pre: consent.

EDEF 675 Introduction to Educational Policy Studies (3) Examines theories and models of educational policy and policy making and the contribution of policy analysis to the policy-making and change processes. A–F only. Pre: consent. (Cross-listed as EDEA 675)

EDEF 676 The Politics of Education (3) Examination of the ways in which education can be viewed as political, arising from its connection to the larger political system including local, state, and federal governments. A–F only. Pre: 675, EDEA 675, or consent. (Cross-listed as EDEA 676)

EDEF 677 The Educational System (3) Examination of the structure and dynamics of educational system. Particular focus on how educational policy interacts with principles that explain educational system behavior. A–F only. Pre: 675 or EDEA 675; or consent. (Cross-listed as EDEA 677)

EDEF 678 Interdisciplinary Perspectives in Educational Inquiry (3) Examination of theoretical and methodological issues underlying applications of quantitative and qualitative techniques in educational research. Preparation for writing the MEd or PhD thesis proposals.

EDEF 683 Social and Cultural Contexts of Education (3) Focuses on the interplay of class, race, gender and ethnicity in school and community settings. Social praxis, educational reform and policy are considered.

EDEF 684 Education and World Order (3)

Global futurism focuses on major problems such as war prevention, ecological planning, and world poverty as a basis for developing transnational education. Pre: 310, 683, or consent.

EDEF 685 International Development Education (3)

Introduction to international development education in Asian and Pacific nations. Students explore links between education and development. Emphasis is on cross-cultural perception of development.

EDEF 686 Environmental Education (3) Focus on environmental problems, such as pollution, resource depletion, and overpopulation, to develop programs of relevant education. Uses action projects in schools and community.

EDEF 699 Directed Reading and/or Research (V)

Individual reading and/or research. Pre: consent of department chair.

EDEF 700 Thesis Research (V) Research for master's thesis.

EDEF 725 Education and Social Change (3)

Study of classical and contemporary theories of social change as these relate to school, the profession of teaching, planning of change, and social stability. Pre: consent.

EDEF 751 Recent History of American Education (3)

Contemporary American education in recent historical perspective; focuses on the educational changes brought about by WW II, the Cold War, civil rights and other social movements. Pre: consent.

EDEF 761 History of American Higher Education (3)

Genesis and evolution of college and university from colonial America to present. Pre: consent.

EDEF 762 Seminar on the Social and Cultural Contexts of Education (3) Examination of social, political, and cultural issues affecting educational policy with special emphasis on methods of inquiry and theoretical constructs. Pre: consent.

EDEF 764 Advanced Seminar in Philosophy of Education (3) Advanced studies in philosophical inquiry. Examination of philosophically based methods of analysis and interpretation and their influence in educational research and practice. Pre: consent.

EDEF 766 (Alpha) Seminar in History of Education (3) Aspects of the history of education. Application of historiography to educational problems and policy. Repeatable with different content. Pre: one of 650, 651, 652, or 761; or consent.

EDEF 771 Seminar in Comparative/International Education (3) Advanced reading, research and writing in selected topics dealing with comparative and international education, including such themes as policy studies, minority education and educational reform. Pre: consent.

Educational Psychology (EDEP)

College of Education

EDEP 311 is a prerequisite to graduate study in educational psychology. Current TB clearance is a prerequisite for all students taking courses requiring practicum experiences.

EDEP 201 Introduction to Teaching as a Career (3)

An experience-based introduction to teaching as a career. Repeatable one time. (Cross-listed as EDEF 201)

EDEP 303 Experiential Introduction to Humanistic Education (3)

Participation in exercises designed to enable potential teachers to become more aware of themselves, especially as related to interaction in school settings. CR/NC only.

EDEP 311 Psychological Foundations (3)

Principles of learning and individual differences; relationships of these factors to classroom experience. DS

EDEP 327 Self-Regulated Learning (3)

Theory and use of self-regulated learning strategies in academic contexts. Pre: 311, PSY 100, or consent.

EDEP 399 Directed Reading (V) Individual reading or research. Pre: consent.

EDEP 408 Fundamentals of Research in Education (3)

Introduction to the methodology of systematic study of problems in education: principles of research design, data processing, technical writing, and evaluation of research proposals and reports. DS

EDEP 411 Seminar in Contemporary Perspectives in Educational Psychology (3) In-depth analysis of contemporary issues in education from the theoretical and methodological perspectives of the faculty in educational psychology. Repeatable once. Pre: 303, 311, or consent. DS

EDEP 416 Student Assessment (3) Development and analysis of assessment procedures in educational settings.

EDEP 429 Introductory Statistics (3) Use of descriptive statistics in analyzing test scores; application of linear correlation and regression; introduction to an understanding of inferential statistics. DS

EDEP 432 Human Motivation and Education (3)

Application of motivation theory and research to understanding and increasing human motivation for education.

EDEP 500 Master's Plan B/C Studies (1)

Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

EDEP 509 Cooperative Learning (2) Introduction to theories underlying cooperative learning and experience with various cooperative learning methods from both student's and teacher's perspectives. CR/NC only.

EDEP 510 Topics in Cooperative Learning (2)

Educators who have studied and are implementing cooperative learning are provided opportunities to jointly reflect on their experiences in the context of relevant theory. Pre: 509 or consent.

EDEP 601 Introduction to Quantitative Methods (3)

Introduction to quantitative methods in behavioral sciences. Review of elementary

statistical methods. Introduction to general linear model as principle of data analysis. (Meets EdD common inquiry methods requirement or elective.) Pre: 429 or consent. (Cross-listed as PSY 610 and SW 651)

EDEP 602 Computer Analysis of Data (3)

The analysis and interpretation of behavioral science data using common statistical software packages. Pre: 429 or consent. (Cross-listed as SW 652)

EDEP 603 Design and Analysis of Psychological Experiments (3)

Analysis of variance and other modes of assessing results of experiments. Relation of analysis to design. Pre: 601 or consent. (Cross-listed as PSY 611 and SW 653)

EDEP 604 Multiple Regression in Behavioral Research (3)

Advanced application of general linear model to complex problems of data analysis. Relation of analysis of variance and co-variance to regression analysis. Non-linearity and treatment of missing data. Pre: 601 and 602, or consent. (Cross-listed as PSY 612 and SW 654)

EDEP 605 Factor Analysis (3)

Theory and method of factor analysis and related methods of multivariate analysis. Pre: 604 or consent. (Cross-listed as PSY 613 and SW 655)

EDEP 606 Multivariate Methods (3)

Multivariate forms of multiple linear regression, analysis of variance and co-variance. Multiple discriminant analysis, canonical correlation, and principal-components analysis. Pre: 603 and 604, or consent. (Cross-listed as PSY 614 and SW 656)

EDEP 607 Nonparametric Methods for Behavioral Science (3)

Conditions for valid applications of nonparametric statistical techniques in education and behavioral sciences; theoretical and methodological perspectives. Pre: 601 or consent. (Cross-listed as PSY 615 and SW 657)

EDEP 608 Introduction to Educational Research (3)

Fundamental design and evaluation procedures in educational research. Determining needs, defining objectives, research design, instrumentation, data collection, and evaluation. (Meets EdD common inquiry methods requirement or elective.) Pre: 416 and 408, or consent.

EDEP 611 Inquiry Approach to Educational Psychology (3)

Foundations of educational psychology through the vehicle of an exploratory study. Inquiry approach stresses learning theory, measurement techniques, and research skills in education.

EDEP 612 Statistical Power in Behavioral Research (3)

Theory and techniques of power analysis for significance testing of means, proportions, correlations or variances, estimation of effect size, and necessary sample size. Pre: 601 or consent.

EDEP 616 Measurement and Evaluation (3)

Theory of measurement and evaluation; analysis of tests and scales emphasizing statistical and psychological analysis of experimental and standardized tests and scales. Pre: 416 or consent. (Cross-listed as PSY 616 and SW 658)

EDEP 626 Scaling: Measurement of Attitude and Perception (3)

Theory and methods of major unidimensional and multidimensional scaling techniques. Examples from education, sociology, and psychology. Pre: 416 or 429. (Cross-listed as PSY 617)

EDEP 629 Educational Statistics (3) Statistical inference including applications of parametric and nonparametric methods to educational problems. Pre: 429 or consent. (Cross-listed as EDEA 629)

EDEP 661 Development and Learning (3) Analysis and critique of (Piagetian) developmental stage theory and traditional behavioristic and cognitive learning theories; introduction to current models of learning and development. Pre: consent.

EDEP 662 Social Context of Learning (3) Research methods and theories relating social mediation and learning group structures to intellectual growth. Pre: 661 or consent.

EDEP 663 Models of Cognitive Learning (3) Cognitive models of knowledge acquisition, organization, and utilization; theory and research relating learning and cognition to interactive instructional models. Pre: 661 or consent.

EDEP 664 Instructional Psychology (3) Application of learning theory and cognitive skills training in instructional settings. Pre: 661 or consent.

EDEP 665 Social Cognition and Competence (3) Systematic analysis of social reasoning abilities conjunctive with or prerequisite to effective social interaction in educational settings. Pre: 661 or consent.

EDEP 699 Directed Reading and/or Research (V) Individual reading and/or research. Pre: consent.

EDEP 700 Thesis Research (V) Research for master's thesis.

EDEP 708 Educational Research Methods (3) Research techniques and thesis development. Pre: 429 and consent.

EDEP 711 Practicum in Educational Psychology (V) Supervised practicum in teaching or program evaluation as each is reflected by professional activities of the members of the faculty. Pre: consent of supervisory professor.

EDEP 745 Creative Learning Strategies for Adults (3) Analysis of psychology of adult learner; forces that affect learning in dynamics of individual, group, and organizational behavior; concept of lifelong learning vis-à-vis development of creative strategies that assist maturing, self-directed persons to develop their potentialities. (Cross-listed as EDEA 745 and NURS 745)

EDEP 768 (Alpha) Seminar in Educational Psychology (3) Current issues and problems in the context of education: (B) general; (C) learning; (D) measurement; (E) statistics; (F) psycho-social development; (G) educational evaluation; (H) research methodology. Pre: consent.

EDEP 800 Dissertation Research (V) Research for doctoral dissertation.

Educational Technology (ETEC)

College of Education

ETEC 414 Educational Media Technology (3) Introduction to theories, application of principles, acquisition of practical skills of educational media relevant to teaching/learning situation, in classroom as well as non-school settings. Includes "mainstreaming" components for assisting mildly handicapped learners. Pre: upper division standing.

ETEC 415 Technology for Teachers (3) Introduction to the application of educational technology in teaching and learning using strategies in design, selection, development, integration, and evaluation. Interactive delivery via distance education technologies. A–F only. Pre: basic teaching certification.

ETEC 430 Video Technology (3) Use of video techniques for purposes of instruction, documentation, and training. Planning, production, simple editing procedures, and utilization in educational context.

ETEC 442 Computers in Education (3) Overview of basic components of computer systems and their application to instruction and administration. Various operating systems will be explored.

ETEC 448 Links to Lifelong Learning (3) Focused exploration of the internet and its application to effective classroom teaching/learning, including finding, evaluating, using, creating information; design, construction, and posting of Web page. Integration with copyright law, ergonomics, national and Hawai'i standards. Repeatable one time. Pre: 442 or consent.

ETEC 454 Technology Resources (3) Virtual and hands-on analysis of technology resources and utilization in K–12 schools. Repeatable one time. Pre: 442 or consent.

ETEC 499 Directed Activity (V) Individual work, supervised by instructor. May consist of reading, research, and/or projects. Pre: consent.

ETEC 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B candidate and consent.

ETEC 511 Professional Development Education Technology I (3) Specialized topics reflecting interests and needs of faculty in current issues of technology integration. Combined lecture, lab and discussion course. Repeatable one time. Pre: consent.

ETEC 512 Professional Development Education Technology II (3) Specialized topics reflecting interests and needs of faculty in current issues of technology integration. Combined lecture, lab and discussion course. Repeatable one time. Pre: consent.

ETEC 513 Professional Development Education Technology III (3) Specialized topics reflecting interests and needs of faculty in current issues of technology integration. Combined lecture, lab and discussion course. Repeatable one time. Pre: consent.

ETEC 514 Professional Development Education Technology IV (3) Specialized topics reflecting interests and needs of faculty in current issues of technology integration. Combined lecture, lab and discussion course. Repeatable one time. Pre: consent.

ETEC 600 Theory and Practice in Educational Technology (3) The profession of educational technology and the role of instructional designers. Theoretical and philosophical foundations underlying practice that include instructional systems theory, needs assessment, change theory, and relevant learning models. Practical applications of these theories to solve instructional problems in real-life settings. A–F only. Pre: ETEC majors or consent.

ETEC 601 ET Research Review (3) Review of research in educational media/technology applicable to each student's own topic. Seminar-like discussions and oral reports. Written-format presentation of findings as part of a project proposal. A–F only. Pre: ETEC major or consent.

ETEC 602 Teaching/Training Technologies (3) Innovative technological advances for use in teaching and training, and their evaluation in terms of instructional goals. A–F only. Pre: ETEC major or consent.

ETEC 603 Instructional Design and Development (3) Basic concepts and techniques of instructional design and development, for application to solving instructional problems in real-life situations. A–F only.

ETEC 605 Conducting ET Research (3) Application of methodological and statistical concepts to students' own research projects. Formative and summative evaluation, measurements, descriptive and inferential statistics. A–F only. Pre: ETEC major or consent.

ETEC 620 Visual Design (3) Theory and practice involved in planning and producing instructional graphic material for desktop publishing and computer-based presentation. A–F only. Pre: 603 or consent.

ETEC 630 Video/TV Design (3) Development and utilization of television programs for the purpose of improving the teaching-learning process. A–F only. Pre: consent.

ETEC 644 Programming Concepts/Structures (3) Concepts and structures of microcomputer instruction; laboratory experience. Pre: 442 or consent.

ETEC 645 Design Web-based Instruction (3) The design and development of instruction for Web and internet delivery. Integration of HTML, Java, and current Web authoring software will be employed to create instructional Web sites. Repeatable once. A–F only. Pre: 620 or consent.

ETEC 647 Hypermedia Design (3) The utilization and application of computer interactive systems including the use of advanced authoring tools, combining unique advantages of video, motion, imagery, and sound with current instructional processes in student-centered learning. Repeatable once. A–F only. Pre: 620 or consent.

ETEC 648 (Alpha) Computer Authoring (3) Conceptualization of instructional design and its application to the development of particular types of software, utilization or environment: (B) assisted instruction (CAI); (C) managed instruction; (D) virtual reality; (E) animation. Repeatable once. A–F only. Pre: 442 and 603, or consent.

ETEC 649 Development of Online Courseware (3) Planning, design, and development of online instruction for educational and training settings. Implementation of online course elements such as student interaction, course management, testing, and content delivery using an authoring environment such as Web Course Tools or equivalent. Repeatable once. A–F only. Pre: 620 or consent.

ETEC 650 Instructional Technology Services Management (3) Applying theory of management in instructional technology support services and delivery systems. Pre: 601, 605, and ETEC major.

ETEC 661 Distance Education Technology (3) Technical and instructional considerations for developing, delivering, managing, and evaluating distance education including voice, video, and data transmission techniques. Interactive delivery over Hawai'i Interactive Television System. Repeatable once. Pre: consent.

ETEC 662 Computer Networks in Education (3) Design, installation, and management of computer networks for administrative and instructional uses, with particular focus on local area network issues. Pre: consent.

ETEC 663 Planning for Technology and Resources (3) Planning, needs assessment, and change theory applied to the development and evaluation of long-range plans and the communication of a vision for technology in education. Pre: consent.

ETEC 664 Technology and Instructional Applications (3) Evaluating products; planning for professional development; designing for and applying in-service training in: instructional design, teacher presentations, direction of student productions, and facilitating computer-managed instruction. Pre: consent.

ETEC 670 Media and Technological Product Evaluation (3) Evaluation process, sources and instruments applicable to systematic appraisal of technology systems, hardware, software, and other instructional resources. Repeatable twice. A–F only. Pre: consent.

ETEC 679 Education and Communication Technologies (3) Role and impact of communication technologies in contemporary educational institutions. Application and adaptation of such technologies to instructional (i.e., teaching as well as learning) activities and ramifications of these technologies on administrative structure of schools. A–F only.

ETEC 680 Professional Ethics and Media (3) Examining and conveying an ethical vision of the role and impact of communication technologies in contemporary education and training situations; communicating that vision by designing technology-based displays using newer technologies. A–F only. Pre: consent.

ETEC 686 Information Literacy and Learning Resources (3) Emphasis on a process approach to information literacy and integration of information literacy instruction with components of elementary and secondary curricula. Covers evaluation and use of print and nonprint/electronic resources in various content areas. (Cross-listed as LIS 686)

ETEC 687 Instructional Development Practicum (3) Practicum in instructional development and design in academic, agency, and private industry settings, under close supervision, plus regular class meetings in seminar format. Pre: 603, 605, and consent.

ETEC 688 Educational Technology Practicum (3) Practicum in educational technology applications in academic or non-academic settings, under close supervision, plus regular class meetings. Pre: 603, 605, and consent.

ETEC 690 Seminar and Internship in Technology Leadership (3) Supervised activity in application of technology to teaching/training experiences. Repeatable. Pre: consent.

ETEC 699 Directed Reading and/or Research (V) Individual reading and/or research. Repeatable for 3 credit hours maximum each time. Pre: consent of department chair.

ETEC 700 Thesis Research (V) Research for master's thesis.

ETEC 750 (Alpha) Seminar in Educational Technology Issues (3) Study and discussion of significant topics and problems. (B) instructional development (Pre: 603 and consent); (C) telecommunications (Pre: consent); (D) the future (Pre: consent).

LLEA

See *European Languages*

Electrical Engineering (EE)

College of Engineering

Preference in registration is given to declared engineering majors. Please consult the current Schedule of Courses for confirmed offerings each semester.

EE 101 Electrical Engineering Skills (3) Electrical engineering subjects in a skill acquisition context at the freshman level. Learning, creative problem solving, brainstorming, technical information assimilation, and presentation skills development. Repeatable. DP

EE 150 Introduction to Computer Programming Methods (3) Introductory course on computer programming methods; emphasis on planning, writing, debugging of programs, together with basic applications. Pre: MATH 140 or equivalent.

EE 160 Programming for Engineers (4) (3 Lec, 1 3-hr Lab) Introductory course on computer programming and modern computing environments with an emphasis on algorithm and program design, implementation, and debugging. Includes a hands-on laboratory to develop and practice programming skills. Restricted to engineering freshmen and sophomores. A–F only. Pre: Math 140 or equivalent or consent.

EE 196 Freshmen Project (V) Freshman level individual or team project under EE faculty direction and guidance. This project provides early student entry into EE hands-on project activity providing practical skills, EE subject exposure and experience. Second semester freshman standing required. Repeatable. Pre: consent.

EE 201 Electrical Engineering Skills for Transfer Students (3) This course develops key electrical engineering communications and creative problem-solving skills through peer interactive techniques. This course parallels EE 101 but at a more advanced topic level. Creative problem solving, brainstorming, technical information assimilation, presentations and learning skills development using peer interactive methodologies. Student presentations are required. Repeatable. Pre: sophomore standing or consent. DP

EE 211 Basic Circuit Analysis I (4) (3 Lec, 1 3-hr Lab) Linear passive circuits, time domain analysis, transient and steady-state responses, phasors, impedance and admittance; power and

energy, frequency responses, resonance. Pre: MATH 243 (or concurrent) and PHYS 272 (or concurrent), or consent. DP

EE 213 Basic Circuit Analysis II (4) (3 Lec, 1 3-hr Lab) Laplace transforms and their application to circuits, Fourier transforms and their applications to circuits, frequency selective circuits, introduction to active filters, convolution, and state space analysis of circuits. A–F only. Pre: 211 or consent. Co-requisite: MATH 244. DP

EE 244 Networking I (4) (3 Lec, 1 3-hr Lab) Covers 4 semesters from the Cisco Networking Academy plus supplementary material; hands-on experience with routers and switches; prepares students for the CCNA. Topics include TCP/IP, LANs, WANs, routing protocols, network security; PPP; ISDN, frame relay. A–F only. Pre: 160 or consent.

EE 260 Introduction to Digital Design (4) (3 Lec, 1 3-hr Lab) Introduction to the design of digital systems with an emphasis on design methods and the implementation and use of fundamental digital components. Pre: 150 or 160; or consent.

EE 296 Sophomore Project (V) Sophomore level individual or team project under EE faculty direction and guidance. The project provides early student entry into EE hands-on activity providing practical skills, EE subject exposure and experience. Repeatable. Pre: sophomore standing or consent.

Registration in upper division courses will be contingent upon earning a grade of C or better in prerequisite courses.

EE 315 Signal and Systems Analysis (3) Discrete Fourier transform, Fourier series, Fourier transform, Laplace transform. Fast Fourier transform, analysis of linear systems. Pre: 213 and MATH 244, or consent.

EE 323 Microelectronic Circuits I (3) Semiconductor structures, operating principles and characteristics of diodes and amplifying devices. Their application as circuit elements in building basic digital, analog, and integrated circuit subsystems. Pre: 213 and 324. DP

EE 323L Microelectronic Circuits I Lab (1) (1 3-hr Lab) Experiments on linear and logic properties of diodes and transistor networks. Pre: 213. Co-requisite: 323. DY

EE 324 Physical Electronics (3) Review of quantum mechanics fundamentals, H-atom, and chemical bonding. Introduction to band structure models and materials. Semiconductor doping, charge carrier statistics and charge transport, including ambipolar transport. Metal-semiconductor and PN junctions. Pre: MATH 243 and PHYS 274; or consent. DP

EE 326 Microelectronic Circuits II (3) Principles and design of linear electronic circuits including differential, operational, feedback, and tuned amplifiers; integrated circuits, current mirrors, signal generators, filters, and stability. Pre: 323. DP

EE 326L Microelectronic Circuits II Lab (1) (1 3-hr Lab) Laboratory for 326, experiments on linear and analog electronics. Pre: 323L. Co-requisite: 326. DY

EE 327 Theory and Design of IC Devices (3) Band structure models and carrier transport physics review. Theory and design of semiconductor IC devices: Schottky diodes, bipolar devices (PN junction diodes, BJTs), FETs (MOSFETs, JFETs, and MESFETs). Pre: 324 and MATH 243; or consent. **DP**

EE 328 Physical Electronics Lab Techniques (3) Technology principles and methods for the design and fabrication of integrated circuit devices. Pre: 327. **DP**

EE 328L Physical Electronics Lab (1) (1 3-hr Lab) Hands-on laboratory where students make various electronic devices using IC technology. Devices are also tested and analyzed. Pre: 327. Co-requisite: 328. **DY**

EE 331 Electric Machines and Drives (3) Magnetic circuits, induction motors, synchronous motors, power inverters, electric motor drives. Pre: 211. **DP**

EE 331L Electric Machines and Drives Lab (1) (1 3-hr Lab) Experiments on electromechanical energy conversion using generalized machines, magnetic circuits and transformers. Pre: 211. Co-requisite: 331. **DY**

EE 341 Introduction to Communication Systems (3) Signal representation, Fourier analysis; amplitude and angle modulated systems; sampling theorems, pulse and digital modulation systems; carrier modulation by digital signals. Pre: 315.

EE 341L Communication Systems Lab (1) (1 3-hr Lab) Experiments illustrating the basic principles of communication systems. Pre: 315. Co-requisite: 341.

EE 342 EE Probability and Statistics (3) Probability, statistics, random variables, distributions, densities, expectations, limit theorems, and applications to electrical engineering. Pre: 315 (or concurrent) and MATH 244, or consent.

EE 351 Linear Systems and Control (3) Analysis/design of feedback systems. Compensator design via root locus and Bode analysis. Routh/Nyquist stability. State space representation and introduction to MIMO formulation. Controllability/observability. Pre: 315. Co-requisite: 351L.

EE 351L Linear Systems and Control Lab (1) (1 3-hr Lab) Provides experience in applying theoretical tools to analyze linear systems. Extensive use is made of computer-aided analysis and design packages study system performance. Pre: 315. Co-requisite: 351.

EE 361 Digital Systems and Computer Design (3) Design methodology, processor design, control design, memory organization, system organization. Pre: 213 and 260; or consent.

EE 361L Digital Systems and Computer Design Lab (1) (1 3-hr Lab) Laboratory for 361, experiments on digital systems and interfacing. Co-requisite: 361.

EE 366 CMOS VLSI Design (4) (3 Lec, 1 3-hr Lab) Introduction to the design of very large scale integrated (VLSI) systems and use of CAD tools and design languages. Lab includes hands-

on use of CAD tools and experiments with field programmable logic devices. Pre: 260.

EE 367 Computer Data Structures and Algorithms (3) Introduction to computer programming algorithms with emphasis on advanced data structures, input-output routines, files, and interpreters. Pre: 150 or 160.

EE 367L Computer Data Structures and Algorithms Lab (1) (1 3-hr Lab) Laboratory for 367. Pre: 150. Co-requisite: 367.

EE 371 Engineering Electromagnetics I (3) Transient and steady-state waves on transmission lines. Plane wave solutions of Maxwell's equations. Application of Maxwell's equations under static and time-varying conditions. Pre: 213

EE 372 Engineering Electromagnetics II (3) Solution of Maxwell's equations under various boundary conditions. Introduction to radiation, guided waves, and principles of optics. Pre: 371 and PHYS 274 (or concurrent); or consent.

EE 372L Engineering Electromagnetics Lab (1) (1 3-hr Lab) Experiments illustrating the basic principles of electromagnetics and optics. Pre: 371 and PHYS 274 (or concurrent); or consent. Co-requisite: 372.

EE 396 Junior Project (V) Undergraduate hands-on experience. May be a EE 296 project continuation or a new project leading directly to the EE 496 major design activity. Repeatable. Pre: 296, junior standing, and consent.

EE 415 Digital Signal Processing (4) (3 Lec, 1 3-hr Lab) Discrete-time signals and systems, sampling, Z-transform, transform, transform analysis of linear time-invariant systems, filter design, discrete Fourier transform, and computation of discrete Fourier transform. Repeatable once. Pre: 315 or consent.

EE 422 Electronic Instrumentation (3) Electronic circuits for interfacing with transducers, signal processing, and data acquisition. Amplifiers for measurement and control. Operational amplifiers in linear, nonlinear, and digital applications. Design project. Basic transducers. Pre: 326, 326L, and 371; or consent. **DP**

EE 422L Instrumentation Lab (1) (1 3-hr Lab) Laboratory for 422. Co-requisite: 422. **DY**

EE 423 Computer-Aided Analysis and Design (3) Algorithms and techniques used in computer-aided analysis and design of electronic circuits. Circuit simulation with interactive computers. Pre: 326 or consent.

EE 425 Electronic Instrumentation II (3) Instrumentation systems and circuits for measurement, control, signal processing, transmission, and detection. Noise and interference, ADC/DAC, modulation/demodulation, high-frequency and high-speed techniques, IC applications. Pre: 422 and 422L, or consent. **DP**

EE 426 Advanced Si IC and Solid State Devices (3) State of the art Si-based devices including advanced bipolar and MOS devices, heterojunction devices, new device trends. Topics from the most current literature included. Pre: 327 and MATH 243; or consent. **DP**

EE 427 Computer-Aided Circuit Design (3) Application of the computer to the analysis, design, simulation, and construction of analog and digital circuits. Pre: 326 and 326L, or consent. **DP**

EE 435 Power Systems Analysis (3) Characteristics of transmission systems. Matrix algebra and representation of power systems. Numerical solutions of simultaneous algebraic and differential equations. Computer methods for short-circuit problems, load-flow studies, stability analysis. Pre: 331.

EE 436 Advanced Energy Conversion (3) Advanced topics on AC and DC machines, conventional and alternate energy conversion concepts, wind energy conversion, photovoltaic, thermoelectricity, storage, and utility interface considerations. Pre: 331. **DP**

EE 437 Power Electronics (3) Line-frequency, phase-controlled rectifiers, DC-DC switch mode converter, switch mode inverter, resonance converters. Pre: 323. **DP**

EE 441 Statistical Communications (3) Random variables, random processes, stationarity, correlation functions, spectral characteristics, linear filters, applications to noisy communication systems. Pre: 341 and MATH 471.

EE 442 Digital Communications (3) Baseband transmission, intersymbol interference and pulse shaping, partial response signaling, equalization, bandpass modulation and demodulation, channel coding, synchronization, multiplexing and multiple access, spread spectrum techniques. Pre: 341 and 342; or consent.

EE 446 Information Theory and Coding (3) Models of communication systems. Channel noise, measurement, and coding of information. Intrinsic limits of performance of communication systems. Pre: 341 and 342; or consent.

EE 449 Computer Communication Networks (3) ISO Reference Model, Physical Layer, Data Link Layer protocols, local- and wide-area networks, routing, congestion and flow control, higher layer protocols, network design, ISDN, performance evaluation, high-speed networks. Pre: 315 and one of EE 342, MATH 371, or MATH 471; or consent.

EE 452 Digital Control Systems (3) Sampling/reconstruction, Z-transform, DT transfer function. Reachability/observability. State and output feedback, observer design, input-output models, diophantine equations. Implementation procedures. Pre: 315 and 351, or consent.

EE 453 Modern Control Theory (3) Analysis and synthesis of nonlinear control systems by means of Lagrange's equation, state space techniques, maximum principle. Lyapunov's theorems, the phase plane, and Z-transform techniques. Optimization and adaptation by means of gradient methods, calculus of variations, dynamic programming. Pre: 351.

EE 455 Design of Intelligent Robots (3) Study of the design principles of computer-controlled, intelligent robots such as roving vehicles, hand-eye systems. Pre: 351 and 367. **DP**

- EE 461 Computer Architecture (3)** Structure of stored program machines, data flow machines, pipelining, fault-tolerant computing, instruction set design, effects of compilation on architecture, RISC vs. CISC architecture, uses of parallelism. Pre: 361.
- EE 466 VLSI Design (3)** Design, simulation, and fabrication of digital VLSI systems using field-programmable logic devices. Pre: 323 and 361.
- EE 467 Object-oriented Software Engineering (3)** Introduction to advanced techniques for designing, implementing, and testing computer software with a particular focus on using object-oriented design, analysis, and programming to produce high-quality computer programs that solve non-trivial problems. Pre: 367 or consent.
- EE 468 Introduction to Operating Systems (3)** Computer system organization; multiprocessor systems, memory hierarchies, assemblers, compilers, operating systems, virtual machine, memory management, processor management; information management. Pre: 260 and 367; or consent.
- EE 473 Microwave Engineering (3)** Passive and active microwave devices and circuits for RF and wireless applications. Scattering parameters, signal-flow graphs, and computer-aided design. Pre: 323 (or concurrent), 341 (or concurrent), and 371. **DP**
- EE 474 Antennas (3)** Electromagnetic wave propagation in free space and ionized media. Geomagnetic and solar effects on the ionosphere. Absorption and dispersion. Antenna arrays, apertures, horns, impedance. Design of antenna systems. Pre: 372. **DP**
- EE 475 Optical Communications (3)** Principles and applications of optical fibers and waveguides. Fundamentals of optical communication systems (optical links, high-speed systems, wavelength-division-multiplexing networks, and network elements) and optical components (guided-wave circuits, lasers, detectors, and optical amplifiers). System and network integration issues. A-F only. Pre: 341 (or concurrent) and 372; or consent. **DP**
- EE 477 Fundamentals of Radar, Sonar, and Navigation Systems (3)** Discussion of basic radar detection and position- and velocity-measurement principles. Applications to various types of radar and sonar systems. Modern navigation aids. Pre: 371 or equivalent, and familiarity with waveguides or waveguide theory. **DP**
- EE 480 Introduction to Biomedical and Clinical Engineering (3)** Application of engineering principles and technology to biological and medical problems. Introduction to human anatomy, physiology, medical terminology, clinical measurements. Systems modeling, physiological control systems, computer applications, health-related problems. Pre: 213 and MATH 244.
- EE 480L Biomedical Engineering Lab (1)** (1 3-hr Lab) Measurement of bioelectrical signals, computer and electronic simulation of biological systems, design and evaluation of electronic circuits for biomedical measurements, evaluation of instruments for patient safety. Pre: 323 and 323L. Co-requisite: 480.
- EE 481 Bioelectric Phenomena (3)** Study of electrical phenomena in living systems. Mechanisms underlying bioelectric activity. Membrane and transepithelial potentials, skin impedance, electrocardiography, neuroelectric signals, diagnostic considerations, laboratory demonstrations. Pre: 480 or consent.
- EE 482 Biomedical Instrumentation (3)** (2 Lec, 1 3-hr Lab) Principles, applications, and design of biomedical instrumentation. Transducers, IC and microcomputer applications, patient safety. Pre: 326, 480, or consent.
- EE 491 (Alpha) Special Topics in Electrical Engineering (3)** Course content will reflect special interests of visiting/permanent faculty; to be oriented toward juniors and seniors. (B) artificial intelligence; (C) circuits; (D) communications; (E) computer hardware; (F) computer software; (G) computer vision; (H) control; (I) devices; (J) fields; (K) power. Pre: consent.
- EE 494 Provisional Topics (3)** Upper division course with subject matter to be announced.
- EE 496 Capstone Design Project (V)** A significant project that integrates the design content of previous courses and satisfies realistic constraints involving reliability, safety, and economics, as well as aesthetic, ethical and societal aspects of the problem. A-F only. Pre: 396 or consent.
- EE 499 Directed Reading (V)** Investigation of advanced engineering problems. Pre: senior standing and consent.
- EE 500 Master's Plan B/C Studies (1)**
- EE 601 Graph Theory and Its Applications (3)** Graphs and subgraphs, trees and treelike graphs, planar graphs, connectivity and edge-connectivity, applications. Pre: MATH 311 or consent.
- EE 602 Algorithm I (3)** Design and evaluation of machine representations, techniques and algorithms for sorting, pattern processing, computational geometry, mathematical computations, and engineering applications. Introduction to computational issues of time, space, communication, and program correctness. Pre: 367 or consent.
- EE 603 Algorithm II (3)** Techniques of parallel and distributed computation. Design and analysis of computational structures and algorithms based on general models of computer architecture. Issues in interprocessor communication and synchronization. Pre: 602, 660, or consent.
- EE 604 Artificial Intelligence (3)** LISP for machine intelligence applications, or related constraint object and logic-oriented languages. Pre: 467 or knowledge of LISP/PROLOG.
- EE 606 Machine Processing of Natural Languages I (3)** Review of computer language syntax analysis, natural language as a knowledge-based process, grammars and parsing, transition and augmented transition grammars, feature and function grammars, natural language parsing. Pre: 367 and knowledge of LISP.
- EE 607 Advanced Network Algorithms (3)** Network algorithms, protocols, and packet switching systems for the internet including TCP/IP, routing algorithms, transmission scheduling, link management, buffer manage-
- ment, and simple network management. Pre: 367 or consent.
- EE 615 Advanced Digital Signal Processing (3)** An advanced course in digital processing. Topics include fast DFT algorithms, multirate systems and filter banks, power spectrum estimation, linear prediction, optimum linear filters, and adaptive filtering. A-F only. Open to nonmajors for CR/NC only. Pre: 415 or 640 or consent.
- EE 618 Optimization Theory and Practice (3)** Dynamic programming, nonlinear optimization, optimal control. Pre: 650.
- EE 620 Advanced Electronic Circuits (3)** Electronic circuits for precision measurement, computation, and signal processing. Low noise and interference reduction techniques. High-frequency and high-speed techniques. Microprocessor and biomedical applications. Pre: 422.
- EE 621 Advanced Solid-State Devices (3)** Advanced physical principles and design of modern solid-state electronic devices. Heterostructures, photodetectors, LED, junction lasers, and other devices of current importance identified from the current literature. Pre: 327.
- EE 622 Optical Electronics I (3)** Optical electronics including light-guiding, optical resonators, lasers, and applications. Pre: 327 or consent.
- EE 623 Optical Electronics II (3)** Electro-optics, noise detection, light and sound dielectric waveguide phenomena, lasers, optics, phase conjugation. Pre: 622 or consent.
- EE 624 Microsensors and Microactuators I (3)** Technology methods and physical principles of microsensors and microactuators. Vacuum technology, thin film deposition and characterization techniques, solid mechanics, micromachining, acoustics, piezoelectricity and principles of current microtransducers. Pre: 327 or consent.
- EE 625 High-Frequency Solid-State Devices (3)** High-frequency semiconductor devices. Hot electrons, Gunn oscillators, IMPATT diodes, mesfets, modfets, micromechanical klystrons, TWTS, magnetrons, resonant tunneling devices, superlattice devices. Pre: 327 or consent.
- EE 626 Microsensors and Microactuators II (3)** Survey of current microsensors and microactuators; pressure sensors; accelerometers; thermal, chemical, and magnetic sensors; micromotors and transducers. Pre: 624 or consent.
- EE 627 Advanced Topics in Physical Electronics (3)** Recent developments in phenomena and devices of physical electronics. Pre: 327.
- EE 628 Analysis and Design of Integrated Circuits (3)** Fabrication constraints and design guidelines for integrated circuits. Nonlinear model of integrated circuit transistor. Design and analysis of integrated logic circuits and linear circuits. Pre: 323.
- EE 631 Advanced Power Systems (3)** Computer-aided analysis and design of large power systems: modeling, system protection, economic operation, short-circuit analysis, load-flow studies, and transient stability of N-machine systems. Pre: 331 and 435, or consent.

EE 633 Power Generation and Control (3) Power generation. Power exchange of interconnected areas, control of generation, simulation models and optimum control, power system security, state estimation. Pre: 351, 435, 436 or consent.

EE 640 Applied Random Processes (3) Random variables, multivariate distributions, random sequences, stochastic convergence, stationary and nonstationary processes, spectral analysis, Karhunen-Loeve expansion, Markov processes, mean square estimation, Kalman filters. Pre: MATH 471 or equivalent.

EE 641 Queuing Theory (3) Poisson, Markov, and renewal processes, M/G/1 queue, G/M/1 queue, queuing networks, simulation, and performance evaluation of computer systems and communication networks. Pre: 342, 640 (or concurrent), or consent.

EE 642 Detection and Estimation Theory (3) Fundamentals of signal detection and estimation theory. Hypothesis testing, parametric and nonparametric detection, sequential detection, parametric estimation, linear estimation, robust detection and estimation, and applications to communication systems. Pre: 640.

EE 643 Communication System Performance (3) Fundamental performance limits, signal detection and estimation, modulation, intersymbol interference, equalization adaptive filtering, sequence detection, synchronization, fading multipath channels, spread spectrum. Pre: 640.

EE 644 Computer Communication Networks (3) Fundamentals of computer communication networks including modeling, performance evaluation, routing, flow control, local area networks, distributed algorithms, and optimization algorithms. Pre: 342, MATH 471, or consent.

EE 645 Neural Nets and Learning Theory (3) Pattern recognition, neural networks, and machine learning. Discriminant functions, supervised and unsupervised learning, associative memories, feed forward and recurrent networks, learning complexity, computational learning theory and applications. Pre: 640.

EE 646 Advanced Information Theory (3) Measure of information, coding for discrete sources, discrete memoryless channels and capacity, the noisy channel coding theorem, source coding with fidelity criterion, rate-distortion theory, multiuser channels. Pre: 640.

EE 647 Source Coding (3) Theory and applications of source coding, rate-distortion theory, companding, lattice coding, tree coding, trellis coding, entropy-constrained coding, asymptotic theory, predictive and differential encoding, combined source/channel coding, vector quantization. Pre: 640.

EE 648 Error-Control Coding I (3) Linear block codes, soft and hard decision decodings, correction of random errors, cyclic codes, BCH codes, Reed-Solomon codes, majority logic decodable codes, burst-error correcting codes, concatenated codes. Pre: MATH 311 or consent.

EE 649 Error-Control Coding II (3) Convolutional codes, Viterbi algorithm, coded modulation, multistage decoding, concatenated

codes, low density parity check codes and iterative decoding. Pre: 648

EE 650 Linear System Theory (3) State space theory of linear systems, controllability, observability, stability, irreducible realizations. Pre: 452.

EE 651 Nonlinear Control Systems (3) Digital simulations, phase-plane analysis, limit cycles and amplitude bounds, Lyapunov's theorem, circle criterion of stability, lure systems, Popov's stability theorem. Pre: 650.

EE 652 Optimal Control Systems (3) Optimal controls introduced through parametric optimization, calculus of variations, Euler-Lagrange and Hamilton-Jacobi equations, Pontryagin's maximum principle, minimum-time and minimum-fuel problems, dynamic programming, applications. Pre: 650 or consent.

EE 655 Robust Control (3) Multivariable frequency response design, signals and systems, linear fractional transformations, LQG Control, Full Information H-infinity Controller Synthesis, H-infinity filtering, model reduction, the four-block problem. Pre: 453 and 650.

EE 660 Computer Architecture I (3) Models of computation, high-performance processors, pipelined machines, RISC processors, VLIW, superscalar and fine-grain parallel machines. Data-flow architectures. Hardware/software tradeoffs. Pre: 461.

EE 661 Computer Architecture II (3) Design principles and techniques for architecture of parallel processing computers, processors, memories, interprocessor communication mechanism, multiprocessor scheduling and synchronization. Pre: 660 or consent.

EE 665 Computer Systems (3) Modern operating system software, process communication, distributed systems, device drivers. Software development and maintenance, integration of software packages. Projects reflecting special interests of faculty. Pre: 461 and 468.

EE 668 Telecommunication Networks (3) Telecommunication-network architecture; switching, broadcast, and wireless networks; protocols, interfaces, routing, flow- and congestion-control techniques; intelligent network architecture; service creation capabilities; multimedia, voice, data, and video networks and services. Pre: 468 or consent.

EE 671 Electromagnetic Theory and Applications (3) Solutions of Maxwell's equations and applications to radiation and propagation of electromagnetic waves. Pre: 372 or consent.

EE 673 Advanced Microwave Engineering (3) Advanced RF and microwave circuit design for wireless applications. Pre: 473 or consent.

EE 680 Biomedical Engineering Systems (3) Systems analysis and electronic instrumentation methods in biomedicine. Network and control-loop modeling, computer simulation, biological transducers, and analysis of electronic and physiological systems. Pre: 326, 326L, and 371; or consent.

EE 691 Seminar in Electrical Engineering (1) CR/NC only. Pre: graduate standing and consent.

EE 692 Seminar in Electrical Engineering (1) CR/NC only. Pre: graduate standing and consent.

EE 693 (Alpha) Special Topics in Electrical Engineering (3) Course content will reflect special interests of visiting/permanent faculty. (B) artificial intelligence; (C) circuits; (D) communications; (E) computer hardware; (F) computer software; (G) computer vision; (H) control; (I) devices; (J) fields; (K) power. Pre: consent.

EE 699 Directed Reading or Research (V) CR/NC only. Pre: graduate standing and consent.

EE 700 Thesis Research (V) Research for master's thesis. Pre: candidacy for MS in electrical engineering.

EE 790 Directed Instruction (V) Student assists in undergraduate classroom and/or project instruction under direction and close supervision of faculty member. CR/NC only. Pre: admission to PhD candidacy.

EE 800 Dissertation Research (V) Research for doctoral dissertation. Pre: candidacy for PhD in electrical engineering.

ENBI

See *Environmental Biochemistry*

Engineering (ENGR)

College of Engineering

Preference in registration is given to declared engineering majors. Please consult the current Schedule of Courses for confirmed offerings each semester.

ENGR 100 Engineering Freshman Practicum (1) Practicum sessions to integrate course material from engineering learning community courses and apply it to engineering problems. Repeatable once. CR/NC only. Open to College of Engineering learning community students only. Co-requisite: EE 160, MATH 242, and PHYS 170.

ENGR 250 Personal Development for Effective Teams (3) Exploration and application of basic leadership theories and processes which foster personal and interpersonal development via cognitive experiential classroom methods and mentoring relationships with experienced peer leaders.

ENGR 401 Engineering Management (3) Introduction to engineering management with emphasis on development of skills for professional advancement. Repeatable once.

ENGR 493 Field Experience (1) Supervised internship in engineering practice under professional and faculty direction. Repeatable once. CR/NC only. Pre: junior standing in engineering and consent.

English (ENG)

College of Languages, Linguistics and Literature

ENG 100 Composition I (3) Introduction to the rhetorical, conceptual, and stylistic demands of writing at the university level; instruction in composing process, search strategies, and writing from sources. Pre: placement exam. **FW**

ENG 101 Composition I (3) Introduction to the rhetorical, conceptual, and stylistic demands of writing at the university level; instruction in composing process, search strategies, and writing from sources. Requires supplemental tutorial laboratory. A-F only. Pre: placement exam. Co-requisite: 101L. **FW**

ENG 101L Composition I Writing Laboratory (1) Intensive individual instruction in writing at the university level. CR/NC only. Pre: placement exam. Co-requisite: 101. **FW**

ENG 200, 209, and 225 are courses in intermediate expository writing.

ENG 200 Composition II (3) Further study of rhetorical, conceptual, and stylistic demands of writing; instruction develops the writing and research skills covered in Composition I. Pre: 100. **DL**

ENG 209 Business Writing (3) Practice in informative, analytical, persuasive writing. Pre: 100. **DL**

ENG 225 Technical Writing (3) Combined lecture/lab course preparing students to write about technical subjects for specialists and laypersons. Introduces theory of technical communication and document design and teaches students to make use of relevant technology. A-F only. Pre: 100. **DL**

Courses ENG 250–257 are applicable toward the “arts and humanities” core requirements. Credits are not considered “beyond the introductory level.”

ENG 250 American Literature (3) Major American works from beginnings to present. Requires a minimum of 3,000 words of writing. Pre: 100. **DL**

ENG 251 British Literature to 1800 (3) Major works from Medieval, Renaissance, and Neoclassical periods. Requires a minimum of 3,000 words of writing. Pre: 100. **DL**

ENG 252 British Literature after 1800 (3) Major works from the Romantic, Victorian, modern, and contemporary periods. Requires a minimum of 3,000 words of writing. Pre: 100. **DL**

ENG 253 World Literature to 1600 (3) Major Western and non-Western works from classical Greece through the Renaissance. Requires a minimum of 3,000 words of writing. Pre: 100. **DL**

ENG 254 World Literature after 1600 (3) Major Western and non-Western works from after the Renaissance to the modern period. Requires a minimum of 3,000 words of writing. Pre: 100. **DL**

ENG 255 Short Story and Novel (3) Introduction to prose fiction through major works. Requires a minimum of 3,000 words of writing. Pre: 100. **DL**

ENG 256 Poetry and Drama (3) Introduction to poetry and drama through major works. Requires a minimum of 3,000 words of writing. Pre: 100. **DL**

ENG 257 (Alpha) Themes in Literature (3) Selected themes in major works of various types, cultures, periods. Requires a minimum of 3,000 words of writing. Repeatable one time. Pre: 100. (257Y cross-listed as WS 257) **DL**

ENG 257A (Alpha) Themes in Literature (3) Selected themes in major works of various types, cultures, periods. Requires a minimum of 3,000 words of writing. Co-requisite: 100 and Honors standing. **DL**

ENG 300 The Rhetorical Tradition (3) History of theory and practices of rhetoric from Classical to contemporary period; e.g., Plato, Aristotle, Cicero, Quintilian, Augustine, Sidney, K. Burke, DeMan. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 302 Introduction to the English Language (3) Uses of language in speech and in writing; diversity of modern English. Problems of dialects, style, usage, “correctness”; nature of standard English. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 306 Argumentative Writing I (3) Theory and practice of written argument; emphasis on the role of invention in argumentative discourse and on the nature of rhetorical proof. Pre: grade of C or better in ENG 100 or ENG 200; or consent. **DL**

ENG 307 Rhetoric, Composition, and Computers (3) Introduction to computer-based writing and reading technologies. Study of principles of traditional and online composition. Writing traditional and multimedia essays. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 311 Autobiographical Writing (3) Writing clear, effective prose based on the writer’s own experiences and ideas. Pre: 100 and one of the following: 250, 251, 252, 253, 254, 255, 256, 257. **DL**

ENG 313 Creative Writing (3) Basic principles applied through writing in two major genres (short story and poetry, short story and drama, or poetry and drama). Pre: 100 and one of the following: 250, 251, 252, 253, 254, 255, 256, 257. **DA**

Fulfillment of the college’s written communication requirement and two semesters of 250–257 are prerequisite to upper division English courses numbered 320 or above. A few courses have different or additional prerequisites as listed below.

ENG 320 Introduction to English Studies (3) Introduction to the purpose, practice, and potential of literary and rhetorical study of texts. Prerequisite to 400-level work for English

majors. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 321 Backgrounds of Western Literature (3) Sources of European and American literary themes and allusions; myth, legend, and folklore of Western cultures; e.g., Classical texts, Arthurian romances, King James Bible. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 322 The Bible as Literature (3) Narrative, generic, and stylistic forms in the Bible in English. Related writings may be considered in comparative analysis. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 323 Literature in English to 1660 (3) Basic concepts and representative texts for the study of literature in English to 1660. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 324 Literature in English 1660-1900 (3) Basic concepts and representative texts for the study of literature in English from 1660-1900. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 325 Literature in English after 1900 (3) Basic concepts and representative texts for the study of literature in English after 1900. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 326 World Literature in English (3) Basic concepts and representative texts for the study of colonial, post-colonial, and commonwealth literatures in English, from regions such as Africa, India, the Pacific, and the Caribbean. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 327 Literary Criticism and Theory (3) Survey of representative texts from Greek to modern times; e.g., Plato, Aristotle, Sidney, Johnson, Arnold, Eliot, Barthes, Derrida, Foucault, Kristeva. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 330 Medieval British Literature (3) Basic concepts and representative texts for the study of British literature before 1500. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 331 Renaissance British Literature (3) Basic concepts and representative texts for the study of British prose and poetry from 1500 to 1660. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 332 Restoration/18th-Century British Literature (3) Basic concepts and representative texts for the study of British prose, poetry, and drama from 1660 to 1780, exclusive of Milton. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 333 Romantic British Literature (3)

Basic concepts and representative texts for the study of British prose and poetry from 1780 to 1832. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 334 Victorian British Literature (3)

Basic concepts and representative texts for the study of British prose and poetry from 1832 to 1900. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 335 British Literature after 1900 (3)

Basic concepts and representative texts for the study of British prose, poetry, and drama from 1900 to the present. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 336 American Literature to Mid-19th Century (3)

Basic concepts and representative texts for the study of prose, poetry, and drama in American literature through the middle of the 19th century. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 337 American Literature Mid-19th to Mid-20th Century (3)

Basic concepts and representative texts for the study of prose, poetry and drama in American literature from the middle of the 19th century to the middle of the 20th century. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 338 American Literature since Mid-20th Century (3)

Basic concepts and representative texts for the study of American literature since approximately 1950. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 350 18th-Century Novel in English (3)

Basic concepts and representative texts for the study of the novel in English before 1800. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 351 19th-Century Novel in English (3)

Basic concepts and representative texts for the study of the novel in English between 1800 and 1900. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 352 20th-Century Novel in English (3)

Basic concepts and representative texts for the study of the novel in English after 1900. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 353 History of Poetic Forms (3)

Basic concepts and representative texts for the historically organized study of poetic genres and forms before the 20th century and primarily in English. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 354 Poetry in English after 1900 (3)

Basic concepts and representative texts for the study of poetry in English after 1900. Pre: any

two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 355 Drama in English to 1900 (3)

Basic concepts and representative texts for the study of drama in English from the Middle Ages through the end of the 19th century. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 356 Drama in English after 1900 (3)

Basic concepts and representative texts for the study of drama in English after 1900. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 360 Prose Fiction (3)

Basic concepts and representative texts for the study of the form, function, and development of prose fiction genres such as short story and novel. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 361 Poetry (3)

Basic concepts and representative texts for the analysis of imagery, sound, language, form, and structure in poems. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 362 Drama (3)

Basic concepts and representative texts for the study of the form, function, and development of the genre of drama. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 363 Film (3)

Basic concepts and representative texts for study of the form, function, and development of cinematic narrative techniques. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 364 Non-fiction Prose (3)

Basic concepts and representative texts for the study of non-fiction prose such as essays, biographies, autobiographies, speeches, political and legal documents, conversion and captivity narratives, testimonials, science writing, and travel writing. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 365 Mixed Genres (3)

Basic concepts and representative texts for the study of works that incorporate more than one genre. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 370 Ethnic Literature of Hawai'i (3)

Writings of various ethnic groups in Hawai'i, ancient to contemporary. Songs, stories, poetry, fiction, essays that illustrate the social history of Hawai'i. Pre: one social science core course. (Cross-listed as ES 370) **DL**

ENG 371 Literature of the Pacific (3)

Basic concepts and representative texts for the study of the literature of the Pacific, including Pacific voyagers and contemporary writings in English by Pacific Islanders. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. (Cross-listed as PACS 371) **DL**

ENG 372 Asian American Literature (3)

Basic concepts and representative texts for the study of Asian American literature by writers from a variety of backgrounds. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 373 African American Literature (3)

Basic concepts and representative texts for the study of African American literature by writers from a variety of backgrounds. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 374 Race, Ethnicity, and Literature (3)

Basic concepts and representative texts for the study of race and ethnicity as the basis for literary inquiry. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 380 Folklore and Oral Tradition (3)

Basic concepts and representative texts for the study of folktales, legends, ballads and other folklore genres in various cultures; consideration given to folklore/literature relationships. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 381 Popular Literature (3)

Basic concepts and representative texts for the study of popular literature genres, such as detective fiction, science fiction, the thriller, the romance, and westerns. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 382 Gender, Sexuality and Literature (3)

Basic concepts and representative texts for the study of literary constructions of gender and sexuality. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. (Cross listed as WS 381) **DL**

ENG 383 Children's Literature (3)

Basic concepts and representative texts for the study of children's literature; may include study of children's book illustration. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 384 Literature and Technology (3)

Basic concepts and representative texts for the study of literature in relation to technological developments. May include history of the book, impact of printing and computer networks, science fiction. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 393 Junior Honors Tutorial (3)

Tutorials in English and American Literature. Consult the English Department's Honors Director for particulars; offered Fall semester. Repeatable one time. Pre: enrollment in Honors Program and two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

ENG 394 Junior Honors Tutorial (3)

Tutorials in English and American Literature. Consult the English Department's Honors Director for particulars; offered Spring semester. Repeatable one time. Pre: enrollment in Honors

Program and two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. **DL**

The specific content of 400-level Studies courses varies by semester. Students should obtain the English department's fall and spring course descriptions prior to enrolling. Descriptions are available in KUY 402 and 429 and on the department's Web page (www2.hawaii.edu/~uhmeng) a week or so before the SOC comes out. All Studies courses require a significant research component.

ENG 402 History of the English Language (3) Origin and evolution of English language to c.1800, particularly as manifested in literary texts. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; or consent. **DL**

ENG 403 Modern English Grammar (3) Structure of contemporary English; current theories of grammar; relation between grammar and style. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; or consent. **DL**

ENG 404 English in Hawai'i (3) English language in Hawai'i viewed historically and in a multicultural context, with attention to politics, religion, race, and education, from 1820 to present. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; or consent. **DL**

ENG 405 Teaching Composition (3) Theory, observation, and practice in teaching writing, especially the use of one-on-one and small group instruction. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; or consent. Recommended: 306. **DL**

ENG 406 Argumentative Writing II (3) Extended study of both the philosophical and practical dimensions of written reasoning. Emphasis on argument as a process of inquiry. Pre: 306 or consent. **DL**

ENG 407 Writing for Electronic Media (3) Combined lecture/lab course on writing and rhetoric in computer-mediated communication. May include online technical writing, courseware development, hypertext fiction. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; and 307; or consent. **DL**

ENG 408 Professional Editing (3) Discussion and practice in the professional editing of articles, reports, books; logic, clarity, coherence, consistency of tone and style, grammar and punctuation. Pre: 306 or consent. **DL**

ENG 409 Studies in Composition/Rhetoric/Language (3) Intensive study of selected topics, problems, themes, issues, and/or writers in composition, rhetoric, and/or English language. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 410 Form and Theory of Poetry (3) Poetic theories and techniques for students interested in writing poetry. Pre: 313 or consent. **DL**

ENG 411 Poetry Workshop (3) Writing, evaluating poems. Repeatable once. Pre: 410 or consent. **DL**

ENG 412 Nonfiction Writing (3) Workshop analysis of nonfiction as a literary form. Repeatable one time. Pre: 306 or 313; or consent. **DL**

ENG 413 Form and Theory of Fiction (3) Narrative techniques for students interested in writing fiction. Pre: 313 or consent. **DL**

ENG 414 Fiction Workshop (3) Writing, evaluating fiction. Repeatable once. Pre: 413 or consent. **DL**

ENG 415 Prosody (3) Reading and writing in traditional poetic forms—sonnet, villanelle, sestina, roundel, pantoum, etc.—for theoretical and practical appreciation of formal poetry. Pre: 361 or 410; or consent. **DL**

ENG 416 Studies in Creative Writing (3) Intensive study of selected topics, problems, themes, writers, or modes of creative writing in a workshop setting. Repeatable one time. Pre: 313; 410, 412, or 413; or consent. **DL**

ENG 420 Studies in Literature and Culture (3) Intensive study of selected problems, issues, writers, traditions, or movements in regard to cultural studies and the reading and interpretation of cultural texts. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 421 Studies in Comparative Literature (3) Intensive study of selected problems, issues, writers, traditions, or movements in the field of comparative literature. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 427 Studies in Literary Criticism and Theory (3) Intensive study of selected problems, issues, writers, traditions, or movements in the field of literary criticism and critical theory. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 430 Studies in Medieval Literature (3) Intensive study of selected problems, issues, writers, traditions, or movements in Old/Middle English literature from 500-1500, including works in modern translation. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 431 Studies in 16th and 17th Century Literature (3) Intensive study of selected problems, issues, writers, traditions, or movements in texts written during the period 1500-1700. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 432 Studies in 18th Century Literature (3) Intensive study of selected problems, issues, writers, traditions, or movements in texts written during the period 1660-1830, the "long" 18th century. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 433 Studies in 19th Century Literature (3) Intensive study of selected problems, issues, writers, traditions, or movements in texts written during the 19th century. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 434 Studies from 20th Century to Present (3) Intensive study of selected problems, issues, writers, traditions, or movements in texts written from the 20th

century to the present. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 440 (Alpha) Single Author (3) Intensive study of the works and literary milieu of a single author: (B) Emily Dickinson; (C) George Eliot; (D) William Faulkner; (E) Ben Jonson; (F) James Joyce; (G) Mark Twain; (H) Walt Whitman; (I) Virginia Woolf; (J) William Wordsworth; (K) Charles Dickens; (M) Toni Morrison. Repeatable one time (different alpha letter). Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; or consent. **DL**

ENG 442 Geoffrey Chaucer (3) Intensive study of the works and literary milieu of Geoffrey Chaucer. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; or consent. **DL**

ENG 445 William Shakespeare (3) Intensive study of the works and literary milieu of William Shakespeare. Repeatable one time. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; or consent. **DL**

ENG 447 John Milton (3) Intensive study of the works and literary milieu of John Milton. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; or consent. **DL**

ENG 455 U.S. Women's Literature and Culture (3) Reading of selected works of U.S. women's literature and cultural texts (such as art and film). Emphasis on historical and cultural context and diverse expressions of women's gendered identities. Pre: 250 (or concurrent), AMST 202 (or concurrent) or WS 151 (or concurrent); or consent. (Cross-listed as AMST 455 and WS 445)

ENG 460 Studies in Fiction (3) Intensive study of selected problems, issues, writers, traditions, or movements in prose fiction. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 461 Studies in Poetry (3) Intensive study of selected problems, issues, writers, traditions, or movements in poetry. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 462 Studies in Drama (3) Intensive study of selected problems, issues, writers, traditions, or movements in drama. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 463 Studies in Film (3) Intensive study of selected topics in film, e.g.: genres, major filmmakers, film theory/criticism, or film and literature. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 464 Studies in Life Writing (3) Intensive study of forms and theories of lifewriting in forms such as biographies, autobiographies, oral histories, diaries, journals, letters, film, drama, and portraiture. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 465 Studies in Mixed Genre (3) Intensive study of selected texts that either combine traditional genres, challenge categorization by genre, or cross lines of genres. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 466 Special Topics: Genre Studies (3) Intensive study of a selected genre which crosses disciplines or is overlooked in the study of larger genre categories such as poetry, fiction, or drama. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 470 Studies in Asia/Pacific Literature (3) Intensive study of selected problems, issues, traditions, genres, or writers relating to Asia and the Pacific. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 471 Studies in Postcolonial Literature (3) Intensive study of selected problems, issues, traditions, genres, or writers in postcolonial literatures and theories. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 472 Studies in Diasporic Literature (3) Intensive study of literary, cultural and theoretical issues of diasporic experiences such as immigration, assimilation, nation, and transnationalism. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 479 Modern Pacific Women's Poetry (3) Critical examination of modern indigenous women's poetry from the Pacific Islands. Thematic concentration on land, family, sexual and national oppression. Pre: any two of the following (second may be taken concurrently): 250, 251, 252, 253, 254, 256, 257; or consent. (Cross-listed as HWST 494) **DL**

ENG 480 Studies in Literature and Folklore (3) Intensive study of selected problems, issues, traditions, or genres in folklore and oral traditions and their performance and transformations within specific social and cultural contexts. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 481 Studies in Literature and Popular Culture (3) Intensive study of selected problems, issues, traditions, writers, movements, or genres in the field of popular literature and/or popular culture. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. **DL**

ENG 482 Studies in Literature and Sexuality and Gender (3) Intensive study of selected problems and issues in the construction and representation of sexuality and gender in specific genres, social and cultural contexts, or thematic/figurative clusters. Repeatable one time. Pre: 320 and one other 300-level ENG course; or consent. (Cross-listed as WS 483) **DL**

ENG 491 Senior Honors Tutorial (3) Studies in history of ideas, periods, genres, or themes in English and American literature. Includes research paper. Offered Fall semester. Repeatable one time. Pre: enrollment in Honors Program, 320 and two 300-level ENG courses; or consent. **DL**

ENG 492 Senior Honors Tutorial (3) Studies in history of ideas, periods, genres, or themes in English and American literature. Includes research paper. Offered Spring semester. Repeatable one time. Pre: enrollment in Honors Program, 320, and two ENG 300-level courses; or consent. **DL**

ENG 494 London Program (V) Intensive study of selected topics, issues or writers from Great Britain and Ireland; Study Abroad/

London Program only. Repeatable one time. A-F only. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; or consent. **DL**

ENG 495 Internship (3) Faculty supervised participation in the operations of an organization. A-F only. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; junior standing. **DL**

ENG 499 Directed Reading (V) Repeatable once. A-F only. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; or consent.

ENG 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

ENG 550 Supervised Teaching Practicum (1) Supervised participation in instruction or tutoring. CR/NC only. Repeatable twice. Pre: graduate standing and consent.

ENG 560 HWP Summer Writing Institute (V)

ENG 561 HWP Summer Institute WAC (V) Practicum in the current best approaches to teaching writing across the curriculum. Participants write, read published theory and research in composition, and demonstrate effective writing lessons. Repeatable.

Graduate standing or consent is required for all courses numbered 600 and above for which no specific prerequisite is listed.

ENG 611 (Alpha) Graduate Writing Workshop (3) Advanced practice and critical evaluation of the writing of poetry, fiction, or creative nonfiction. (B) poetry; (C) fiction; (D) nonfiction. Repeatable. Pre: graduate standing plus 411 for (B); 414 for (C); 412 for (D); or consent.

ENG 620 The Profession of English (3) Introduction to the professional study of English and the four concentrations in the MA program. Required of all candidates for the MA in English. Pre: graduate standing. Fall only.

ENG 633 (Alpha) Theories and Methods (3) Required course in the MA student's area of concentration. (B) theories and methods of literary study; (C) introduction to composition and rhetoric; (D) foundations of creative writing; (E) theories in cultural studies. Repeatable in different alphas. Pre: 620 or consent. Spring only.

ENG 637 (Alpha) Literary Theory and Criticism (3) (B) classical period through 18th century; (C) Romantic and post-Romantic.

ENG 639 Film Theory and Criticism (3) Classic theories of representation and aesthetics; modern and contemporary cultural, psychoanalytic, and aesthetic theories as they apply to film.

ENG 640 Old English (3) Structure of the language, relation to present English; reading of selected prose and poetry.

ENG 660 (Alpha) Major Authors (3) Study of one or more authors, English or American. (D) Emily Dickinson. Repeatable one time. A-F only. Pre: graduate standing or consent.

ENG 675 (Alpha) Literary Genres and Problems (3) Study of one or more authors,

English or American literature. (Q) Science Fiction. Repeatable one time. A-F only. Pre: graduate standing or consent.

ENG 680 Theory and Practice of Teaching Composition (3) Major contemporary theorists and classroom practices that evolve from their theories; observation and applications.

ENG 691 MA Final Project (V) Individual reading and research towards preparation of MA project. 3 credit hours required. CR/NC only. Repeatable. Pre: 620, 633 (or concurrent) and consent.

ENG 699 Directed Reading (V) Individual reading or research. Pre: graduate standing and consent.

ENG 700 Thesis Research (V) Pre: graduate standing and consent.

ENG 711 Seminar in Creative Writing (3) Advanced study in creative writing focused on thesis and dissertation projects. Repeatable once. Pre: 611 or consent.

ENG 716 (Alpha) Techniques in Contemporary Literature (3) The study, from the point of view of the creative writer, of works written within the last 25 years. (B) techniques in fiction; (C) techniques in poetry; (D) techniques in creative nonfiction. Repeatable. Pre: 611 (or concurrent) or consent.

ENG 730 Advanced Literary Research (3) Assumptions, methods, and definition of a literary field. Required of all doctoral candidates writing a critical/scholarly dissertation or a dissertation with a creative emphasis. Pre: 633 or equivalent or consent.

ENG 735 (Alpha) Seminar in Comparative Literature (3) Introduction to comparative literature; relationship of English to other literatures; sources and influences. Repeatable.

ENG 737 Problems in Literary Criticism (3) Intensive study of selected topics in literary theory and its practical application; topics to be announced. Repeatable. Pre: graduate standing or consent.

ENG 740 Seminar in Composition Studies (3) Intensive study of selected issues in composition studies. Repeatable. Pre: 633C (or concurrent); or consent.

ENG 745 Seminar in English Language (3) Intensive study of one topic in English linguistics. Repeatable.

ENG 751 Seminar in Life Writing (3) Intensive study of critical and theoretical issues raised by various forms of life writing (biography, autobiography, oral history, diaries, etc.) and of their history and methodology. Repeatable once.

ENG 757 Seminar in Shakespeare (3) Intensive study of Shakespeare.

ENG 760 Seminar in Rhetoric (3) Intensive study of selected topics in the history of rhetoric, rhetorical theory, or rhetorical criticism; topic to be announced. Repeatable. Pre: 633C (or concurrent) or consent.

ENG 765 Seminar in Cultural Studies in Asia/Pacific (3) Intensive study of selected issues in cultural studies in Asia and the Pacific; topics to be announced. Repeatable once.

ENG 766 Issues in Cultural Studies (3)

Intensive study of selected issues in cultural studies and cultural and social theory; topics to be announced. Repeatable once.

ENG 775 (Alpha) Seminar in English Literature (3)

Study of authors or a period.

ENG 780 (Alpha) Seminar in American Literature (3)

Study of authors or a period. Repeatable.

ENG 785 Special Topics in Literature (3)

Content to be announced. Repeatable.

ENG 800 Dissertation Research (V)

Pre: graduate standing and consent.

English Language Institute (ELI)

College of Languages, Linguistics and Literature

Initial placement in ELI courses is by examination only. A grade of CR (credit) is prerequisite to promotion or exemption. Normal course sequence is 70, 80; 72, 82; 73, 83 or ELI 100.

ELI 070 Listening Comprehension I (0)

Intensive work in understanding lectures, taking lecture notes, writing examinations, and study skills. Language laboratory required.

ELI 072 Reading for Foreign Students (0)

Instruction and practice in improving reading comprehension and speed, and in use of textbooks and reference materials. Work on study skills; individual conferences and tutoring.

ELI 073 Writing for Foreign Students (0)

Extensive practice in expository writing. Analysis and use of rhetorical devices. Individual conferences and tutoring as required.

ELI 080 Listening Comprehension II (0)

Further practice; development of classroom discussion skills. Language laboratory required. Pre: 070 or placement by examination.

ELI 082 Advanced ESL Reading (0) Advanced ESL study skills and extensive reading strategies; focus on vocabulary and reading in student's major. Pre: 072 or placement by examination.

ELI 083 Writing for Foreign Graduate Students (0)

Individual instruction in specific writing problems: term papers, reports, projects. Foreign graduate students only except by permission. Pre: 073 or placement by examination.

ELI 100 Expository Writing: A Guided Approach (3)

Extensive practice in writing expository essays; linguistic devices that make an essay effective. (Fulfills composition requirement for nonnative speakers of English only.)

ENGR

See Engineering

Entomology (ENTO)

See Plant and Environmental Protection Sciences

Environmental Biochemistry (ENBI)

College of Tropical Agriculture and Human Resources

ENBI 152 Survey of Organic and Bioorganic Chemistry (3)

Structure, nomenclature, properties, reactions of organic compounds; emphasis on those of practical importance in related fields. Open to nonmajors. Pre: CHEM 151, CHEM 162, or CHEM 171. (Cross-listed as CHEM 152)

ENBI 420 Hazardous Materials (3) Introduction to state and federal environmental regulations relative to hazardous substances. Analysis of specific health and environmental impacts of hazardous waste. Pre: CHEM 151 (or concurrent) or consent. (Cross-listed as GEOG 420 and NURS 430)

ENBI 491 Topics in Environmental Biochemistry (V)

Study and discussions of significant topics and problems. Offered by visiting faculty and/or for extension programs. Repeatable.

ENBI 604 Survey of Environmental Toxicology of Pesticides (1)

Current research findings on use, dissipation and analysis of pesticides; environmental aspects; pesticide regulation and legislation. Pre: consent.

ENBI 681 Pesticide Toxicology (3)

Principles of toxicology; chemical and biochemical mechanisms of pesticide toxicity. Pre: BIOC 441 or PEPS 402; CHEM 272; or consent. (Cross-listed as PEPS 681)

Ethnic Studies (ES)

College of Social Sciences

ES 101 Introduction to Ethnic Studies (3)

Basic concepts and theories for analyzing dynamics of ethnic group experiences, particularly those represented in Hawai'i, and their relation to colonization, immigration, problems of identity, racism, and social class. **DS**

ES 221 Hawaiians (3) Relationship between changes in Hawaiian lifestyle and development of Hawaiian economy; land use and tenure; participation in government, labor, and industry; Hawaiian institutions; "Hawaiian movement." **DS**

ES 301 Ethnic Identity (3) Individual and group problems of identity, identity conflict, culture conflict, inter-ethnic relations. Critical review of available material on Hawai'i. Pre: one social sciences core course. **DS**

ES 305 African American Experience I (3) Afrocentric perspective. Analysis of the black political/cultural diaspora, including ancient African kingdoms, the slavery experience, organized resistance, emancipation struggles, the Civil War and Reconstruction. Pre: one social sciences core course or consent. **DS**

ES 306 African American Experience II (3)

Afrocentric socio political analysis. The struggle for freedom: Reconstruction period, reign of terror, intellectual and cultural awakenings, civil rights movements, contemporary issues. Pre: one social sciences core course or consent. **DS**

ES 310 Ethnicity and Community: Hawai'i (3)

Site visits to museums, social welfare units, etc., as well as guest lecturers from the community including police, health, education. Pre: one social sciences course. (Summer only) **DS**

ES 318 Asian America: Survey (3) History of selected Asian immigrant groups from the 19th century to the present. Topics include: immigration and labor history, Asian American movements, literature and cultural productions, community adaptations and identity formation. Pre: junior standing and one of AMST 201 (or concurrent), AMST 202 (or concurrent), SOC 100 (or concurrent), or SOC 214 (or concurrent); or consent. (Cross-listed as AMST 318) **DH**

ES 320 Hawai'i and the Pacific (3) Hawai'i as part of the Pacific community: selected historical and contemporary problems of Pacific areas; cultural and economic imperialism, land alienation, and the impact of development on Pacific peoples. Pre: one social sciences core course. **DH**

ES 330 Japanese in Hawai'i (3) Issei roots in Japan; the role of Japanese in labor, politics, and business; sansei and perspectives on local identity and culture. The Japanese in light of changing economic, social, and political conditions in Hawai'i today. Pre: one social sciences core course. **DH**

ES 331 Chinese in Hawai'i (3) Ethnohistorical and contemporary view of the experiences of the Chinese in Hawai'i and U.S. Mainland; specific roles and contributions; immigration, social organization, and identity. Pre: one social sciences core course. **DH**

ES 332 Caucasians in Hawai'i (3) Historical and current views of white ethnic groups in Hawai'i; significance in economic and social development of Hawaiian society. Pre: one social sciences core course. **DH**

ES 333 Filipinos in Hawai'i (3) Historical and contemporary experiences; immigration; traditional culture and values; plantation experience; labor organizing; development of Filipino community. Racism, discrimination, and ethnic identity. Pre: one social sciences core course or consent. **DH**

ES 335 Koreans in Hawai'i (3) Historical and contemporary experiences, causes and patterns of immigration, conditions on plantations, ties to Korea, community development and roles in society. Pre: one social sciences core course. **DH**

ES 338 The Original American: Indians (3) Overview of American Indian history and traditions. Impact of European contact and conquest; contemporary issues of resistance and survival. Pre: one social sciences core course. **DH**

ES 340 Land Tenure and Use in Hawai'i (3) Dynamics of change: indigenous Hawaiian land tenure; Great Mahele and Kuleana Act; ethnic succession of land ownership; concentration of ownership today; effects of land development on ethnic communities. Pre: one social sciences core course. **DH**

ES 348 Teaching Ethnic Studies in Higher Education (3) Strategies for teaching subject matter in university, college, and community college classrooms: Concepts, models, classroom techniques, case studies. Pre: two ES courses at the 100, 200 or 300 level; or consent. **DS**

ES 350 Economic Change and Hawai'i's People (3) Development of modern Hawaiian economy and impact on Hawai'i's people. Sugar, pineapple, and tourism industries; role of local and multinational corporations; scenarios for Hawai'i's future development. Pre: one social sciences core course. **DS**

ES 360 Immigration to Hawai'i (3) Historical overview: "push and pull factors"; effect of changing economy; experiences of various ethnic groups; problems of recent immigrants; immigration policies in the United States and Hawai'i. Pre: one social sciences core course. **DH**

ES 365 Pacific/Asian Women in Hawai'i (3) Adaptive strategies of Hawaiian, Chinese, Japanese, Korean, Filipino, Samoan, and Southeast Asian women in Hawai'i; feminist anthropological and historical analysis. Pre: one ANTH, SOC, or WS course. (Cross-listed as WS 360) **DS**

ES 370 Ethnic Literature of Hawai'i (3) Writings of various ethnic groups in Hawai'i, ancient to contemporary. Songs, stories, poetry, fiction, essays that illustrate the social history of Hawai'i. Pre: one social sciences core course and consent. (Cross-listed as ENG 370) **DL**

ES 380 Fieldwork in Ethnic Studies (V) Specialized supervision of individual student research projects in historical, oral history, or contemporary problems. Repeatable to total of 6 credit hours. Pre: consent.

ES 381 Social Movements in Hawai'i (3) Role of various contemporary movements for social change in Hawai'i: community, ethnic, labor, student, etc. Theories of social movements and social change. Pre: one social sciences core course. **DS**

ES 390 Gender and Race in U.S. Society (3) Historical and sociological studies of race and gender in U.S. society; grassroots feminist and race/ethnic activism in the mainland and Hawai'i. A-F only. Pre: 101, WS 151, or Social Science Cores. (Cross-listed as WS 390) **DS**

ES 392 Change in the Pacific—Polynesia (3) Impact of cultural and physical change and their interrelationship. Pre: ES or social sciences courses. **DS**

ES 399 Directed Reading/Research (V) Repeatable to total of 6 credit hours. Pre: consent only.

ES 410 Race, Class, and the Law (3) Historical context and implications of landmark court decisions and legal issues affecting social change in ethnic communities in Hawai'i and the Continental United States. Pre: one 300-level course in ethnic studies, political science, or sociology. **DS**

ES 420 American Ethnic Relations: Politics and Economy (3) Relationship between race and class in the United States, focusing upon ethnic conflict, changing economic structures, and the role of the modern state. Pre: one 300-level ethnic studies course. **DS**

ES 455 (Alpha) Topics in Comparative Ethnic Conflict (3) Causes and dynamics of ethnic conflicts with attention to problem resolution; (B) Middle East; (C) Hawaiian sovereignty in Pacific context. Repeatable. Pre: 320 or 392, or consent for (C). **DS**

ES 456 Racism and Ethnicity in Hawai'i (3) The historical and contemporary social processes involved in inter-ethnic relations in Hawai'i. Pre: SOC 300 or one Social Science core course; or consent. (Cross-listed as SOC 456)

ES 492 Politics of Multiculturalism (3) The development of ethnic relations and political approaches to multiculturalism in two multiethnic nations: Canada and the United States. Pre: one social sciences core course, an ES 300-level course, or consent. **DS**

ES 493 Oral History: Theory and Practice (3) Literature and methodology; project design. Students develop and execute an oral history project. Pre: upper division standing; and HIST 151 and HIST 152, or HIST 281 and HIST 282; or consent. **DH**

ES 495 Hawaiian Labor History (3) Conditions of work under varying political, social, and economic transformations in Hawai'i; anthropological, sociological, and historic data. Pre: HIST 151 and HIST 152. **DH**

Family Practice and Community Health (FPCH)

School of Medicine

FPCH 531 Unit VI 7-Week Family Practice Clerkship (10) Ambulatory-based clerkship in family practice to be taken on O'ahu or one of the Neighbor Islands. Students will learn history taking, physical exam skills, and management of family practice patients of all ages. Emphasis on behavioral care, preventative care, and common ambulatory problems, both acute and chronic. CR/NC only. Pre: BIOM 555. Co-requisites: MED 531, OBN 531, PED 531, PSTY 531, and SURG 531.

FPCH 532 Family Practice and Community Health Longitudinal Clerkship (10) 5.5-month ambulatory clerkship. Students will learn history taking, physical exam skills, and management of family practice patients of all ages. Emphasis on behavioral care, preventative care, and common ambulatory problems, both acute and chronic. Repeatable once. CR/NC only. Pre: BIOM 555. Co-requisite: MED 532, OBN 532, PED 532, PSTY 532, and SURG 532.

FPCH 545 (Alpha) Unit VII Electives in Family Practice and Community Health (V) Fourth-year elective in which medical students may do study of selected topics within the field of family practice and community health: (B) primary care preceptorship; (C) topics in community health; (D) sub-internship in family practice; (E) extramural elective in Family Practice and Community Health—miscellaneous; (F) sports medicine preceptorship. CR/NC only. Pre: 531 or 532 for (F).

FPCH 599 Directed Reading/Research (V) Pre: consent.

Family Resources (FAMR)

College of Tropical Agriculture and Human Resources

FAMR 230 Human Development (3) Concepts, issues, theories of human growth and development from conception to death; systems approaches to inquiry into factors affecting growth and development. **DS**

FAMR 331 Infancy (3) Intensive investigation into development from prenatal period through three years. Historical and current issues using cross-cultural and systems approach. Focus on optimal development. Pre: 230 or consent. **DS**

FAMR 332 Childhood (3) Intensive investigation into developmental aspects of children 2–12 years. Historical and current issues, cross-cultural study. Focus on optimal development. Pre: 230. **DS**

FAMR 333 Adolescence and Young Adulthood (3) Problems, concepts, and research relating to development from puberty through early adulthood. Examination of biological, cognitive, social, and cultural factors affecting the individual. Pre: 230. **DS**

FAMR 334 Middle Age (3) Change and continuity in midlife from theoretical and applied perspectives. Key physical, psychological, and sociological events. Community resources to meet needs. Pre: 230. **DS**

FAMR 335 Old Age (3) Social attitudes and values regarding aging; roles of elderly; theories of aging; personal continuity; physical, functional, psychological, socioeconomic change; community and societal programs. Pre: 230. **DS**

FAMR 340 Family Development (3) Family functioning and development over the family life cycle; family stages, tasks, interaction, adjustment, and growth in various cultures. Pre: 230 or PSY 100 or SOC 100; or consent. **DS**

FAMR 341 Parenting (3) Parenting theories, methods, skills, issues, and resources; parent-child relations in various cultural contexts. Pre: 340 or consent.

FAMR 350 Leadership and Group Process (3) Exploration of leadership research and theories and their application to leadership development; designed to enhance personal and interactive leadership. Pre: 230 or PSY 100 or SOC 100; or consent.

FAMR 352 Community Needs and Resources (3) Theory and practice in determining community needs and resources; community resources development based on needs identification. Pre: 230 or PSY 100 or SOC 100; or consent. **DS**

FAMR 360 Family Resource Management (3) Concepts, principles, and practices in managing family and household resources. Pre: 230 or PSY 100 or SOC 100; or consent.

FAMR 361 Family Financial Planning (3) Analytical approach to family financial planning from the perspective of changing family demands over the life cycle. Pre: 360, ECON 120, or consent.

FAMR 363 Consumer Economics (3) Consumer rights, responsibilities, and resources; consumer decision-making; factors affecting consumer functioning within economy. Pre: ECON 120.

FAMR 380 Research Methodology (3) Fundamentals of scientific methodology and techniques in design and data collection; introduction to statistics for decision-making and program evaluations in agriculture and human resources. Pre: 230 or AGRN 220. Co-requisite: 380L. **DS**

FAMR 380L Research Methodology Lab (1) (1 3-hr Lab) Test design, computer use, data analysis. Co-requisite: 380.

FAMR 436 Ethnicity and Aging (3) Study role of ethnicity in the aging process; impact on expectations, resources, behaviors of elderly and their families. Implications for program development and family management. Pre: 230. **DS**

FAMR 442 Marriage Development (3) Marital interaction and development; divorce and remarriage; resources and techniques for marital adjustment, enrichment, and growth. Pre: 340.

FAMR 443 Work and the Family (3) Work/family roles, relationships, and interactions; issues, problems, and resources relevant to dual career marriage, maternal employment, and other areas of work/family interface. Pre: 340. **DS**

FAMR 444 Contemporary Family Issues (3) Investigation of current issues with impact upon family quality of life, with emphasis on the interdependent nature of families and their environments. Pre: 340. **DS**

FAMR 452 Community Program Development (3) Concepts and theories of community program development; principles, practices, and procedures in administration and supervision of volunteer services surveyed and analyzed. Pre: 352.

FAMR 453 Quality of Life Indicators (3) Quality of life indicators used in program planning and evaluation research; cross-cultural perspectives on strategies for improving individual, family, and community life. Pre: 352. **DS**

FAMR 454 Family Public Policy (3) Cross-national survey of family public policy; analysis, revision, and development of family public policy; impacts of policy on consumers and families. Pre: 352. **DS**

FAMR 455 Consumer Communications (3) Development, production, analysis, and evaluation of consumer materials for print media. Use of desktop publishing computer programs. Pre: 363 or consent.

FAMR 460 Family Management Practice (3) Strategies for working with families to enhance management practices; application of management concepts, methods, and skills to specific household and family problems. Pre: 360.

FAMR 468 Family Economics (3) Study of personal family resources and its interaction with the economy. Focuses on contemporary economic problems that affect the welfare of families. Pre: 360, ECON 120, or consent.

FAMR 482W Senior Seminar (3) Preparation, presentation, and discussion of student research papers dealing with selected topics in family resources. Pre: senior standing.

FAMR 491 Topics in Family Resources (V) Study and discussion of significant topics, problems. Offered by visiting faculty and/or for extension programs. Repeatable.

FAMR 492 Internship (4) Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/employer. Pre: senior standing and consent.

FAMR 496 Supervised Experience in Family Resources (V) Supervised course material preparation and teaching experience in assigned class. Repeatable. Pre: consent.

FAMR 499 Directed Reading and Research (V) Independent reading and research on a topic, done under supervision of a faculty member; outcomes contracted in writing with faculty member at beginning of semester. Pre: consent.

FAMR 699 Directed Reading and Research (V) Pre: consent.

Filipino (FIL)

College of Languages, Linguistics and Literature

FIL 101 Elementary Filipino (4) Listening, speaking, reading, writing skills. Structural points introduced inductively. Co-curricular cultural activities included. Meets five hours weekly; daily lab work. **HSL**

FIL 102 Elementary Filipino (4) Continuation of 101. **HSL**

FIL 111 Intensive Elementary Filipino (6) Emphasis on communication through integrated development of listening, speaking, reading, and writing skills. Co-curricular cultural activities included. Meets 20 hours a week for six weeks. **HSL**

FIL 112 Intensive Elementary Filipino (10) **HSL**

FIL 201 Intermediate Filipino (4) Continuation of 102. Co-curricular cultural activities included. Meets five hours weekly; daily lab work. Pre: 102 or equivalent. **HSL**

FIL 202 Intermediate Filipino (4) Continuation of 201. **HSL**

FIL 212 Intensive Intermediate Filipino (10) **HSL**

FIL 224 Filipino for Education (4) Continuation of 102. Lessons focus on various aspects of Philippine culture and specialized topics that cater to the needs of teachers intending to teach Filipino immigrant students or teach Filipino as a second language. Meets five hours a week; daily lab work. Pre: 102. **HSL**

FIL 225 Filipino for Education (4) Continuation of 202 or 224. **HSL**

FIL 301 Third-Level Filipino (3) Continuation of 202. Conversation, advanced reading, and composition. Co-curricular cultural activities included. Meets three times weekly. Pre: 202 or 225, or consent.

FIL 302 Third-Level Filipino (3) Continuation of 301.

FIL 303 Accelerated Third-Level Filipino (6)

FIL 315 Filipino Aural Comprehension (3) Training in comprehension of spoken authentic/simulated authentic materials presented in news broadcasts, songs, documentary narration, formal lectures, radio and television soap operas, etc. Pre: 302 or consent.

FIL 401 Fourth-Level Filipino (3) Continuation of 302. Advanced reading in current literature; discussion of cultural implications; advanced conversation and composition. Co-curricular cultural activities included. Meets three times weekly. Pre: 302 or consent.

FIL 402 Fourth-Level Filipino (3) Continuation of 401.

FIL 415 Advanced Filipino Aural Comprehension (3) This is a continuation of Filipino 315. Training in comprehension and analysis/criticism of spoken authentic materials through films. Pre: 315 or consent. **DL**

FIL 435 Filipino Translation Techniques (3) Techniques of bilingual translation: Filipino to English and English to Filipino. A-F only. Pre: 302 or consent.

FIL 451 Structure of Filipino (3) Introduction to phonology, morphology, syntax. Pre: 202 or consent. **DH**

FIL 461 Filipino Contemporary Literature (3) Selected readings in poetry, short stories, and plays from early 1900s to present. Co-curricular cultural activities included. Pre: 402 or consent. **DL**

FIL 462 Filipino Traditional Literature (3) Pre-20th-century folk literature: epics, legends, folktales, myths, and indigenous drama. Co-curricular cultural activities included. Pre: 402 or consent. **DL**

Finance (FIN)

College of Business Administration

FIN 301 Personal Finance (3) The course focuses on principles and techniques for handling personal financial decisions, including: personal budgeting, obtaining credit, life and casualty insurance, buying a home, buying an automobile, savings and investments, and retirement planning.

FIN 305 Problems of Business Finance (3) Application of financial principles to cases involving important financial decisions. Pre: BUS 314.

FIN 307 Corporate Financial Management (3) Development and analysis of modern financial theory and its implications for management decisions: market efficiency, capital asset pricing, firm investment decisions, capital structure, dividend policy, and cost of capital. Pre: BUS 314.

FIN 311 Investments (3) Introduction to various investment media and capital markets. Topics include the analysis of security returns using techniques such as beta, filter rules, and portfolio theory. Pre: BUS 314.

FIN 321 International Business Finance (3) Financial management of foreign and international business operations: the regulatory environment of international finance, financing international transactions, international capital markets, taxation. Financial decision-making in the firm. Pre: BUS 314.

FIN 330 Bank Financial Management (3) Analysis of financial institution management within the domestic economy and regulatory environment. Topics include federal reserve activities, interest rates, regulation, lending, investments, and asset/liability management. Pre: BUS 314.

FIN 331 International Banking (3) Commercial, investment, and merchant banking. Includes theory and practical applications. Topics include international lending, Euromarkets, global gap management, Forex activities, and global risk management. Pre: BUS 314.

FIN 341 Financial Aspects of New Ventures (3) Examination of underlying business models for new ventures, how to determine corresponding financial requirements, and approaches to resource acquisition. Students explore a range of financing sources and related issues of valuation and deal structure. Pre: junior standing and BUS 314; or consent.

FIN 367 Seminar in Financial Planning (3) A capstone course for financial services and planning track. This is a case study course intended to provide students the opportunity to integrate concepts from earlier courses and develop a comprehensive view of the financial planning process. A-F only. Pre: 301 and 311.

FIN 389 Applied Economic and Financial Forecasting (3) Techniques of forecasting, such as exponential smoothing, regression, and Box-Jenkins. Review of available computer software. Applications to economic analysis of industries and firms in national and international settings. Pre: BUS 310 and BUS 314.

FIN 390 (Alpha) Advanced Topics in Finance (3) Advanced topics both of a theoretical and an empirical nature in finance. Pre: BUS 314 and other courses specified for each topic (see department for specific prerequisites).

FIN 399 Directed Reading and Research (V) Reading and research in a special area of major under direction of faculty member(s). Project must include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by the department chair and the faculty adviser.

FIN 412 Options and Other Derivatives (3) Options and other derivatives. Equity options, index options and options on futures. Black-Scholes Model. Trading strategies and tactics. Contemporary developments in financial engineering. A-F only. Pre: BUS 314 or consent.

FIN 415 Security Analysis and Portfolio Management (3) Security analysis and portfolio management from standpoint of the professional analyst and institutional investor. Recent advances in security valuation models, portfolio selection, and techniques for appraising portfolio performance. A-F only. Pre: 311 and BUS 314.

FIN 444 Asian Finance (3) Financial systems, regulatory structure over financial institutions in the Asia-Pacific region. Major financial policy issues for financial sector reforms in the region. Seminar format. A-F only. Pre: BUS 314 or consent.

FIN 470 Dynamics of Asian Finance (3) Status and role of Asian business; current technological, economic, and financial developments; impact on world economy. Pre: ECON 130 and ECON 131; or consent.

FIN 490 (Alpha) Advanced Topics in Finance (3) In-depth analysis of selected current practices and issues in finance. (C) Japanese financial management; (D) financial analysis (repeatable four times); (E) retirement and employee benefit planning; (F) finance estate planning. A-F only for (E) and (F). Pre: see department for specific prerequisites for (C); 301 for (E) and (F).

FIN 625 Monetary Systems and Financial Markets (3) Supply and demand for capital in national and international markets. Nature of capital movements and role of capital in industrialization of regions and nations. Pre: BUS 610 or consent.

FIN 633 Problems in Business Finance (3) Application of financial principles and analytical techniques to financial problems. Case method. Pre: BUS 614 or consent.

FIN 634 Investment Analysis and Management (3) Techniques of security analysis, theories of investment, and the analysis of investment decisions related to portfolio planning. Pre: BUS 614 or consent.

FIN 635 (Alpha) Advanced Topics in Finance (3) Major current financial issues and problems. (C) Japanese financial management; (D) portfolio management theory; (E) capital asset analysis; (F) stocks, bonds, and modern instruments. Pre: BUS 614 or consent.

FIN 637 International Financial Management (3) Financial decision-making in an international setting; analysis of direct foreign investment; economic, accounting, and regulatory environments, including taxation; international money and capital markets; import and export financing; multinational working capital management; and risk aspects of international finance. Pre: BUS 614 or consent.

FIN 638 Bank Financial Management (3) Financial management of financial institutions. Includes theory and applications. Topics include federal reserve activities, asset/liability management, lending, investment, and the regulatory environment. Pre: BUS 614 or consent.

FIN 639 International Banking (3) Commercial, investment, and merchant banking in the international arena. Includes international lending, Euromarkets, global gap management, Forex activities, and international risk management. Pre: BUS 614 or consent.

FIN 641 Entrepreneurial Finance (3) Assessment of financial needs, arranging venture financing, assessing value to the entrepreneur and the investor(s), financial aspects of strategic planning, analyzing the tradeoffs between alternative financing choices and flexibility and control, harvesting the investment. Pre: completion of a graduate finance course or significant relevant experience or consent.

FIN 645 Advanced Capital Markets (3) Regulatory structure over capital market institutions, market developmental issues, market microstructure issues, and corporate governance, and creation of capital market infrastructure. Seminar format. Pre: BUS 614 or consent.

FIN 660 Seminar in Finance (3) In-depth analysis of selected current practices and issues in finance. Pre: BUS 614 or consent. May be repeated with change in topic.

Food Science and Human Nutrition (FSHN)

College of Tropical Agriculture and Human Resources

FSHN 181 The Chemical Nature of Food (3) Lectures, discussions, and demonstrations on how food components contribute to the functional, sensory, and safety characteristics of foods, and what changes occur in foods due to preparation, processing, and storage. Repeatable once.

FSHN 181L Food Preparation Lab (1) (1 3-hr Lab) Experiments in foods emphasizing ingredient function and standard preparation methods for food groups. Co-requisite: 181. **DY**

FSHN 185 The Science of Human Nutrition (3) Integration of natural science concepts basic to the study of human nutrition. Emphasis on nutrient requirements of healthy individuals, food sources, functions of nutrients. **DB**

FSHN 244 Comparative Nutrition (3) Digestive systems and nutrient functions, interrelationships and metabolism are compared among animal species, including humans. An intermediate, general nutrition course for Food Science and Human Nutrition and Animal Science majors. Pre: CHEM 161 or consent. Fall only. (Cross-listed as ANSC 244)

FSHN 250 Human Needs and Environmental Resources (3) (2 Lec, 1 3-hr Lab) Issues related to human needs and resource sustainability; their impact on environmental concerns and quality of life are explored from the perspective of modern agriculture and human resources. **DB**

FSHN 281 Advanced Foods (3) (2 Lec, 1 3-hr Lab) Effects of processing and preparation techniques on nutrient content. Standards of food quality; utilization of organoleptic, physical, and chemical measurements. Pre: 181, CHEM 152, and the equivalent of two years of high school algebra. **DB**

FSHN 312 Quantity Food Production (3) (2 Lec, 1 3-hr Lab) Principles of food and beverage management applied to quantity food production operations, consideration of system component including marketing, menu planning, logistical support, production, and control. Repeatable once. Pre: 181 or TIM 184, or consent. (Cross-listed as TIM 312)

FSHN 320 Food Sanitation (3) Principles of food sanitation; foodborne illnesses; hazard analysis critical control points (HACCP) program; federal and state sanitation regulations; inspection; case studies. Pre: 181, TIM 184, or consent. Spring only. **DB**

FSHN 322 Marketing Perishable Products (3) Problems, agencies, functions, costs, prices, regulations affecting marketing; proposed improvements. Pre: introductory course in economics or consent. (Alt. years) (Cross-listed as TPSS 322) **DS**

FSHN 370 Lifespan Nutrition (V) Nutritional requirements and food needs during infancy, early childhood and adolescence, and aging. One credit provided for each age group module. One to three credits. Pre: 185 and ANSC 244 or FSHN 244 or consent. Spring only. **DB**

FSHN 401 Food Processing I (4) (3 Lec, 1 3-hr Lab) Principles and applications of food dehydration, thermal processing, low temperature preservation, chemical and biochemical preservation, irradiation, packaging, manufacturing, plant sanitation, water and waste management. Pre: CHEM 162, CHEM 162L, PHYS 151, PHYS 151L, MICR 130, and MICR 140; or consent.

FSHN 403 Microbiology of Foods (3) Microorganisms encountered in foods; types of food spoilage; microbial hazards in food; methods of food preservation. Pre: MICR 130. (Alt. years) **DB**

FSHN 410 Food Service Systems Management (3) Current types of food service systems, components of these systems, and managerial methods applied to produce effective systems. Systems approach to food service management, planning, and decision-making; human resources management; and controlling functions. Pre: 312 or TIM 312, and MGT 301 or TIM 303; or consent. (Cross-listed as TIM 410)

FSHN 411 Food Engineering (3) (2 Lec, 1 3-hr Lab) Principles and application of thermodynamics, electricity, fluid mechanics, heat transfer, psychrometry, and material and energy balances of food processing and preservation. Pre: PHYS 100. (Cross-listed as BE 411) (Alt. years: spring) **DP**

FSHN 430 Food Chemistry (3) Chemical properties of food constituents discussed in relation to their effect on processing, nutrition, and spoilage. Pre: CHEM 171, CHEM 171L, CHEM 272, and CHEM 272L. (Alt. years: fall only) **DP**

FSHN 430L Food Chemistry Lab (1) (1 3-hr Lab) Application of different chemical methods in the study of food constituents—proteins, lipids, carbohydrates, pigments, enzymes, etc. Pre: 430 (or concurrent). (Alt. years: fall only) **DY**

FSHN 440 Food Safety (3) Discussion of potential microbiological, parasitic, chemical, and natural food hazards; food laws and standards; and related aspects of consumer protection. Pre: biology. (Alt. years: spring only) **DB**

FSHN 445 Food Quality Control (3) Fundamental principles of quality control in the food industry: measurement of quality parameters, utilization and integration of the individual test procedures into grades and standards of quality, sampling, and reporting results.

FSHN 451 Community Nutrition (3) (2 Lec, 1 3-hr Lab) Concepts and methods of nutrition program planning; analysis of nutritional problems of local, national, and international communities. Pre: 370, and AREC 310 or FAMR 380; or consent.

FSHN 452 Concepts in Nutrition Education (3) (2 Lec, 1 2-hr Discussion) Concepts, methods, and materials used in nutrition education of community, clinical, and school populations. Strategies used to educate groups or individuals. Repeatable once. Pre: 451 or consent.

FSHN 467 Medical Nutrition Therapy I (V) Development of dietary, anthropometric and clinical lab assessment skills measuring nutritional status. Understanding pathophysiology of disease processes, medical terminology and nutritional intervention, utilizing case studies. Repeatable once. Pre: 486 or consent. **DB**

FSHN 468 Medical Nutrition Therapy II (3) Understanding of the pathophysiology of disease processes and nutritional intervention, using medical terminology and case studies. Repeatable once. Pre: 467 or consent. **DB**

FSHN 469 Nutrition Counseling Skills (1) Theory and practice in nutritional counseling. Pre: 452 (or concurrent) and 467 (or concurrent), or consent.

FSHN 475 Human Nutrition for Health Professionals (3) Basic principles and practices; includes sources and functions of nutrients, nutritional needs and habits. Intended for students in pre-nursing and nursing, and graduate students in health professions. Pre: two semesters of chemistry, and one semester of biology or zoology; or consent. **DB**

FSHN 476 Cultural Aspects of Food Habits (3) Study of eating from behavioral perspectives. Implications for health practitioners and health education. Pre: two semesters of anthropology, sociology, or psychology; and junior and senior standing. (Alt. years: spring)

FSHN 477 Food Analysis (2) Principles of sample preparation and chemical and physical analysis of food components using current methodology. Pre: 430, CHEM 162, CHEM 253, or ENBI 402; or consent. (Alt. years: spring)

FSHN 477L Food Analysis Lab (2) (2 3-hr Lab) Application of different chemical and physical methods for the identification and quantitation of food components. Co-requisite: 477. (Alt. years: spring) **DY**

FSHN 480 Nutrition in Exercise and Sport (3) Effects of physiologic demands of exercise on nutrition. Emphasis on physiologic and biochemical basis for nutrition recommendations to enhance exercise participation and optimize athletic performance. Pre: 185 and KLS 254, or consent. (Cross-listed as KLS 480) **DB**

FSHN 482 Current Topics in Food and Nutritional Sciences (1) Pre-professional seminar in food and nutritional sciences. Seminar provides a forum for the discussion of topics of current relevance to students preparing for a career in this field. Repeatable. CR/NC only.

FSHN 485 Nutritional Biochemistry I (3) Metabolism and biochemistry of carbohydrates, lipids, and proteins, including chemical

structure, digestion, absorption, transport, cellular/molecular functions in human nutrition; integration of metabolic pathways; energy metabolism and balance, including relevance to chronic disease. Repeatable. Pre: either PHYS 142 and PHYS 142L or PHYS 302 and PHYS 302L, and ENBI 402 or BIOC 441; or consent. **DB**

FSHN 486 Nutritional Biochemistry II (3) Metabolism and biochemistry of vitamins, minerals, and dietary fiber, including chemical structure, digestion, absorption, transport, and cellular/molecular functions in human nutrition; relevance to establishing nutrient requirements and to mechanisms of chronic disease. Repeatable twice. Pre: FSHN 485 and either ANAT 301 or PHYL 301, and one of ENBI 402, BIOC 341, or BIOC 441; or consent. **DB**

FSHN 490 Field Practicum in Dietetics (4) Organized on-the-job learning experience supervised by coordinating instructor and on-site supervisor with weekly discussions. Repeatable once. A–F only. Pre: 468 (or concurrent) and 469 (or concurrent); senior standing; and consent.

FSHN 491 Topics in Food Science and Human Nutrition (V) Study and discussion of significant topics, problems. Offered by visiting faculty and/or for extension programs. Repeatable.

FSHN 492 Internship (4) Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/employer. A–F only. Pre: FSHN major and consent. (Cross-listed as ANSC 492)

FSHN 499 Directed Reading and Research (V)

FSHN 500 Master's Plan B/C Studies (1)

FSHN 601 The Science of Food Systems (3) (2 Lec, 1 2-hr Discussion) Combined lecture-discussion course on food systems as they apply to food science and human nutrition. Repeatable once. Pre: graduate FSHN standing or consent.

FSHN 607 Advanced Food Science I (3) Advanced topics in chemical and physical characteristics of foods as well as their role in human nutrition. Repeatable one time. A–F only. Pre: graduate student status with undergraduate courses in organic chemistry, microbiology, additional biological science, physics, and biochemistry. Basic knowledge of food science is expected; or consent. Fall only. (Cross-listed as MBBE 607 and TPSS 607)

FSHN 608 Advanced Food Science II (3) Advances in sensory quality and evaluation, deterioration of foods and food safety, as well as food processing technology. Repeatable one time. A–F only. Pre: graduate student status with undergraduate courses in organic chemistry, microbiology, additional biological sciences, physics, and biochemistry. Basic knowledge of food science is expected; or consent. Spring only. (Cross-listed as MBBE 608 and TPSS 608)

FSHN 609 Advanced Food Safety (3) Real and perceived food hazards, their ethical issues and implications, advanced emerging topics in food safety, and controls, including laws and regulations of food safety issues and public perception of food safety will be discussed.

Repeatable one time. A-F only. Pre: graduate student status with undergraduate courses in biochemistry, microbiology, food processing, physics and organic chemistry. Basic food science knowledge is required; or consent. Spring only. (Cross-listed as MBBE 609 and TPSS 609)

FSHN 610 Advanced Food Processing Technology (3) Principles and applications of new methods of food preservation. Repeatable once. Pre: 401 and 403; or consent. (Cross-listed as BE 610)

FSHN 630 Advanced Food Chemistry (2) (1 Lec, 1 2-hr Discussion) Combined lecture-discussion course on the chemistry of selected functional components, e.g., vitamins, minerals, flavors and pigments. Repeatable once. Pre: 430 or ENBI 402; or consent.

FSHN 681 Seminar in Food and Nutritional Sciences (1) Student presentation of literature reviews and research. Repeatable. Pre: consent.

FSHN 682 Topics in Nutritional Sciences (1) Advanced topics in nutritional sciences, from basic to applied research, including current issues in nutrition and critical analysis of current research literature. Repeatable. Pre: consent.

FSHN 683 Nutrition Policy Analysis (2) The analysis of agricultural, economic, and social policies that affect food security and nutrition. Pre: AREC 310 and consent. (Alt. years: fall 97)

FSHN 685 Progress in Human Nutrition (4) (2 Lec, 2 2-hr Discussion) In-depth discussion of selected topics relating nutrition to human health ranging from molecular, cellular, clinical to epidemiological. Fundamental concepts and applications of nutrition. Pre: 485 and 486; statistics; or consent.

FSHN 687 Advanced Lab Techniques (3) (1 Lec, 2 3-hr Lab) Advanced laboratory techniques used in food science and human nutrition research. Pre: 477, or BIOC 441 and BIOC 441L, or MBBE 402 and MBBE 402L, ; or consent. (Cross-listed as ANSC 687 and MBBE 687) (Alt. years: spring)

FSHN 699 Directed Reading and Research (V)

FSHN 700 Thesis Research (V)

FSHN 701 Topics in Food Science (1) Advanced topics in food science and technology, from basic to applied research, including current issues in food science and technology and critical analysis of current research literature. Repeatable one time. A-F only. Pre: graduate standing or consent. Spring only. (Cross-listed as MBBE 701 and TPSS 701)

FPCH

See *Family Practice and Community Health*

French (FR)

College of Languages, Linguistics and Literature

All courses are conducted in French.

FR 101 Elementary French (3) Conversation, grammar, and reading. **HSL**

FR 102 Elementary French (3) Conversation, grammar, and reading. Pre: 101 or consent. **HSL**

FR 201 Intermediate French (3) Reading, conversation, laboratory drill, composition. Pre: 102 or equivalent. **HSL**

FR 202 Intermediate French (3) Continuation of 201. Pre: 201. **HSL**

FR 258 Intermediate French Abroad (3) Intensive course of full-time formal instruction on the second-year level in French language and culture in a French-speaking country. Pre: 102 or equivalent. **HSL**

FR 259 Intermediate French Abroad (3) Continuation of 258. **HSL**

FR 260 Intensive Intermediate French Abroad (V) Intensive course of formal instruction on the second-year level in French language and culture in a French-speaking country. For semester programs only. Pre: 102. **HSL**

FR 301 French Phonetics (3) Analysis of phonological system; methods of teaching pronunciation; understanding various types of spontaneous speech. Drills in pronunciation, intonation, stress, and rhythm. Pre: 202 or consent. **DH**

FR 306 Structure of French (3) Structure of contemporary French as analyzed by descriptive linguists. Pre: 202. **DH**

FR 309 Business French (3) Reading and writing commercial materials. Pre: 202.

FR 311 Conversation (3) Systematic practice for control of spoken French. Further development of vocabulary for accurate, mature expression. Pre: 202.

FR 312 Composition (3) Emphasis on strengthening facility with language through further training in syntax, structure, and composition writing. Pre: 202.

FR 331 Survey of French Literature (3) Major authors and movements. Pre: 311 and 312; only one may be concurrent. **DL**

FR 332 Survey of French Literature (3) Continuation of 331. Pre: 311 and 312; only one may be concurrent. **DL**

FR 358 Third-Level French Abroad (3) Intensive course of full-time formal instruction on the third-year level in French language and culture in a French-speaking country. Pre: 202 or 259 or 260 or equivalent.

FR 359 Third-Level French Abroad (3) Continuation of 358.

FR 360 Intensive Third-Level French Abroad (V) Intensive course of formal instruction on the third-year level in French language and culture in a French-speaking country. For semester programs only. Pre: 202 or 260 or equivalent.

FR 361 Contemporary French Civilization (3) Survey of culture and institutions of modern France. Pre: 202. **DH**

FR 364 Survey of French Civilization (3) A historical survey of the development of French culture. The course is interdisciplinary, focusing on the relations between politics, literature, science, and the arts. Pre: 202 or consent. **DH**

FR 391 (Alpha) Topics in French Literature (3) (B) French film; (C) the Fantastic; (D) Francophone literature. Pre: 311 or 312, or consent. Repeatable with consent. **DL**

FR 405 Advanced Oral and Written Expression (3) Further development of listening, comprehension, speaking, and writing skills through viewing of French videotapes, reading French newspapers, frequent oral and written reports. Pre: 311 and 312, 306, or 358.

FR 406 French-English Translation Techniques (3) Practice in techniques based on contrastive linguistics. Translation of texts from various fields from French into English and the reverse. Pre: 306 or 309, and 312.

FR 408 Masterpieces of Medieval Literature (3) Samplings from epic, novel, verse and prose, tale, lyric poetry, chronicle, theater, didactic literature. Elementary readings in original text in editions giving modern French translation. Pre: 331. **DL**

FR 410 Masterpieces of 16th-Century Literature (3) Samplings from all major writers of the period. Readings in original text in editions giving modern French equivalents for difficult words. Pre: 331 or consent. **DL**

FR 411 Masterpieces of 17th-Century Literature (3) Principal works of major dramatists: Corneille, Moliere, Racine. Principal movements and major authors of non-dramatic prose and poetry. Pre: 331 or consent. **DL**

FR 413 Masterpieces of 18th-Century Literature (3) Pre: 332 or consent. **DL**

FR 417 19th Century French Prose and Poetry (3) Study of representative prose and poetry of the major trends of 19th century France: romanticism, realism, symbolism, aestheticism. Pre: 311, 312, 332 (332 may be taken concurrently with approval of the instructor). **DL**

FR 421 20th-Century French Theater (3) Major French playwrights and their works: Claudel, Giraudoux, Anouilh, Sartre, Camus, etc. Pre: 332 or consent. **DL**

FR 423 20th Century French Prose and Poetry (3) Study of representative prose and poetry of the major trends of 20th century France: modernism, surrealism, existentialism, postmodernism and multiculturalism. Pre: 311, 312, 332 (332 may be taken concurrently with approval of the instructor). **DL**

FR 458 Fourth-Level French Abroad (3) Intensive course of full-time formal instruction on the fourth-year level in French linguistics, civilization, culture, and literature in a French-speaking country. Pre: 359 or 360 or equivalent.

FR 459 Fourth-Level French Abroad (3) Continuation of 458.

FR 460 Intensive Fourth-Level French

Abroad (V) Intensive course of formal instruction on the fourth-year level in French language, culture and literature in a French-speaking country. For semester programs only. Pre: 360 or equivalent.

FR 491 Seminar in French Literature (3)

Study of authors, a period, or a topic. Repeatable. Pre: senior standing, Honors Program, or permission of division chair. **DL**

FR 506 French for Reading Proficiency (3)

Reading of scholarly and technical French for graduate students; open to undergraduates with consent of department chair. Not applicable to undergraduate language requirement. CR/NC only. Repeatable.

FR 601 Seminar in 20th-Century French

Literature (3) Authors and movements of modern period.

FR 602 Seminar in French Poetry (3)

Representative poems from Renaissance to the present.

FR 609 French Renaissance (3)

Poetry, theater, prose. Emphasis on Montaigne and Rabelais. Lectures, discussions, reports.

FR 620 Masterpieces of the 17th Century (3)

Dramatic or prose works of the classical period.

FR 651 Philosophic Currents in 18th

Century (3) Philosophic movements and their impact on the social, political, and literary life of the period and the modern era.

FR 661 Stylistics (3)

Designed to give mastery of structure and phrasing. Translation into French, discussion, composition.

FR 671 History of the French Language (3)

Origins and development of French language in its cultural context. Contrastive analysis.

FR 672 (Alpha) Seminar in Medieval

Literature (3) Genesis and evolution of literary genres from the 12th to 15th centuries. (B) epic and romance; (C) drama and prose; (D) lyric poetry. Repeatable.

FR 681 Seminar: The Novel in France (3)

Novels which have influenced movements or established techniques. Repeatable with consent of chair of graduate field.

FR 690 The Theater in France (3)

Historical development; major dramatists who have influenced movements or established techniques. Pre: 6 credit hours at 400 level.

FR 699 Directed Research (V) Pre: consent of department chair.

FR 735 Seminar in French Literature (3)

Study of authors or a period. Repeatable. Pre: consent of chair of graduate field.

FSHN

See *Food Science and Human Nutrition*

Geography (GEOG)

College of Social Sciences

A 100-level course, or consent of instructor, is prerequisite to all courses numbered over 299.

GEOG 101 The Natural Environment (3)

Survey of man's natural environment; distribution and interrelationships of climates, vegetation, soils, landforms. **DP**

GEOG 101L The Natural Environment Lab

(1) Analysis by use of maps, air photos, field and laboratory observation, and experimentation. Emphasis on Hawai'i and on human modification of environment. Pre: 101 (or concurrent). **DY**

GEOG 102 World Regional Geography (3)

World's major cultural regions; geographic aspects of contemporary economic, social, political conditions. **FG**

GEOG 151 Geography and Contemporary

Society (3) Elements of economic geography and resource management, population and urban geography; application to current problems of developed and underdeveloped worlds. **FG**

GEOG 300 Introduction to Climatology (3)

Elements and controls of climate. World patterns of insolation, temperature, evaporation, precipitation, atmospheric circulation. Climatic classifications. Pre: 101. **DP**

GEOG 301 Atmospheric Pollution (3)

Interdisciplinary approach: chemical, meteorological, health, economic, technological, control, and legal aspects; public awareness. Pre: 101, MET 101, or CHEM 151. **DP**

GEOG 303 General Geomorphology (3)

Introduction to geomorphological concepts, process mechanics, and relationships between forms and processes. Emphasis on various subdisciplines of geomorphology: coastal hillslopes, fluvial, aeolian, and glacial. Pre: 101 and 101L, or GG 101 and GG 101L. **DP**

GEOG 305 Water and Society (3)

Interaction of people with water at household, community, regional, national, and international scales, from cultural, political, economic, and biophysical perspectives. Pre: 101 or environmental science or ecology course. **DS**

GEOG 309 Plants, People and Ecosystems

(3) Introduction to ecosystem concept; environmental adaptations for energy and nutrient transfer; characteristics, dynamics, productivity, and distribution of principal vegetation communities. Human dominance. Pre: 101. **DB**

GEOG 312 Agriculture, Food and Society

(3) Examines historical and contemporary development of the global agro-food systems. The impacts of technological, political and economic changes to food security, environment and development. Open to nonmajors. **DS**

GEOG 314 Tropical Agrarian Systems (3)

Analysis of environmental potential and constraints and of spatial organization of economy and society of tropical agrarian systems. Emphasis on change through colonial and post-colonial periods. **DS**

GEOG 321 Regional Analysis (3)

Spatial dynamics and environmental implications of urban and rural development. Concepts of regions, process of regional development, patterns of spatial interaction, and theoretical bases for development strategies; emphasis on Hawai'i. Pre: 102 or 151. **DS**

GEOG 324 Geography of Global Tourism (3)

Tourist landscape in relation to resources, spatial patterns of supply and demand, impacts of tourism development, and models of tourist space. Flows between major world regions. Pre: 102 or 151. (Cross-listed as TIM 324) **DS**

GEOG 325 World Resources and Economic

Development (3) The pattern of world economic development. Agricultural resources and industries. Mineral resources, energy and metal industries. Manufacturing industries in development. The network of world trade, regional associations, and international economic aid. **DS**

GEOG 326 Environment, Resources and

Society (3) Human interaction with the environment. Changes in concept of conservation. Ecological, philosophical, and political aspects of present environmental dilemmas. Problems in Hawai'i, U.S., and developing world. **DS**

GEOG 328 Culture and Environment (3)

Introduction to cultural geography, the cultural landscape, and built environment. Pre: consent. **DS**

GEOG 330 Population Geography (3)

Spatial view of human population; distribution, structure, and internal dynamics. Recent geographic approaches to population problems and processes. **DS**

GEOG 335 Political Geography (3)

Political organization of area in the nation state; geographic background of international relations. Boundaries and disputed territories, exploitation of physical resources, evolving geography of the territorial sea and zones of exclusive economic interest. **DS**

GEOG 336 Geography of Peace and War (3)

Geographical factors underlying conflict in the world. Pre: 101, 102, or 151. **DS**

GEOG 340 Geography of North America (3)

Overview of the physical and cultural geography. Regions and characters. Patterns of population, natural resources, industry, agriculture, and transportation/communication networks. Pre: 101, 102, or 151. **DS**

GEOG 352 Geography of Japan (3)

Regional synthesis of physical and cultural features; economic, social, political geography; origins and development of cities. **DS**

GEOG 353 Geography of China (3) Topics: environmental parameters and resource base, ecological control and resource management, institutional and technological transformation of agriculture, industrial potential and industrial location, settlement patterns and rural urban symbiosis. **DS**

GEOG 355 Geography of South Asia (3) Introduction to physical and human geography of India, Bangladesh, Pakistan, Sri Lanka, Himalayan kingdoms. Environmental, economic, social, cultural, and political factors in development. **DS**

GEOG 356 Geography of Southeast Asia (3) Southeast Asia in world economy. Human and physical resources; returns achieved by various methods of land use. National economies; problems and prospects of modernization. **DS**

GEOG 365 Geography of the Pacific (3) Physical character of the Pacific; cultural, political, economic geography of Melanesia, Micronesia, Polynesia (except Hawai'i). **DS**

GEOG 366 Geography of Honolulu (3) Development of Honolulu and O'ahu from 1778. Evolution of function, land use, and social patterns. Contemporary planning and environmental issues arising from urban growth. **DS**

GEOG 368 Geography of Hawai'i (3) Regional, physical, cultural geography. Detailed study of people and resources. **DS**

GEOG 370 Map and Aerial Photo Interpretation (3) (2 Lec, 1 3-hr Lab) Introduction to sources, analysis, interpretation, and application of maps and aerial photographic images. Topographic maps, thematic maps, aerial photographs, satellite images, field use. For nonmajors. Pre: a 100-level geography course or GG 100, or consent.

GEOG 375 Introduction to Cartography and Air Photo (3) (2 Lec, 1 3-hr Lab) Principles of cartography: compilation and measurement from aerial photographs, alternate forms of data presentation, symbolism, design, and map projection.

GEOG 380 Analytical Methods in Geography I (3) Analytical problems of and mathematical methods for describing and interpreting geographic phenomena: measurement and scaling; dimensional analysis; structural/relational models; spatial sampling and statistics; matrix methods. Pre: 101 and 151 (or concurrent). **DS**

GEOG 385 Research Methods in Human Geography (3) Introduction to the methodologies and practice of research in human geography. Combines lectures, workshops, and assignments. Students will conduct and report upon their own research. Pre: 151. **DS**

GEOG 387 Computer-Assisted Cartography (3) Display techniques for statistical and terrain data using software packages. Graphic-to-digital-data conversion. Cartographic data structures and processing algorithms. Stresses map design. Pre: 380 or consent. **DS**

GEOG 390 Tutorial in Geography (3) Concepts and methods in geographic analysis. Application to local problems through short field trips. Research on topics of special interest. Required of majors in junior year. **DS**

GEOG 399 Directed Reading (V) Limited to senior majors with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in geography.

GEOG 400 Vegetation and the Climate System (3) Role of vegetation in the climate system; links to hydrology and biogeochemical cycling; vegetation and climate history; evolution of terrestrial ecosystems; effects of global warming. Pre: 300 or consent. **DP**

GEOG 401 Climate Change (3) Approaches to the study of past and future climate change. Pre: 300. **DP**

GEOG 402 Agricultural Climatology (3) Analyzing climatic data; relation to photosynthesis, phenological development, and crop yields. Crop-weather models as guides to improved land-use planning and agronomic practices. Pre: 300 and 312, or BOT 101 and MET 101; or consent. **DP**

GEOG 403 Fluvial Geomorphology (3) Introduction to the single most important geomorphic agent shaping the terrestrial environment. Focus on fluvial process, fluvial dynamics, fluvial landforms, and sediment transport. Pre: 303 or GG 306 **DP**

GEOG 404 Drainage Basin Geomorphology (3) The drainage basin as the fundamental unit in geomorphology. This provides the basic framework for studying the hillslope system, soil system, and fluvial system. Pre: 303 or GG 306. **DP**

GEOG 405 Water in the Environment (3) Water fluxes in the environment. Occurrence and movement of water; methods of quantification. Water balance of soil-plant system: precipitation, interception, infiltration, runoff, soil moisture, evapotranspiration, and ground-water recharge. Pre: 101 or MET 101. **DP**

GEOG 409 Cultural Biogeography (3) Coevolution of human societies and plants over the last 10,000 years. Foraging, farming and urban societies economies; spread and modification of selected plants; issues of preservation of genetic resources and traditional plant knowledge. The form and function of gardens. A-F only. Pre: 101. (Cross-listed as TPSS 409) **DS**

GEOG 410 Human Role in Environmental Change (3) Human impacts through time on vegetation, animals, landforms, soils, climate, and atmosphere. Special reference to Asian/Pacific region. Implications of long-term environmental change for human habitability. Pre: one of 101, BIOL 123, or BIOL 124 and either 326 or BIOL 310; or consent. (Cross-listed as BIOL 410) **DB**

GEOG 411 Human Dimensions of Global Environmental Change (3) Past, present, and potential future effects of global environmental change upon humanity; anthropogenic causes and catalysts; past, current, and potential human responses and policy options. Pre: 101 or consent. **DS**

GEOG 412 Environmental Impact Assessment (3) Theory and practice. Critique and writing of environmental impact statements. Field study of local projects. Pre: upper division standing in environmental discipline. **DS**

GEOG 415 Geography of Health and Disease (3) Principles, methods, and research design of medical geography. Analysis of place as applied

to questions of health and disease. Overview of global health issues. Pre: 380 or consent. **DS**

GEOG 420 Hazardous Materials (3) Introduction to state and federal environmental regulations relative to hazardous substances. Analysis of specific health and environmental impacts of hazardous waste. Pre: CHEM 151 (or concurrent) or consent. (Cross-listed as ENBI 420 and NURS 430) **DB**

GEOG 421 Urban Geography (3) Origins, functions, and internal structure of cities. Problems of urban settlement, growth, decay, adaptation, and planning in different cultural and historical settings. Dynamics of urban land use and role of policies and perceptions in shaping towns and cities. Pre: 102 or 151. **DS**

GEOG 425 The Geography of Film (3) Landscapes of film. How movies work by conveying a sense of space and a sense of place. Genres and landscapes. Pre: 151 or 328. **DH**

GEOG 435 Political Geography of Oceans (3) The oceans' evolution and relation to problems of economic development, resources, seapower, shipping, trade. Pre: 335 or consent. **DS**

GEOG 445 Decision-Making in Geography (3) Optimization under constraints, using linear, integer, and multi-objective programming. Applications to geography, planning, and resource management for problem solving, research, and theory development. Pre: junior standing. **DS**

GEOG 453 Geography of China's Modernization (3) Applies geographic principles and approaches to explore the rapid transformation of the spatial structure of recent socio-economic development in China. Special emphasis given to resource management and environmental quality, which are important factors in sustainable development. Course is designed to explore China's role in the world economy of the 21st century and to meet the needs of students majoring in business administration, international trade, economics, political science and Asian studies. Pre: 102 or consent. **DS**

GEOG 455 Resource Management (3) (2 Lec, 1 3-hr Lab) Hands-on development of analytical models for application to problems of water resource, coastal fisheries, agroforestry, and/or land management. Focus on problems facing Hawai'i and the Pacific. Pre: 101, 445 or AREC 410 (or equivalent), and SOCS 225 (or equivalent); or consent. May be taken concurrently with 445 or AREC 410. **DS**

GEOG 468 (Alpha) Topics in Hawaiian Geography (3) Selected topics in the geography of Hawai'i. Repeatable. Pre: 368. **DS**

GEOG 470 Remote Sensing (3) (2 Lec, 1 3-hr Lab) Air photo interpretation, application in natural and social science research, electromagnetic spectrum, exotic sensors, satellite imagery interpretation. Research project, lab. Pre: 375 or consent. **DS**

GEOG 472 Field Mapping (3) Techniques for field measurement and recording of cultural and physical data. Field sketching, Brunton surveying, plane table mapping, oblique photo compilation, topographic mapping, and representation of field data. Pre: 375. **DS**

- GEOG 475 Cartographic Illustration (3)** (3 2-hr Lab) Tools and methods for preparation of cartographic materials for illustration and publication; drafting and reproduction. Pre: 375 (or concurrent) or consent.
- GEOG 476 Advanced Cartography (3)** (3 2-hr Lab) Special topics: computer mapping, relief representation, map reproduction methods, use of color, analytic map interpretation, experimental cartography. Pre: 375 and 475, or consent.
- GEOG 480 Advanced Quantitative Methods in Geography (3)** Multivariate analysis, factor analysis, and analysis of variance, dummy variables, canonical correlation analysis; application to geographic research. Pre: 380 or consent. **DS**
- GEOG 487 Advanced Computer-Assisted Cartography (3)** Concepts underlying computer programming for cartographic applications. Pre: 375 and FORTRAN programming ability, or consent.
- GEOG 488 Geographic Information Systems (3)** Design, implementation, and use. Database construction and documentation. Techniques for spatial data manipulation and display. Evaluation of existing systems. Student research projects. Pre: 375. **DS**
- GEOG 490 Senior Thesis (3)** Preparation of research paper under individual faculty supervision. Recommended for admission to graduate program. Pre: 390.
- GEOG 491 Teaching Geography (6)** For geography majors who lead, under supervision, a freshman seminar section of geography. Pre: senior standing and consent.
- GEOG 492 Practicum in Geography (V)** Internship in applied geography under professional and faculty supervision. Field placement integrated with academic study. Repeatable to 6 credit hours maximum. Pre: senior major and consent.
- GEOG 600 Seminar in Climatology (3)** Methods of determining energy budget and water balance; applications in agriculture, hydrology, climatic classifications. Theory of climatic change. Bibliography. Pre: 300 or consent.
- GEOG 618 Human Environment Systems (3)** Role and potential of systems science in analysis of human environment interaction, especially resource management. Framework and methodology for problem structuring; overview of techniques. Pre: graduate standing or advanced undergraduate standing with consent.
- GEOG 628 (Alpha) Resource Systems (3)** Resource development and use in a time perspective. Ecological and socioeconomic impacts, concepts, definitions, and methodology. (B) renewable; (C) nonrenewable. Pre: consent.
- GEOG 631 Urban and Regional Planning in Asia (3)** Key issues and policies in urban planning, rural-urban relations, rural regional planning, and frontier settlement in Asia and the Pacific. Repeatable. Pre: PLAN 600 or consent. (Cross-listed as PLAN 630)
- GEOG 632 Field Study of Population (3)** Concepts and techniques in field study of nonliterate (tribal and peasant) populations. For graduate students in social sciences planning field research that involves taking census. Pre: consent. (Cross-listed as ANTH 632)
- GEOG 633 Globalization and Urban Policy (3)** Urbanization and urban policies in the Asia and Pacific region with focus on the international dimension of national and local spatial restructuring. Pre: 630 or consent. (Cross-listed as PLAN 633)
- GEOG 635 Economic Analysis for Urban Planning and Policy (3)** Reviews and builds skills in applying basic theories and principles of urban and regional economics in contemporary U.S., Hawai'i and Asia-Pacific. Repeatable one time. Pre: consent. (Cross-listed as PLAN 603)
- GEOG 637 Environment and Development (3)** Theories and practice of development; how changing development paradigms shape different ideas concerning the environment and the management of natural resources; emerging debates in development and environment in post-modern era. (Cross-listed as PLAN 637)
- GEOG 638 China's Economic and Regional Development (3)** A review of contemporary China's economic and regional development, examining the changing plans, policies and performances in the Socialist Development and Market Transition eras, and the implications on spatial patterns. Pre: 353 or PLAN 630; or consent. (Cross-listed as PLAN 638)
- GEOG 639 Planning for Rural Development (3)** Rural development theories and policies. Planning and spatial aspect of Asian and Pacific development: integrated development, agropolitan development and rural industrialization. Pre: PLAN 630 or consent. (Cross-listed as PLAN 639)
- GEOG 651 Seminar in Geography of China (3)** Repeatable. Pre: consent.
- GEOG 652 Contemporary Japan Seminar (3)** Selected physical and human features that represent economic, social, and political life of modern Japan. Repeatable. Pre: consent. (Cross-listed as ASAN 652)
- GEOG 653 Seminar in Geography of South Asia (3)** Repeatable. Pre: consent.
- GEOG 654 Seminar in Geography of Southeast Asia (3)** Repeatable. Pre: consent.
- GEOG 665 Seminar in Geography of the Pacific (3)** Investigation of geographic problems of Melanesia, Micronesia, Polynesia. Repeatable. Pre: consent.
- GEOG 691 History of Geographic Thought (3)** Development from early Greece to present. Origins of current trends and relations to contemporary thought in natural and social sciences.
- GEOG 692 Faculty Seminar Series (1)** Graduate seminar required of all MA students and recommended for PhD students. Single credit course in which faculty present ongoing research in their fields. Pre: consent. Co-requisite: 695.
- GEOG 693 Technology and Natural Risks Methods of Analysis (3)** Survey of tools for evaluating risks to human health from technological and natural hazards. Historical and international context of methods. Pre: consent.
- GEOG 695 Concepts and Theories in Geography (3)** Concepts, theory, models. Geographic approaches to spatial and environmental problems. Required of entering graduate students unless waived by department. Pre: consent.
- GEOG 696 Research Design/Methods in Geography (3)** Elements of research design, practical field experience, exposure to research and ideologies, broad exposure to heritage and ethos of the discipline. Pre: 695.
- GEOG 699 Directed Research (V)** CR/NC only. Pre: consent.
- GEOG 700 Thesis Research (V)**
- GEOG 703 Geomorphology (3)** Current understanding of geomorphological concepts, processes, and the dynamic relationship between human landscape modification and system response. Pre: one of 303, 403, or 404; or consent.
- GEOG 710 (Alpha) Special Topics (3)** Study and discussion of significant topics, problems. Repeatable.
- GEOG 728 Seminar: Resource Management in Asia-Pacific (3)** Examination of resource management problems in Asia and the Pacific. Problems of resource use—agriculture, forestry, energy, minerals, ocean, air quality. Pre: AREC 458 or ECON 458, or consent.
- GEOG 750 Research Seminar: Biogeography (3)**
- GEOG 752 Research Seminar: Resource Management (3)**
- GEOG 753 Research Seminar: Population Geography (3)**
- GEOG 755 Research Seminar: Urban Geography (3)**
- GEOG 756 Research Seminar: Aspects of Development (3)**
- GEOG 757 Research Seminar: Cultural Geography (3)**
- GEOG 758 Research Seminar: Conservation (3)**
- GEOG 761 Research Seminar: Cartography (3)**
- GEOG 762 Research Seminar: Remote Sensing (3)**
- GEOG 763 Research Seminar: Agricultural Geography (3)**
- GEOG 764 Research Seminar: Social Geography (3)**
- GEOG 765 Research Seminar: Marine Geography (3)**
- GEOG 766 Society and Space (3)** Advanced seminar on social production of space. Topics include spatial metaphor in social theory; western spatiality from the renaissance through the enlightenment, modernity and post modernity; and geography of the body, home, landscape, and nation. Pre: Graduate standing or consent.
- GEOG 800 Dissertation Research (V)**

Geology and Geophysics (GG)

School of Ocean and Earth Science and Technology

GG 101 Dynamic Earth (3) The natural physical environment; the landscape; rocks and minerals, rivers and oceans; volcanism, earthquakes, and other processes inside the earth; effects of human use of the Earth and its resources. Field trip. **DP**

GG 101L Dynamic Earth Lab (1) (1 3-hr Lab) Hands-on study of minerals, rocks, and topographic maps. Examine volcanism, hydrology, coastal processes and hazards, geologic time and earthquakes. Field trips to investigate landslides, beaches and O'ahu geology. A-F only. Pre: one of 101, 103, 108, or 168 (or concurrent). **DP**

GG 103 Geology of the Hawaiian Islands (3) Hawaiian geology and geologic processes: origin of Hawaiian islands, volcanism, rocks and minerals, landforms, stream and coastal processes, landslides, earthquakes and tsunamis, groundwater, geologic and environmental hazards. Field trip. **DP**

GG 104 Volcanoes in the Sea (4) Hawaiian geology and geologic processes: origin of Hawaiian islands, volcanism, rocks and minerals, landforms, stream and coastal processes, landslides, earthquakes and tsunamis, groundwater, geologic and environmental hazards. Frequent required field trips. Credit not given for both 103 and 104. **DP**

GG 105 Voyage through the Solar System (3) An illustrated voyage through the solar system. The origin, evolution, and present state of the sun and each planet based on recent results. **DP**

GG 108 Controversial Topics in Geology and Geophysics (3) Earth-science topics of current societal impact or intellectual implications. Students will select three from a list of six topics, such as volcanoes, climate, solar system, plate tectonics, evolution and extinction, and water. Each topic will be considered in a mini-course module five weeks in length. **DP**

GG 168 Planetary Science in the Classroom (4) (2 3-hr Lec/Lab) Combined lecture-lab course for pre-service and in-service teachers. Covers basics of planetary geology (volcanism, impact cratering, remote sensing, etc.) through inquiry-based, hands-on laboratory activities suitable for use in K-12 classrooms. Field trip.

GG 200 Geological Inquiry (4) (3 Lec, 1 3-hr Lab) Principal contributions of Earth science to Western culture: origin and age of the solar system and Earth, interior of Earth; records of organic evolution and past environments; predictable process and structure. Pre: 101L, or concurrent; or consent. **DP**

GG 300 Volcanology (3) Volcanic eruptions and their consequences. Includes models for volcanic eruptions including explosive eruptions and lava flows, monitoring of active volcanoes, evaluation and impacts of volcanic hazards, and mitigation of volcanic risk. Field trips. Normally fall. Pre: 200 or consent. **DP**

GG 301 Mineralogy (4) (2 Lec, 1 3-hr Lab) Crystallography, crystal chemistry, phase equilibria, and crystal structures. Also covers mineral optics and identification and includes an

introduction to modern methods of mineralogy and crystallography. Pre: 200, CHEM 162 and CHEM 162L or CHEM 171 and CHEM 171L; or consent. **DP**

GG 302 Igneous and Metamorphic Petrology (3) (2 Lec, 1 3-hr Lab) Survey of composition, classification, and occurrence of igneous and metamorphic rocks. Hand-specimen identification and optical petrography of igneous and metamorphic rocks. Development of critical thinking and writing skills. Pre: 301 or consent. **DP**

GG 303 Structural Geology (3) (2 Lec, 1 3-hr Lab) Introduction to (a) the geometry, kinematics, and mechanics of crustal deformation, and (b) continuum mechanics in geology. Develops skills in three-dimensional thinking through geologic maps, cross sections, various projections, experiments, and vector analyses. Pre: 200 and MATH 241 and PHYS 151 or PHYS 170; or consent. **DP**

GG 304 Physics of Earth and Planets (4) Survey of terrestrial geophysics: formation, orbits, shapes of planets. Gravity, tides, isostasy. Earthquakes, seismology, Earth's interior. Geomagnetism. Plate tectonics. Pre: 303, PHYS 152L or PHYS 272L, MATH 241; or consent. **DP**

GG 305 Geological Field Methods (3) Methods used in geological investigations in the field. Eight hours on Saturday in the field. Pre: 301, 303, and 308. Recommended: 302 and 309. **DP**

GG 308 Earth History (3) (2 Lec, 1 3-hr Lab) Physical, chemical, and biological evolution of Earth from its formation to modern times. Fossils applied to dating, stratigraphic correlation, and paleoenvironmental interpretation. Pre: 200 or consent. Fall only. **DP**

GG 309 Sedimentology and Stratigraphy (4) (3 Lec, 1 3-hr Lab) Principles of sedimentology, sedimentary petrology, geochemistry and stratigraphy. Description and discussion of modern and past processes and environments that form sedimentary rocks, properties of sedimentary rocks and interpretation of these properties and stratigraphic relationships in terms of Earth history. Repeatable one time. Pre: 301 and 308; or consent. Spring only. **DP**

GG 312 Geomathematics (3) Mathematical methods of geologic and geophysical science. Emphasis on application to earth-science problems using linear algebra, vector calculus, partial differential equations, and numerical solutions. Pre: MATH 242 or consent. (Cross-listed as OCN 312)

GG 313 Geological Data Analysis I (3) Exploratory data analysis, probability theory and statistics, curve interpolation and approximation, simple and multiple regression, multivariate analysis, and analysis of directional data. Pre: MATH 242 (or concurrent) or consent.

GG 325 Fundamentals of Geochemistry (3) Lecture course on theory and applications of geochemistry and environmental chemistry to Earth and ocean sciences. Topics: Chemistry of Hydrosphere-Geosphere-Biosphere system, origin/differentiation of Earth/Solar System. Pre: 200, MATH 241, CHEM 162 (or concurrent); or consent. Fall only. **DP**

GG 399 Directed Reading (V) Individual reading in geology and geophysics. Pre: consent.

GG 401 Introduction to Mineral Physics (3) Scientific study of the materials that make up the Earth. Properties of minerals on micro- and macro-scales; their properties and behavior. Pre: 302 and PHYS 272, or consent. (Alt. years) **DP**

GG 402 Hawaiian Geology (3) Consists of lectures, discussions, and field trips about the geology of the Hawaiian islands. Focus on geological processes and the geologic history of all islands will be covered. Pre: 302 and 303; or consent. **DP**

GG 407 Energy and Mineral Resources (3) Origin and distribution of ore deposits, mineral fuels, and industrial minerals. Coverage and detail will depend partly on student interest and background. Pre: 301 and 303; or consent. **DP**

GG 410 Undergraduate Seminar (1) Seminar format, examination of current research topics and methodologies in the field of Geology and Geophysics. Pre: 101 and 200.

GG 420 Quaternary Geology (3) Quaternary records and physical processes of global and local environmental change; dating techniques; late Pleistocene and Holocene climate change, sea-level movements, and ice volume. Repeatable one time. Pre: 309 or consent. **DP**

GG 421 Geologic Record of Climate Change (3) This course explores the climatic responses of Earth's major systems and subsystems (ice, water, vegetation, land) and traces their interactions through geologic history. Open to nonmajors. A-F only. Pre: 101 or OCN 310 or consent.

GG 423 Marine Geology (3) Sediments, structure, geophysics, geochemistry, history of ocean basins and margins. Pre: 302 and 308; or consent. (Cross-listed as OCN 423) **DP**

GG 425 Environmental Geochemistry (3) Lecture course on theory and applications of geochemistry to contaminant/pollutant distribution in the Hydrosphere-Geosphere-Biosphere system. Topics include aqueous geochemistry, thermodynamics, kinetics, organic and isotope chemistry of environmental contaminants. Pre: 325 or consent. Fall only. **DP**

GG 430 Geology and Mineral Resources of Asia (3) Geologic setting of ore, industrial mineral, and fuel deposits of Asia, its adjacent islands, and shallow seas. Probability of future discoveries in major provinces. Pre: 101, 103, or consent. (Alt. years) **DP**

GG 444 Plate Tectonics (3) Quantitative geometrical analysis techniques of plate tectonic theory; instantaneous and finite-rotation poles; triple-junction analysis; plate-boundary stresses. Pre: 200 or consent. **DP**

GG 450 Geophysical Methods (4) Basic geophysical theories, exploration, and interpretation. Seismic reflection and refraction, gravity, and electromagnetics. Constraints on models of Earth's internal structure and composition. Pre: 304 and 312, or consent. **DP**

GG 451 Earthquakes (3) Earthquake seismology. Elastic properties of rocks, earthquake waves, causes, detection, location, and prediction

of earthquakes; tsunami generation and other effects of earthquakes. Pre: 304 or consent. (Alt. years) **DP**

GG 454 Engineering Geology (3) Solutions of engineering geology problems by geologists and engineers through recognition, characterization, evaluation, and assessment of geologic processes and geologic conditions that impact people, engineering structures, and engineering operations. Group format. Pre: junior or senior standing in geology and geophysics or civil and environmental engineering; or consent. **DP**

GG 455 Hydrogeology (4) (3 Lec, 1 3-hr Lab) Occurrence, characteristics, movement, quality, development, and contamination of water in the Earth's crust. Pre: MATH 242 or consent. **DP**

GG 460 Geological Remote Sensing (4) (3 Lec, 1 3-hr Lab) Combined lecture-lab course on the concepts behind, geologic uses for, and techniques of satellite and airborne remote sensing. Lab work will consist of computer image processing. Field trips. Open to nonmajors. Pre: 101 and MATH 241 (or concurrent), or consent. Spring only. **DP**

GG 466 Planetary Geology (3) Comparative geology of the terrestrial planets (moon, Mars, Mercury, Venus, and Earth); impact cratering, volcanism, tectonism, geomorphology, weathering; manned and unmanned space exploration. Pre: any 100-level GG course. **DP**

GG 491 Teaching Geology (4) For GG majors who lead, under supervision, a freshman seminar section of GG 101. Credit not applicable to major. Pre: 302, 303, and 309. **DP**

GG 499 Undergraduate Thesis (3) Directed research course in which the student carries out a scientific project of small to moderate scope with one or more chosen advisers. The student must complete a document in the style of a scientific journal article. Pre: consent.

GG 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

GG 593 Earth and Planetary Sciences Workshops (V) Designed for in-service school professionals to learn new approaches and concepts in the fields of earth and planetary sciences. Repeatable for credit. Credits earned in these courses cannot be applied for graduate degrees.

GG 600 Equations of Geophysics (3) Least-square approximation of functions by orthogonal series; potential, wave heat flow equations; boundary value problems; Bessel Hankel functions, spherical harmonics, potential theory, plane waves, spherical waves; emphasis on geophysics application. Pre: MATH 244, PHYS 400, or consent.

GG 601 Explosive Volcanism (3) Explosive volcanic eruptions: from causes to consequences. Review of current physical volcanology including ascent and fragmentation of magma, transport and deposition processes in pyroclastic eruptions, volcanic crisis management and volcanic eruption scenario. Seven-day fieldtrip. A-F only. Pre: 300 or consent.

GG 602 Theoretical Petrology (4) Derivation of phase diagrams from basic thermodynamics principles. Equilibria of natural silicate systems. Crystal chemistry, kinetics, diffusion, etc.,

Applied to igneous and metamorphic petrology. Pre: 302, 325, and CHEM 351 (or concurrent); or consent. (Alt. years)

GG 603 Petrology of Ocean Lithosphere (3) (2 Lec, 1 3-hr Lab) Petrogenesis of the oceanic lithosphere, including mantle processes and rocks from mid-ocean ridges, seamounts, oceanic hotspots, back-arc basins, and intra-oceanic arcs. Pre: 302 or consent. (Alt. years)

GG 605 Groundwater/Engineering Geology (2) Selected topics. Repeatable. Pre: consent.

GG 606 Current Events in Volcanology (1) Discussion of active areas of volcanism and new publications on volcanology. CR/NC only. Pre: 300 (or concurrent) or consent. Fall only.

GG 608 Isotopes and Trace Elements (3) Principles of radiogenic and stable isotope, and trace element geochemistry as applied to igneous petrology, mantle dynamics, plate tectonics, and terrestrial evolution. Pre: 302 and 325. (Alt. years)

GG 610 Graduate Seminar (1) Seminar course in which students present a 15- to 20-minute talk on their research or a related topic. Meets once a week with two to three talks per meeting. Graduate students are required to register for this course once per year. Repeatable.

GG 611 Accelerated Introduction to Geology I (3) Lecture course presenting a rapid-paced survey of geology and geophysics for graduate students. Includes origin of the solar system, tectonics, volcanology, whole-earth composition, phase transformations, petrology (igneous, metamorphic, and sedimentary), historical geology, and hydrology. Saturday field trips. Fall only.

GG 612 Accelerated Introduction to Geology II (3) Lecture course presenting a rapid-paced survey of geology and geophysics for graduate students. Includes Earth structure, rheology, seismology, dynamics, origin of continents, global change, energy sources, environmental geology, and natural hazards. Saturday field trips. Spring only.

GG 614 Advanced Field Study (V) Shipboard and land-based projects. Repeatable. Pre: consent.

GG 615 Micropaleontology (3) (2 Lec, 1 3-hr Lab) Taxonomy and identification of microfossils and their recent representatives. Use in determining age, paleoecology, provenance of sedimentary rocks. Pre: 308 or consent.

GG 621 Electron Microprobe Analysis (2) Combined lecture-lab course on the principles of geochemical analysis by electron microprobe and X-ray fluorescence. Hands-on experience with the electron microprobe. Required to operate the UH electron microprobe. Pre: 301 or consent.

GG 625 Seminar in Marine Geology and Geophysics (V) Current research topics. Repeatable. Pre: 423 or OCN 622, or consent.

GG 632 (Alpha) Numerical Modeling in Geology (3) Finite difference, finite element, and various other modeling techniques applied to geological and geophysical problems. (B) physical modeling; (C) recursive and time series modeling. Pre: MATH 243 and consent.

GG 638 Earth System Science and Global Change (3) Global view of the planet and how it functions as an integrated unit. Biogeochemical processes, dynamics, and cycles, and analysis of natural and human-induced environmental change. Chemical history of ocean-atmospheric-sediment system and co-evolution of the biota. Repeatable once. Pre: BS in environmentally related science or one year of chemistry, physics, and calculus; or consent. (Cross-listed as OCN 638)

GG 639 Stable Isotope Biogeochemistry (3) Stable isotope geochemistry applied to questions of biogeochemical cycling in the oceans, sediment diagenesis, paleoceanography, environmental geochemistry and ecology. Pre: 325 or consent. (Alt. years)

GG 641 Origin of Sedimentary Rocks (3) (2 Lec, 1 3-hr Lab) Environment of deposition and subsequent diagenesis of modern and ancient sediments. Petrogenesis of siliciclastic, carbonate and orthochemical rocks. Sedimentology, sedimentary petrography and geochemistry. Repeatable. Pre: consent. (Cross-listed as OCN 641)

GG 642 Elemental Composition Changes (2) Changes in the chemical composition of meteorites, bulk Earth, Earth's mantle and crust, sedimentary rocks, hydrosphere and biosphere, and underlying principles. Pre: 325 or OCN 623. (Cross-listed as OCN 642) (Alt. years)

GG 644 Sedimentary Geochemistry (3) Geochemical thermodynamics and kinetics and their use in interpreting the origin of sediments, sedimentary rocks, and natural waters over a range of pressure-temperature conditions. Pre: CHEM 171, or CHEM 161 and CHEM 162; PHYS 152; and MATH 242; and consent. (Cross-listed as OCN 644) (Alt. years)

GG 650 Seismology (3) Elasticity, wave equations, body waves, surface waves, free oscillations, seismometry, seismogram interpretation, tectonics, inversion, source theory, and waveform modeling. Pre: 600.

GG 651 Geomagnetism and Cosmic Magnetism (3) Magnetic fields of Earth, planets, stars, and galaxies; dynamo theories; paleomagnetism; terrestrial and lunar rock magnetism; planetary, regional, and local geomagnetic sounding. Pre: consent. (Alt. years)

GG 652 Gravity, Magnetism, Heat Flow (3) Uses of selected potential field and electromagnetic methods in tectonics or in exploration. Processing and interpretation techniques; modeling and inversion. Pre: consent. (Alt. years)

GG 653 Mantle Mineralogy (3) Basic principles of thermodynamics, crystal chemistry, and phase transformation, with emphasis on their relevance to minerals under high pressure/temperature; survey of modern technologies on high pressure research, and evaluation of the proposed mineralogical models for the Earth's mantle. Pre: consent.

GG 654 Groundwater Contamination (3) Principles of groundwater chemistry; chemical evolution in natural groundwater flow systems; sources of contamination; mass transport processes; hydrochemical behavior of contaminants. Pre: 455.

GG 655 Groundwater Modeling (3)

Introduction to the finite-difference method; steady-state and transient groundwater flow in saturated and unsaturated media; applications to groundwater recharge and aquifer evaluation. A-F only. Pre: CEE 627 or consent. Fall only. (Cross-listed as CEE 623)

GG 656 Transport Modeling (3) Introduction to the finite-element; transport of mass and heat in groundwater flow systems; applications to groundwater contamination. A-F only. Pre: CEE 623 or consent. Spring only. (Cross-listed as CEE 624) (Alt. years)

GG 665 Current Readings in Planetary Science (1) Review of current literature and research in planetary sciences; active student participation required. Repeatable. Pre: consent.

GG 666 Planetary Surfaces (3) Comparative geology of terrestrial planets (moon, Mars, Mercury, Venus, and Earth); impact cratering, volcanism, geomorphology; remote sensing; manned and unmanned space exploration. Pre: 601, ASTR 630, or consent. (Alt. years)

GG 667 Planetary Atmospheres: Origin and Evolution (3) Atmospheres of terrestrial and Jovian planets. Emphasis on physical and chemical processes. Pre: consent.

GG 669 Formation of the Solar System (3) Nucleosynthesis; collapse of interstellar clouds, accretion of planets, meteorites, asteroids, comets as probes of the early solar system; cosmochemical processes; equilibrium condensation; isotopic anomalies; other solar systems. Pre: 325, ASTR 630, or consent. (Alt. years)

GG 670 (Alpha) Geology of Planetary Bodies (3) Composition and geologic evolution of the planets and their moons; impact cratering; volcanism; tectonism; remote sensing; manned and unmanned exploration and future missions. (B) the moon; (C) Mars. Pre: 666 or consent.

GG 671 (Alpha) Remote Sensing (3) Spectroscopic, radar, thermal, and other methods for remote sensing applied to geologic problems; instrumental design and data analysis. (B) planets; (C) volcanoes. Pre: 666 or consent.

GG 672 Seminar in Tectonics (3) Evolution of ocean basins, margins, foldbelts, and platforms, from plate tectonics and regional syntheses of structure, petrology, geophysics, and stratigraphy. Repeatable. Pre: consent. (Cross-listed as OCN 672) (Alt. years)

GG 673 (Alpha) Extraterrestrial Material (3) Mineralogical and compositional characteristics of extraterrestrial matter and the implications for the origin and history of the solar system. The subject is treated in two full-semester courses: (B) meteorites; (C) petrologic evolution of the moon. Pre: consent.

GG 674 Paleocyanography (V) Study of the paleocyanographic and paleoclimate evolution of the Earth's oceans, atmosphere and biosphere. Repeatable. Pre: consent. (Cross-listed as OCN 674)

GG 675 The Generic Mapping Tools (3) Introduction to the Generic Mapping Tools (GMT). Processing of scientific data and the automated preparation of maps and illustrations using GMT on UNIX workstations, with introduction to UNIX and the C shell environment. CR/NC only.

GG 681 Continuum Mechanics (3) Continuum mechanics in geophysics, planetary physics, and structural geology. Tensors; stress, strain, flow; conservation of mass, momentum, and energy; rheology; geophysical fluid dynamics. Pre: PHYS 400, MATH 402, or consent.

GG 685 Geophysical Inverse Theory (3) Least squares, the generalized inverse, singular value decomposition, maximum likelihood, Backus-Gilbert, Franklin, and Tarantola methods; applications. Pre: 600 or consent. (Alt. years)

GG 691 Geological Data Analysis II (3) Analysis of sequential data, Markov processes, series of events, spectral analysis, filtering, quantitative map analysis, and introduction to fractals. Pre: 313 and MATH 241, or consent.

GG 699 Directed Research (V) CR/NC only. Pre: consent.

GG 700 Thesis Research (V)

GG 701 Physics of the Earth's Interior (3) Interpretation of geophysical and laboratory data to understand elastic and anelastic properties, composition, phase relationships, temperature distribution in the Earth. Pre: 653 or consent. (Alt. years)

GG 710 Selected Topics in Geology and Geophysics (2) Content to be announced. Repeatable. Pre: consent.

GG 711 Special Topics in Geology and Geophysics (3) Content to be announced. Repeatable. Pre: consent.

GG 733 Seminar in Igneous Petrology (2) Current research on the generation, differentiation, and emplacement of magmas. Pre: 603 and consent. (Alt. years)

GG 734 Seminar in Metamorphic Petrology (2) Current research on the application of phase diagrams to metamorphism. Relation to metamorphism with tectonic setting. Pre: 602. (Alt. years)

GG 735 Seminar in Geochemistry I (2) Selected topics of current geochemical research; application to geologic problems. Pre: 302 and 325, or consent. (Alt. years)

GG 800 Dissertation Research (V)

German (GER)

College of Languages, Linguistics and Literature

All courses are conducted in German.

GER 101 Elementary German (3) Conversation, grammar and reading. **HSL**

GER 101A Elementary German (3) Conversation, grammar and reading. **HSL**

GER 102 Elementary German (3) Conversation, grammar and reading. Pre: 101 **HSL**

GER 102A Elementary German (3) Conversation, grammar and reading. Pre: 101. **HSL**

GER 201 Intermediate German (3) Conversation, grammar, reading and writing. Pre: 102. **HSL**

GER 202 Intermediate German (3) Conversation, grammar, reading and writing. Pre: 201. **HSL**

GER 204 Intermediate German: Business and Related Fields (3) Intermediate German conversation, reading, and writing with a special emphasis on the vocabulary and cultural context of the German business world. Pre: 201. **HSL**

GER 260 Intensive Intermediate German Abroad (V) Intensive course of formal instruction on the second-year level in German language and culture in Germany. Pre: 102. **HSL**

GER 301 Phonetics and Pronunciation Practice (3) Analysis of the German phonological system and practice in pronunciation. Pre: 202. **DH**

GER 303 Reading and Writing (3) Further development of reading and writing skills through the study of modern short stories by major German authors such as: Böll, Borchert, Frisch, Kafka, and Novak. Pre: 202. **DL**

GER 304 Advanced German: Business and Related Fields (3) Advanced German conversation, reading, and writing with a special emphasis on the vocabulary and cultural context of the German business world. Pre: 204.

GER 305 Composition and Conversation (3) Intensive practice in writing and speaking, with selected grammar review. Pre: 202 or consent.

GER 306 Composition and Conversation (3) Continuation of 305. Pre: 305.

GER 307 German for Reading I (3) Development of reading skills through the study of short scholarly, technical, and literary texts. Pre: 202 or consent.

GER 308 German for Reading II (3) Continuation of 307. Pre: 307 or consent.

GER 312 Introduction to German Literature (3) Representative reading and discussion of cultural periods in chronological order from c.1700; brief reference to earlier periods. Pre: 303 (or concurrent) with consent. **DL**

GER 313 Introduction to German Literature (3) Continuation of 312. Pre: 312 or approval of instructor. **DL**

GER 360 Intensive Third-Level German Abroad (V) Intensive course of formal instruction on the third-year level in German language and culture in Germany. Pre: 202 or 260.

GER 361 Introduction to German Civilization (3) German cultural heritage and contemporary German civilization in Austria, Germany, and Switzerland. Pre: 305 (or concurrent). **DH**

GER 371 Practical German for use in Hawai'i (3) Use of German in practical situations in Hawai'i, e.g., in travel industry. Pre: 305 (or concurrent).

GER 401 German Literary Criticism (3) Role of literary criticism, function of literature, literary techniques, and German schools of literary theories. Pre: 312 or 315. **DL**

GER 407 Early German Literature to 1500 (3) Beginnings, mythology, and literary documents; courtly literature, including

Wolfram's *Parzival*; lyrics of Minnesingers; heroic epic, mysticism, and church drama. Pre: 306 or consent. **DL**

GER 408 German Literature from 1500 to 1700 (3) Reformation, humanism; folksong chapbooks, popular theater, early novel, baroque poetry, drama, novel. Pre: 306 or consent. **DL**

GER 409 Enlightenment—Sturm und Drang (3) Lessing and his contemporaries; early dramas of Goethe and Schiller; Goethe's early lyrics. Pre: 306 or consent. **DL**

GER 410 Classicism (3) Classical writings of Goethe and Schiller; some reference to other writers. Pre: 306 or consent. **DL**

GER 411 Romanticism (3) Novalis, Tieck, E. T. A. Hoffmann, Eichendorff, etc. Pre: 306 or consent. **DL**

GER 412 Poetic Realism (3) Masterworks by Büchner, Raabe, Storm, Keller, Meyer, Hebbel, and others. Pre: 306 or consent. **DL**

GER 414 German Literature from 1880 to 1950 (3) Theater, prose, poetry exemplifying literary currents from naturalism to expressionism and Nullpunkt literature. Hauptmann, Rilke, Trakl, Kafka, Brecht, Böll, etc. Pre: 306 or consent. **DL**

GER 415 Contemporary German Literary Activity (3) Handke, Becker, Weiss, Bernhard, Walser, Böll, Grass. Pre: 306 or consent. **DL**

GER 428 Survey of German Lyric Poetry (3) Individual interpretation complements lectures on theoretical and historical background. Pre: 306 or consent. **DL**

GER 432 Stylistics (3) Analysis of prose selections through identification of their structural and semantic elements. Written and oral styles; specific structural elements and their semantic effect. Pre: 306 or consent. **DL**

GER 450 The Structure of German (3) Analysis of German phonology, syntax, and semantics. Pre: 301 and 306; or consent. **DH**

GER 451 Introduction to the History of German Language (3) Survey of important developments from beginnings to present. Pre: 301 and 306; or consent.

GER 460 Intensive Fourth-Level German Abroad (V) Intensive course of formal instruction on the fourth-level in German language and culture in a German-speaking country. Pre: 360 or equivalent.

GER 615 History of the German Language (3) Development from Middle High German to present; fundamentals of linguistics.

GER 616 History of the German Language (3) Development from the beginnings through the Old High German period. Pre: 615 or consent.

GER 632 German Stylistics (3) Concepts of style and stylistics; descriptive and applied stylistics; stylistic phenomena in texts and methods of assessing style.

GER 650 Seminar: The German Essay (3) Development as exemplified by works from various periods.

GER 651 Seminar: The German Novelle (3) Discussion of representative works from end of 18th century to 1955.

GER 652 Seminar: German Drama (3) Development of dramatic theory and literature as exemplified by typical works of literary periods.

GER 653 Seminar: Lyric Poetry (3) Comparative study of works of representative German poets.

GER 654 Seminar: The German Novel (3) Novels representative of a period, movement, or author.

GER 655 Faust (3) Short history of Faust theme; Goethe's dramatic poem.

GER 699 Directed Research (V) Pre: consent of department chair.

GER 735 Seminar (3) Study of authors, topics, a genre, or a period. Repeatable. Pre: consent of chair of graduate field.

GG

See *Geology and Geophysics*

Greek (GRK)

College of Languages, Linguistics and Literature

GRK 101 Elementary Greek (3) Grammar and vocabulary, with reading of simple Greek. **HSL**

GRK 102 Elementary Greek (3) Continuation of 101. **HSL**

GRK 201 Intermediate Greek (3) Development of reading and translation skills. Emphasis on prose. Pre: 102 or equivalent. **HSL**

GRK 202 Intermediate Greek (3) Continuation of 201: emphasis on poetry. **HSL**

GRK 303 Greek Historians (3) Selections from Herodotus, Xenophon, and others. Pre: 201 and 202, or consent. **DL**

GRK 304 Greek Epic (3) Selections from Homer, Hesiod, and others. Pre: 201 and 202, or consent. **DL**

GRK 425 Greek Philosophy (3) Selections from Plato, Aristotle, and others. Pre: 303 and 304, or consent. **DL**

GRK 432 Greek Drama (3) Selections from Aeschylus, Sophocles, and Euripides. Pre: 303 and 304, or consent. **DL**

GRK 433 Greek Lyric (3) Selections from Sappho, Alcaeus, and others. Pre: 303 and 304, or consent. **DL**

GRK 490 Seminar in Greek Studies (3) Study of an author or phase in Greek studies. Repeatable. Pre: 303 and 304, or consent.

GRK 651 Seminar in Greek Literature (3) Study of an author, genre, period, or work. Repeatable. Pre: graduate standing or consent.

GRK 699 Directed Research (V) Pre: consent of department chair.

Hawaiian (HAW)

College of Languages, Linguistics and Literature

HAW 101 Elementary Hawaiian (4) Listening, speaking, reading, writing. Meets five hours weekly; daily lab work. **HSL**

HAW 102 Elementary Hawaiian (4) Continuation of 101. **HSL**

HAW 105 Intensive Elementary Hawaiian (8) Content of 101 and 102 covered in one semester. Meets two hours daily, Monday–Friday, plus lab work. **HSL**

HAW 131 Hawaiian for Reading Proficiency (3) Elementary course; emphasis on reading and translation.

HAW 132 Hawaiian for Reading Proficiency (3) Continuation of 131.

HAW 201 Intermediate Hawaiian (4) Continuation of 102. Meets five hours weekly; reading of traditional texts; daily lab work. Pre: 102 or equivalent. **HSL**

HAW 202 Intermediate Hawaiian (4) Continuation of 201. **HSL**

HAW 206 Intensive Intermediate Hawaiian (8) Content of 201 and 202 covered in one semester. Meets two hours daily, plus lab work. Pre: 102 or 105, or exam. **HSL**

HAW 261 Hawaiian Literature in Translation (3) Survey of Hawaiian literature, including prose narration and poetry with reference to Polynesian and Western themes and forms. **DL**

HAW 301 Third-Level Hawaiian (3) Continuation of 202. Conducted in Hawaiian. Advanced conversation and reading. Pre: 202 or equivalent.

HAW 302 Third-Level Hawaiian (3) Continuation of 301. Pre: 301.

HAW 321 Hawaiian Conversation (3) Systematic practice on various topics for control of spoken Hawaiian. Repeatable up to 6 credit hours. Pre: 202.

HAW 331 Hawaiian Composition (3) Intensive work in the grammatical, semantic, and pragmatic dimensions of composition writing in Hawaiian. Pre: 202.

HAW 332 Listening Comprehension and Transcription (3) Development of listening comprehension through transcription and discussion of tape recordings. Pre: 202.

HAW 345 Nupepa Hawai'i (3) Study of Hawaiian newspapers through reading and discussion. Includes field trips to various archives housing the newspapers. Pre: 302 (or concurrent), or consent.

HAW 373 Ka Mo'omeheu Hawai'i (3) A survey course on the study of traditional Hawaiian culture including origins, the socioeconomic system, land tenure, religion, values, and the arts. The course will be taught in Hawaiian. Pre: 302 (or concurrent); or consent. **DH**

HAW 401 Fourth-Level Hawaiian (3) Advanced reading, writing, and discussion in Hawaiian. Transcribing and translating

Hawaiian language tapes. Translating English into Hawaiian, and Hawaiian into English. Pre: 302 or equivalent.

HAW 402 Fourth-Level Hawaiian (3)
Continuation of 401.

HAW 425 Mo'olelo Hawai'i (3) Survey of the major works by Hawaiian scholars writing about the history and culture of Hawai'i including David Malo, Kamakau, Kepelino, and John Papa II. Pre: 302. **DH**

HAW 426 Ka'ao Hawai'i (3) Survey of the core literature written by Hawaiian scholars, including both historical and mythological epics and folk tales. Pre: 302. **DL**

HAW 428 Ka 'Olelo Kalai'aina a Politika Hawai'i (3) Study of political language in Hawaiian through reading and discussion of speeches, essays, editorials, songs and poetry, and performance art. Readings are drawn from 19th and early 20th century Hawaiian newspapers and other primary sources. Pre: 302 or consent. **DH**

HAW 435 (Alpha) Problems in Translation (3) Problems in translation of: (B) legal documents; (C) newspapers; (D) religious writings. Pre: 302 or consent.

HAW 452 Structure of Hawaiian (3)
Descriptive linguistic analysis. Intensive exercises in advanced grammar. Pre: 202 and LING 102, or consent. **DH**

HAW 454 History of the Hawaiian Language (3) Development from proto-Polynesian. Phonology, morphology, and grammar; history of research. Pre: 202 and 452, or consent. **DH**

HAW 463 Language for the Classroom (3)
Examination of language needs in various classroom settings and introduction to new vocabulary in school content areas. Pre: 302, 452, and consent.

HAW 466 Kuleana Kula Kaiapuni (3)
Examination of the political struggles of the Kula Kaiapuni (Hawaiian Immersion Program) – past and present. Special attention given to federal and state governments, Department of Education, and internal political struggles. Pre: 401 (or concurrent with consent).

HAW 470 Ho'omohala Ha'awina Kaiapuni Curriculum Development (3) Examination of curricular issues of indigenous language programs; weekly participation in an immersion classroom; development of materials. Repeatable once. Pre: 302 or consent.

HAW 471 Teaching in Hawaiian Language Immersion Program (3) Knowledge base for professional education; secondary school organization, curriculum, and instruction; individual and program goals. A-F only. Pre: HAW 302 and consent.

HAW 484 Hawaiian Poetry (3) Historical survey and analysis of poetry found in traditional chants, folk songs, modern poetry written in Hawaiian. Interpreting and composing Hawaiian poetry. Pre: 402, or 302 and consent. **DL**

HAW 490 Ka Makau'olelo A'o Kula Kaiapuni Hawai'i (1) This course will assess the linguistic competence of prospective Hawaiian language immersion teachers to assure that all teachers entering the state DOE Hawaiian

Immersion Program meet the requirements of the program with respect to Hawaiian language proficiency. CR/NC only. Pre: 401, 402 (or concurrent), and 463 (or concurrent); or consent.

HAW 499 Directed Studies (V) Study of Hawaiian language through vernacular readings in various academic fields. Repeatable up to 6 credits. Pre: 302 and consent.

Hawaiian, Asian and Pacific Islands (HAPS)

School of Hawaiian, Asian, and Pacific Studies

HAPS 099 Overseas Study (V) Registration allows student to maintain enrolled status at UHM while taking courses abroad. CR/NC only. Pre: consent.

Hawaiian Studies (HWST)

School of Hawaiian, Asian, and Pacific Studies

HWST 107 Hawai'i: Center of the Pacific (3) An introduction to the unique aspects of the native point of view in Hawai'i and in the larger Pacific with regards to origins, language, religion, land, art, history, and modern issues. **DH**

HWST 107A Hawai'i: Center of the Pacific (3) An introduction to the unique aspects of the native point of view in Hawai'i and in the larger Pacific with regards to origins, language, religion, land, art, history, and modern issues.

HWST 207 Malama Ahupua'a: Resource Management (3) Examination of the ahupua'a system: its mythologies, place names, history, poetry and early documents of the Hawaiian nation, as it was conceptualized by the ancient Hawaiians and exploration of its relevance in modern society. A-F only. Pre: 107.

HWST 270 Hawaiian Mythology (3) Survey of gods, 'aumakua, kupua, mythical heroes, heroines, and their kino lau as the basis of traditional Hawaiian metaphor. Pre: HWST 107 or HAW 102. **DL**

HWST 281 Ho'okele I: Hawaiian Astronomy and Weather (3) An introduction to Hawaiian views of astronomy and weather, required as preparation for sailing Hokule'a in following semester. Restricted to majors. Repeatable once. Pre: 107 or consent.

HWST 281L Ho'okele I Laboratory (1) (1 3-hr Lab) Stargazing laboratory to accompany 281. Pre: 281 or concurrent.

HWST 282 Ho'okele II: Hawaiian Navigation (3) Hawaiian canoe design, navigation, sailing dynamics for double hulled canoes, and sail planning. Restricted to majors. Repeatable once. Pre: 281 or consent.

HWST 282L Ho'okele II Laboratory (1) (1 3-hr Lab) Sailing laboratory on double hulled canoe to accompany 282. Pre: 282 or concurrent.

HWST 301 Perspectives in Hawaiian Studies (3) Interdisciplinary lectures and discussions examining traditional and contemporary experiences in Hawaiian society and setting;

resources, methods, and techniques. Pre: HAW 202 or consent. **DH**

HWST 341 Hawaiian Genealogies (3) Survey of major Hawaiian chiefly lineages from the four main islands: Hawai'i, Maui, O'ahu and Kaua'i. Political history from the Kumulipo to Western contact. Pre: HAW 202.

HWST 342 Chiefs of Post-Contact Hawai'i (3) Survey of Hawaiian chiefs from 1778 to the present, including genealogy, political function, and historical impact. Pre: 107, 341, or HAW 201.

HWST 343 Myths of Hawaiian History (3) Thematic exploration of some common myths of Hawaiian history, including infanticide, slavery, feudalism, constant warfare, human sacrifice, and a limited pre-contact population, to determine the role of myth making in perceptions of Hawaiian history. Pre: junior standing or consent. **DL**

HWST 351 Mahi'ai Kalo I: Taro Cultivation (3) Historical, cultural and philosophical foundations of the cultivation and uses of taro. A-F only. Pre: 107. Fall only.

HWST 352 Mahi'ai Kalo II: Advanced Taro (3) In depth-study of taro cultivation techniques and systems. A-F only. Pre: 351.

HWST 362 Pana O'ahu: Famous Place Names (3) A survey of the famous place names in each 'ahupua'a of O'ahu, including accounts of mythical heroes, heiau, fishponds, wind, rain names, and their metaphoric value in Hawaiian literature. Pre: 107, 270, or GEOG 101; and HAW 202.

HWST 390 Issues in Modern Hawai'i (3) Cultural and political aspects of the current Hawaiian movement; historical colonization; conflicts over tourism, the military, and agriculture; forms of native self-determination. Pre: junior standing or consent. **DH**

HWST 440 Mahele Land Awards (3) Practical guide to the researching of land awards and change in title for a single 'ahupua'a, 1848 to present. Focus on field trips. Pre: 342.

HWST 445 Hawaiian Institutions (3) Comprehensive analysis of institutions like Bishop Estate/Kamehameha Schools, OHA, Lili'uokalani Trust, Department of Hawaiian Home Lands and The Queen's Hospital. Pre: 342.

HWST 478 Mele Au Hou: Music and Native Identity (3) Presents Hawaiian music as it has been an avenue for native social, cultural and political expression in traditional and contemporary society. A-F only. Pre: 107 or 343 or 390; or consent.

HWST 490 Senior Seminar in Hawaiian Studies (3) Critical examination of existing research; individual or team development, execution, and evaluation of selected projects. Pre: senior major in Hawaiian studies or consent.

HWST 494 Modern Pacific Women's Poetry (3) Critical examination of modern indigenous women's poetry from the Pacific Islands. Thematic concentration on land, family, sexual and national oppression. Pre: any two of the following (second may be taken concurrently):

ENG 250, ENG 251, ENG 252, ENG 253, ENG 254, ENG 256, ENG 257; or consent. (Cross-listed as ENG 479) **DL**

HWST 495 Kumu Kanawai: Western Law and Hawai'i (3) The rise of Western law in Hawai'i, its contribution to nation building and colonialism. Pre: 342 or 343 or 390; or consent.

HWST 499 Directed Reading/Research (V) Individual reading/research. Pre: 301, two upper division Hawai'i-related courses, and consent.

Health, Physical Education, and Recreation (HPER)

See *Kinesiology and Leisure Sciences*

Health Sciences and Social Welfare (HSSW)

College of Health Sciences and Social Welfare

HSSW 477 Southeast Asian Cultures in Health/Social Welfare (3) The study of cultures and their implications in the health and social welfare context for a number of countries in Southeast and South Asian region.

HSSW 478 Pacific Cultures in Health/Social Welfare (3) The study of cultures and their implications in the health and social welfare context for a number of countries in the Pacific region.

HSSW 651 Interdisciplinary Team Development (V) Theory, process, and practice of interdisciplinary team development related to community health care. Pre: graduate or senior standing in health-related field, or consent.

HSSW 680 Public Policy and the Elderly (3) Social, political, and economic antecedents and consequences of current policy. Distribution of public benefits. Elderly vis-à-vis other interest groups; distribution of benefits within the elderly population. Pre: consent and graduate standing.

Hindi (HNDI)

College of Languages, Linguistics and Literature

HNDI 101 Elementary Hindi (4) Listening, speaking, reading, writing. Structural points introduced inductively. Meets five hours weekly; daily lab work. **HSL**

HNDI 102 Elementary Hindi (4) Continuation of 101. **HSL**

HNDI 201 Intermediate Hindi (4) Continuation of 102. Meets five hours weekly; daily lab work. Pre: 102 or equivalent. **HSL**

HNDI 202 Intermediate Hindi (4) Continuation of 201. **HSL**

HNDI 301 Third-Level Hindi (3) Continuation of 202. Conversation and advanced reading. Pre: 202 or equivalent.

HNDI 302 Third-Level Hindi (3) Continuation of 301.

History (HIST)

College of Arts and Humanities

HIST 151 and 152 or consent is a prerequisite to all history courses numbered above 300.

HIST 151 World Civilization (3) Development of civilization from its prehistoric origins to 1500. Prerequisite for advanced courses. **FG**

HIST 152 World Civilization (3) Continuation of 151. Development of civilization from 1500 to the present. Prerequisite for advanced courses. **FG**

HIST 155 Non-Western Civilizations (3) Survey of historical and cultural development into their classical phases; restructuring under Western impact. Satisfies the Foundations Global and Multicultural Perspectives requirement for transfer students with a two-semester course in Western Civilization; not open to other students. **FG**

HIST 161A World Cultures in Perspective (3) Development of civilizations from prehistoric origins to 1500. Offered as discussion and/or problems course. Alternative for 151 and 152; freshmen in SSP only. **FG**

HIST 162A World Cultures in Perspective (3) Continuation of 161A. Development of civilization from 1500 to the present. Offered as discussion and/or problems course. Alternative for 151 and 152; freshmen in SSP only. **FG**

HIST 231 Modern European Civilization (3) Political evolution and major economic, social, and cultural development of European states. 1500–1800. **DH**

HIST 232 Modern European Civilization (3) Continuation of 231. Major political, social, economic, and cultural trends from Napoleon to the present. **DH**

HIST 241 Civilizations of Asia (3) Survey of major civilizations of Asia from earliest times to 1500; East Asia, Southeast Asia, South Asia. (Cross-listed as ASAN 241) **DH**

HIST 242 Civilizations of Asia (3) Continuation of 241. Survey of major civilizations of Asia from 1500 to the present; East Asia, Southeast Asia, South Asia. (Cross-listed as ASAN 242) **DH**

HIST 281 Introduction to American History (3) Interpretive survey from earliest settlement to 1865. A–F only. **DH**

HIST 282 Introduction to American History (3) Interpretive survey from 1865 to the present. **DH**

HIST 284 History of the Hawaiian Islands (3) Survey of state and local history from Polynesian chiefdoms to Hawaiian Kingdom to American territory and state. **DH**

HIST 288 Survey of Pacific Islands History (3) Survey of Pacific Islands from pre-colonial to modern times; early settlement, cultural contact, colonization, contemporary problems. **DH**

HIST 294 History of the Philippines (3) The course traces developments in Philippine history and society from precolonial to contemporary

times and explores ways in which the peoples of the Philippines embraced, resisted or negotiated new modes of thought, behavior and social organization influenced by the Spanish, American, and Japanese regimes as well as the post-colonial global order.

HIST 301 History of India and Pakistan (3) Historical survey of Indian society, economics, politics, religion, ideas, and institutions; origins, development, influence on culture, to 1500. **DH**

HIST 302 History of India and Pakistan (3) Continuation of 301. 1500 to the present. **DH**

HIST 305 History of Southeast Asia (3) Survey of development of civilizations and growth of nations in Southeast Asia, to the 18th century. **DH**

HIST 306 History of Southeast Asia (3) Continuation of 305, from 18th century to the present. **DH**

HIST 309 East Asian Civilizations (3) Characteristics of East Asian civilizations as they developed in pre-modern China; variant patterns in Japan and Korea; the modernization process to 1500. **DH**

HIST 310 East Asian Civilizations (3) Continuation of 309. Period after 1500. **DH**

HIST 311 History of China (3) Chinese civilization to the 17th century. **DH**

HIST 312 History of China (3) Continuation of 311. Period since the 17th century. **DH**

HIST 321 History of Japan (3) Survey of culture, government, economics, and institutions, to 1700. **DH**

HIST 322 History of Japan (3) Continuation of 321. Period from 1700. **DH**

HIST 323 Way of Tea in Japanese History and Culture (3) History and culture of Japan as revealed in study and practice of the tea ceremony (urasenke): Zen, aesthetics, calligraphy, architecture, ceramics, gardens, politics. (Cross-listed as ASAN 323) **DH**

HIST 324 The Samurai of Japan (3) A social, military, and cultural history of Japan's samurai (warrior) class. **DH**

HIST 327 History of Korea (3) Survey of political, economic, social, and cultural developments from earliest times to 1400. **DH**

HIST 328 History of Korea (3) Continuation of 327. From 1400 to the present. **DH**

HIST 331 Ancient Greece I (3) Political, social, and cultural history of the Minoan, Mycenaean, and Archaic periods. **DH**

HIST 332 Ancient Greece II (3) Political, social, and cultural history of the Classical and Hellenistic periods. **DH**

HIST 333 Ancient Rome: The Republic (3) Political, social, cultural history from the Etruscans to Augustus. Emphasis on discussion of literary and archaeological materials. (Alt. years: fall) **DH**

HIST 334 Ancient Rome: The Empire (3) Political, social, and cultural history from Augustus to 476 A.D. Emphasis on literary and archaeological materials. (Alt. years: spring) **DH**

- HIST 335 Early Middle Ages 300–900 (3)** Interaction of three major forces forming Western European civilization: Classical tradition, Christian religion, Germanic society. **DH**
- HIST 336 High Middle Ages 900–1300 (3)** Topical examination of Medieval European culture: economy, society, religion, politics, thought, and the arts. **DH**
- HIST 337 European Intellectual History (3)** Undergraduate seminar on great debates in Western thought. Discussion of primary source materials; the scientific revolution and Enlightenment. No auditors. **DH**
- HIST 338 European Intellectual History (3)** Continuation of 337. European thought from French Revolution to the present. **DH**
- HIST 340 Comparative Economic Growth—Historical Perspective (3)** Comparative historical studies of economic development since 1750 in Great Britain, France, Germany, Russia, U.S., China, Japan, and the European common market. Political, social, and cultural dimensions.
- HIST 344 Modern Germany (3)** Political, social, economic, and cultural history since 1547. Rise of Austria and Prussia, unification, Bismarckian era, World War I and Weimar Republic, Hitler's Third Reich, post-World War II. **DH**
- HIST 345 France in the Old Regime (3)** Major social, political, and intellectual developments: Renaissance, Reformation, religious wars, Richelieu, Louis XIV, Enlightenment, and Revolution. **DH**
- HIST 346 Modern France (3)** Political, social, economic, and intellectual developments from Revolution and Napoleon to the present. **DH**
- HIST 347 Tudor-Stuart Britain (3)** This course traces major developments in British politics, society, and culture between the late Medieval and Modern Eras. Pre: 151 and 152 or consent. **DH**
- HIST 348 Modern England (3)** Interaction of 17th-, 18th-, and 19th-century intellectual, political, economic, and social changes, which together produced the British Empire and modern Britain. **DH**
- HIST 349 British Empire (3)** Origins and expansion of the British empire between the seventeenth and twentieth centuries. Includes imperial policies affecting Britain, Australia, India, Ireland, and Southern Africa. Open to nonmajors. Pre: 151-152 or 161-162. **DH**
- HIST 350 Introduction to Russian History and Civilization (3)** Development of Russia as a unique society. Origins and outside influences; rise of Moscow; autocratic system and serfdom; Western impact and modernization; artistic and literary heritage; Revolutionary movement and 1917 Revolution; Soviet Union. **DH**
- HIST 354 Introduction to Islamic History (3)** Muhammad, the Arab conquests, the Caliphate; fundamentals of Islam; classical Islamic civilization; development of Islam into modern times with emphasis on the Middle Eastern heartland. **DH**
- HIST 355 The Making of the Modern Middle East (3)** Survey of developments that created the system of nation-states in the Middle East. History of the Ottoman Empire and the Republic of Turkey; Egypt; the Arab world; Israel and Iran. Recommended: 354. **DH**
- HIST 356 Survey of African History (3)** The history of Africa from earliest times to the present: the rise of indigenous civilizations, European and Muslim impact, colonialism and nationalism, and current issues. **DH**
- HIST 360 U.S. Women's History to 1890s (3)** A survey of history of U.S. women and gender relations up to 1890s. Emphasis on women's labor, women's involvement in social movement, development of suffrage movement, women's literary and popular culture. Pre: AMST 201 (or concurrent) or AMST 202 (or concurrent) or WS 151 (or concurrent), or consent. (Cross-listed as AMST 315 and WS 310) **DH**
- HIST 361 U.S. Women's History since 1890s (3)** A survey of history of U.S. women and gender relations since 1890s. Emphasis on social reform, suffrage and the New Woman, women's wartime labor, gender and the Cold War, second wave feminism, divisions among women. Pre: AMST 201 (or concurrent) or AMST 202 (or concurrent) or WS 151 (or concurrent); or consent. (Cross-listed as AMST 316 and WS 311) **DH**
- HIST 371 U.S. Foreign Relations to 1920 (3)** Survey of American foreign relations from initial encounters between Europeans and Native Americans through World War I. **DH**
- HIST 372 U.S. Foreign Relations Since 1920 (3)** American foreign relations from the end of World War I to the end of the Cold War. **DH**
- HIST 373 American Thought and Culture (3)** Politics, family, philosophy, technology, etc.; their interrelationship within the total society. Pre-Colonial to end of the 19th century. (Cross-listed as AMST 343) **DH**
- HIST 374 American Thought and Culture (3)** Continuation of 373: the 20th century. (Cross-listed as AMST 344). **DH**
- HIST 375 The American City (3)** Evolution since 17th century; role in contemporary American culture. Related problems, perceptions, values. (Cross-listed as AMST 321) (Alt. years: spring 98) **DH**
- HIST 378 History of American Business (3)** The evolution of business enterprise from colonial times to the present. Emphasis on entrepreneurship, technological change, labor-management relations, government-business relations, and economic thought. Case studies of industrial development. (Cross-listed as MGT 348).
- HIST 379 American Empire (3)** Examines the interplay between an "American culture of empire" and the rise of the United States as a superpower. Topics: imperialism and political culture, social movements and international affairs, race, gender and class relations. (Cross-listed as AMST 365) **DH**
- HIST 391 History of Warfare (3)** Classical and guerrilla warfare, revolution, and military systems and institutions. **DH**
- HIST 392 History of Warfare (3)** Continuation of 391, from 1850 to present. **DH**
- HIST 393 U.S. Military History (3)** Survey of development of American military forces from War of Independence to war in Vietnam. **DH**
- HIST 394 History of Science to 1700 (3)** Evolution of scientific thought and its cultural context. Antiquity to 1700. **DH**
- HIST 395 History of Science since 1700 (3)** Continuation of 394; science, technology, and society since 1700. **DH**
- HIST 396 Introduction to the Study of History (3)** Introduction to the discipline; current trends in Asian, European, American, and Pacific historiography. Pre: history major.
- HIST 406 Modern Philippines (3)** Survey of major developments from pre-colonial through Spanish and American colonial periods, the revolution, Japanese occupation, and post-war republic. Pre: 151 and 152, or 161A and 162A; or consent. **DH**
- HIST 407 Modern Malaysia (3)** History of Malay peninsula and northern Borneo, emphasizing developments since 18th century: trade, commerce, foreign migrations, pluralism, nationalism, and Islam. Pre: 151 and 152, or 161A and 162A; or consent. **DH**
- HIST 408 Modern Indonesia (3)** Indonesia from 14th century to present. Emphasis on period from late 18th-century Western colonial impact to struggle for independence and problems of nationhood. Pre: 151 and 152, or 161A and 162A; or consent. **DH**
- HIST 409 Modern Vietnam, Cambodia, Laos (3)** Modern political and social history of Vietnam, Cambodia, and Laos. Pre: 151 and 152, or 161A and 162A; upper division standing and/or consent. **DH**
- HIST 410 Twentieth-Century China (3)** An examination of the political, intellectual, economic, cultural, and social transformations of China in the twentieth century. This lecture course studies critical events in the making of modern China and explores important issues in the modernization of Chinese life in the twentieth century. Pre: 151 and 152, or 161A and 162A; or consent. **DH**
- HIST 411 Local History of Late Imperial China (3)** Ch'ing government and Chinese society from local and regional perspectives; modes of control and disorder during the 19th century. **DH**
- HIST 412 Local History of 20th-Century China (3)** Sociopolitical change and continuity at local and regional levels since 1900, stressing provincial reform, Hsien and sub-Hsien politics, warlordism, Kuomintang tutelage, and the Chinese Communist movement and rule.
- HIST 416 Chinese Intellectual History (3)** An interpretive survey of Chinese ideas and values in their cultural, social and political settings from classical age to 1600. Pre: 241 and 242; or consent. **DH**
- HIST 417 Chinese Intellectual History (3)** Interpretive survey of Chinese thought from 1600 to the contemporary period, with special emphasis on the themes of cultural collision and change and tradition. Pre: 241 and 242; or consent. **DH**

HIST 418 China's Foreign Relations (3)

Systematic review from traditional times, with emphasis on modern and contemporary history, analyses of foreign policy formulation, objectives, and implementation. Recommended: 312. **DH**

HIST 419 The Chinese Revolution (3)

Origins, development, and meaning of modern revolution in China, 19th century to People's Republic. Recommended: 311 and 312. **DH**

HIST 420 People's Republic of China (3)

Salient developments from 1949 to the present. Social revolution and modernization, critically relevant foreign relations. Recommended: 312 or 419. **DH**

HIST 421 Japanese Cultural History to 1600 (3)

Genesis and development of Japanese aesthetic and literary traditions prior to founding of the Tokugawa Shogunate. Recommended: 321. **DH**

HIST 422 Tokugawa Japan (3)

Japanese history and culture, 1600–1867. Recommended: 321. **DH**

HIST 423 Okinawa (3) Survey of social, cultural, economic, and political history from earliest times to present. **DH**

HIST 424 20th-Century Japan (3) Problems of Japan's political, economic, and social development since institutional consolidation of Meiji state (c.1890). Pre: 321 or 322, or consent. **DH**

HIST 425 Women in Japanese History (3)

Survey of the changing political, social, economic, and cultural positions of women in Japan from ancient times to the present. Pre: one course in Japanese history or consent. **DH**

HIST 431 Ancient Near East: Pyramids and Writing Tablets (3)

Civilizations of the Sumerians, Babylonians, Assyrians, ancient Egyptians, Hittites, Hebrews, and Achaemenid Persians. Emphasis on discussion of literary and archaeological materials. **DH**

HIST 432 Crisis and Conflict in the Middle East (3)

In depth study and analysis of major crises and conflicts in the Middle East since World War II: the Arab–Israeli Wars, revolutions in the Arab countries, the Turkish experiment with secularism, the Iranian/Islamic revolution, Afghanistan, the Gulf War. Recommended: 354 or 355. **DH**

HIST 433 Medieval Cultures (3)

Topical study of cultural and cross-cultural issues in the medieval period (circa 300–1500). Class discussion and written work emphasize analysis of primary source documents using cultural and world history theories. Regional focus and readings vary by semester. Repeatable once. Pre: 151 and 152, or 161A and 162A; upper division standing. **DH**

HIST 434 History of Christianity to 1500 (3)

Historical analysis of the main traditions of Christianity and elements of diversity within Europe and in relation to other parts of the world. Focus on the interpretation of primary sources and discussion of cultural issues. Pre: 151 and 152, or 161A and 162A. (Alt. years: spring 2000) **DH**

HIST 435 The Renaissance 1300–1500 (3)

Political, social, intellectual, and religious development. Emphasis on cultural history;

humanism and its influence on thought and reforming movements. (Alt. years: fall 97) **DH**

HIST 436 The Reformation 1500–1600 (3)

Political, social, intellectual, religious developments of Protestant and Catholic Reformation. Emphasis on cultural history; religious thought and impact on social and political developments. (Alt. years: spring) **DH**

HIST 439 The Darwinian Revolution (3)

Social and intellectual origins of evolutionary thought and its continuing impact; emphasis on Darwin and the Victorian scientific community. Pre: 152 and one of BIOL 101, BOT 101 or ZOO 101; or consent. **DH**

HIST 440 20th-Century Europe (3)

Contemporary problems and their historical background. **DH**

HIST 441 Expansion of Europe (3)

Historical processes in modern European colonization from 16th to 20th century; impact on non-Europeans in Asia and Africa. (Alt. years: fall) **DH**

HIST 443 Nazi Germany (3) Origins, establishment, and impact of Hitler's Third Reich. Recommended: 344. (Alt. years: spring) **DH**

HIST 444 The History of the Holocaust (3)

The origins and progression of the Holocaust, the almost complete destruction of European Jews, and other Nazi genocidal policies. Open to nonmajors. **DH**

HIST 445 French Revolution and Napoleon (3)

Causes, course, and conduct of the Revolutionary and Napoleonic periods, their impact upon Europe; emphasis on the conflict of ideologies inherent in the Revolutionary process. **DH**

HIST 448 Imperial Spain and Portugal (3)

The influence of Spain and Portugal on people and cultures in Europe, Africa, America, and Asia; Portugal's captivity and the defeat of the Spanish Armada. **DH**

HIST 452 History and Film (3)

Lecture/discussion course introducing relationships between film and history. Explores how film reflects and shapes society, influences our sense of the past, and provides a way to understand that past. Considers historical issues since the French Revolution. Open to nonmajors. Pre: 151 and 152; or consent. **DH**

HIST 453 Russian Intellectual History (3)

Evolution of political/cultural ideas in 19th- and early 20th-century Russia. Pre: 350 or consent. **DH**

HIST 454 Tsarist Russia (3)

Development of the Russian state to the 19th century. Kievan state and early development of culture and art; Mongol era; rise of Moscow, autocracy, and serfdom; Petrine reforms; Western impact; emergence as a major European power. **DH**

HIST 455 Russian Revolution (3)

Origins in 19th-century; problems in Russian society; revolutionary ideologies and parties. Revolution of 1917 and the civil war; detailed study of relation between February and October revolutions. **DH**

HIST 456 Soviet Union (3) Establishment, political structure, economic system, society and culture, foreign policy. Characteristics, impact on its peoples, problems, post-Stalin "thaw." **DH**

HIST 457 Russia in East Asia and the Pacific (3)

Siberia, Russian/Soviet Far East, Russian activities in Pacific basin; evolving relations with Asian and Pacific powers. **DH**

HIST 460 Native American History (3)

A lecture and discussion course on the history of North American Indians from the seventeenth century to the present. Open to nonmajors. Pre: 151 or 152 or consent. **DH**

HIST 461 Early America (3)

Transit of European culture to North America; independence and the Constitution. **DH**

HIST 462 The Young American Republic 1783–1841 (3)

Development of American society, the Constitution, Jeffersonianism, the age of Jackson.

HIST 463 American Civil War Era 1841–1877 (3)

The crisis of the Union: antebellum society and culture, slavery, reform, sectionalism, the Civil War and Reconstruction. **DH**

HIST 464 Transformation of America 1877–1920 (3)

Selected themes that explain major changes in American life during the late 19th and early 20th centuries, including the westward movement, consolidation of capitalism, world power diplomacy, popular culture, progressivism, and World War I. **DH**

HIST 465 The United States 1920–1948 (3)

The Roaring Twenties, the Depression, New Deal, coming of World War II, America during the war, origins of the Cold War. **DH**

HIST 466 The U.S.: 1948 to the Present (3)

The atomic age and the Cold War, the age of anxiety, the 1960s, the Vietnam War, the Reagan-Bush era, and beyond. **DH**

HIST 467 American Television History (3)

A lecture/discussion course examining the impact of television on American society, culture and politics. Analyzed in depth are family sitcoms, presidential politics, Vietnam and the presentation of gender and ethnicity. Open to nonmajors. **DH**

HIST 468 Viva Las Vegas! (3)

Upper-division lecture course on the historical and cultural significance of Las Vegas in twentieth-century America. Open to nonmajors. Pre: 151 and 152, or consent. **DH**

HIST 470 American Show Business (3)

History of American entertainment industry since 1880, with emphasis on businesses of recording, broadcasting, and film production. Role of entrepreneurs, invention, labor, politics, and culture. Impact of industry on American life. Pre: consent.

HIST 471 Music, Industry, and Society (3)

History of U.S. music and recording industry. How industry relates to economy as a whole, and how it reflects broad patterns and trends in American culture and society. Pre: Upper division standing and/or consent. (Cross-listed as MUS 440)

HIST 472 American Social History (3)

Introduction to the new social history; interdisciplinary approaches to the study of the everyday lives of ordinary Americans in past generations. Pre: 281 and 282. **DH**

HIST 473 Slavery (3) Examines the origins, practices, and historical evolution of slavery from the 18th to the 20th century. Considers diverse forced labor regimes: chattel slavery, plantation agriculture, convict labor, “wage slavery,” and patriarchal domination. Pre: AMST 201 or AMST 313 or ES 305 or ES 306 or HIST 152 or HIST 281; or consent. (Cross-listed as AMST 432) **DH**

HIST 474 (Alpha) Topics in United States History (3) (B) African Americans; (C) the American West. (474C cross-listed as AMST 414) **DH**

HIST 475 Constitutional History of the U.S. (3) Origins, development of Constitution, Colonial to modern times. **DH**

HIST 477 American Labor History (3) Conditions of labor in major phases of American development; response of labor and community to changing work environment. Capitalism, unionism, race, gender, law, etc. Emphasis on 20th century. (Cross-listed as AMST 431) **DH**

HIST 478 Colonial Latin America (3) Pre-Columbian civilizations: Spanish and Portuguese colonization; political, economic, social, and religious evolution to 1810; independence. **DH**

HIST 479 Latin America since Independence (3) Political, economic, and social development since 1825; case studies from Brazil, Mexico, and Cuba. **DH**

HIST 481 Pacific Islands I (3) The Pacific past from first human settlement to the start of the colonial period; emphasis on historiography and analysis of islanders’ responses to Euro-American intrusion. **DH**

HIST 482 Pacific Islands II (3) The colonial experience to the present. **DH**

HIST 483 United States in the Pacific (3) Growth of economic and political interests and policies. **DH**

HIST 484 The Hawaiian Kingdom 1819–1893 (3) Transformation of Hawai‘i into a state influenced by American and European ideas and institutions and Asian peoples. Pre: 284. **DH**

HIST 485 History of 20th-Century Hawai‘i (3) Formation of an American Hawai‘i with its unique local culture from 1898 to the present. Pre: 284. **DH**

HIST 489 World Maritime History (3) A survey of world maritime history from earliest times to the present, with emphasis on the evolution of nautical technology, motives from maritime enterprises, and the impact of cross-cultural encounters between oceanic peoples. (Cross-listed as OEST 489) **DH**

HIST 491 Woman’s Place (3) Historical explanations of women’s proper place and roles in the home, outside, and in the struggle for emancipation. (Cross-listed as WS 491) **DH**

HIST 492 Women in Revolt (3) Conditions under which women’s protest develops. Women’s rights movements in the 19th- and 20th-century. U.S., cross-cultural comparisons. Recommended: 491. (Cross-listed as WS 492) **DH**

HIST 495 (Alpha) History Colloquium (3) Extensive or intensive treatment of special problems. (B) Philippines and Indonesia; (C)

U.S. foreign relations; (D) history in Oceania; (E) Chinese traditional government. Recommended for honors students. Pre: 372 (or concurrent) or consent for (C); consent for (B) and (E). **DH**

HIST 496 (Alpha) Senior Tutorial in History (3) Analysis of sources and evaluation of methods of historical writing. Research in field of special interest. Required for majors except those in Honors Program. (B) United States; (C) Europe; (D) Asia/Pacific; (E) comparative/World; (F) provisional topics. Pre: 396 (or concurrent).

HIST 499 Directed Reading (V) Individual projects in various fields. History majors with consent. Maximum 5 credit hours. (1) American; (2) Pacific; (3) Japanese; (4) European; (5) English; (6) Chinese; (7) Russian; (8) Hawaiian; (9) South Asian; (10) Southeast Asian; (11) Korean.

HIST 500 Master’s Plan B/C Studies (1) Enrollment for degree completion. Pre: master’s Plan B or C candidate and consent.

HIST 602 Seminar in Historiography (3) History of history and historians; philosophies of history.

HIST 609 Seminar in World History (3) Analysis, research, and discussion of themes and issues in study of history of humankind. Repeatable. Pre: graduate standing or consent.

HIST 610 Topics in World History (3) Selected themes—feudalism, economic and industrial development, etc.—important in global history. Topics pre-announced. Repeatable. Pre: 609.

HIST 611 (Alpha) Seminar in European History (3) Selected problems for reading and research. (B) ancient; (C) medieval (Pre: 335 or 336, or consent); (D) early modern (Alt. years: spring); (E) modern (Alt. years: fall); (G) intellectual.

HIST 612 Ethnographic History (3) Critical inquiry into historical representations of the “other” and ways in which modern historians have used culture and other anthropological concepts to write and think about the past.

HIST 613 Introduction to Cultural Studies (3) A graduate seminar designed to introduce history students to the multidisciplinary theories that are appropriate to cultural studies. A-F only. Repeatable once. Pre: history major or consent.

HIST 618 (Alpha) Advanced Readings in Russian History (3) (B) early Russia; (C) modern. Pre: 350 and graduate standing, or consent.

HIST 619 Research Seminar in Russian History (3) Repeatable. Pre: 618 and knowledge of Russian language, or consent.

HIST 620 Advanced Topics in Russian History (3) Seminar. Repeatable. Pre: appropriate 400-level Russian history or consent.

HIST 621 (Alpha) Russia in East Asia and the Pacific (3) (B) advanced readings; (C) advanced research on Siberia, Russian activities in the Pacific basin, evolving relations with Asian and Pacific powers. Repeatable. Pre: 457 and either 454 or 456; or consent.

HIST 630 History of American History (3) Graduate-level survey of American history, historians, historiography, and historical literature. Pre: graduate standing.

HIST 632 (Alpha) Advanced Readings in American History (3) Interpretations and literature of important themes and problems. (B) early America; (C) the Republic to 1877; (D) industrial America; (E) recent America. Repeatable. Pre: appropriate 400-level U.S. history course or consent.

HIST 634 (Alpha) Research in American History (3) (B) early America; (C) the Republic to 1877; (D) industrial America; (E) recent America; (F) foreign relations. Repeatable. Pre: for 634(F) only, 639(C); for all others, appropriate 400-level U.S. history course or consent.

HIST 639 (Alpha) Advanced Topics in American History (3) Seminar in advanced research and readings. (B) social and intellectual (Cross-listed as AMST 646); (C) diplomatic; (D) religious (Cross-listed as AMST 644); (E) the American city (Cross-listed as AMST 627 and ARCH 627); (K) business, labor, and technology (Cross-listed as AMST 647). Pre: graduate standing and consent.

HIST 654 Seminar: Mainland Southeast Asia (3) Studies in the histories of peoples and states of Myanmar, Thailand, Cambodia, Laos, and Vietnam. Repeatable. Pre: 306.

HIST 655 Seminar: Island Southeast Asia (3) Research and readings in the socioeconomic, political, and cultural history of Indonesia, Malaysia, and Philippines. Repeatable. Pre: 306.

HIST 656 Topics in Southeast Asia (3) Reading and research seminar on themes about the past and present of Southeast Asia in a comparative framework. Pre: 305 or 306 or consent.

HIST 661 (Alpha) Seminar in Chinese History (3) Problems and readings in political, social, and cultural history. (B) early; (C) middle; (D) modern. Repeatable.

HIST 662 Seminar: Islam and Islamic Civilization (3) Readings on the rise, spread, and development of Islamic cultures and civilizations throughout the world down to modern times. Repeatable. Pre: graduate standing or consent. Recommended: 354.

HIST 663 Seminar in Indian History (3) Problems and readings; influence of Indian culture on Southeast Asia. Individual reports. Repeatable.

HIST 665 (Alpha) Seminar in Japanese History (3) Problems, principal sources of bibliographic information. (B) traditional period to c.1600; (C) early modern 1600–1868; (D) 1868 to present; (E) 20th-century diplomatic.

HIST 667 (Alpha) Seminar in Korean History (3) Reading major interpretive works, and research in selected topics. (B) reading; (C) research. Pre: 327 and 328.

HIST 675 (Alpha) Seminar in Pacific History (3) Reading and research on major themes and issues. (B) South Pacific; (C) Micronesia; (D) 19th century; (E) 20th century. Pre: 481 and 482, or consent.

HIST 676 Pacific History Research Seminar (3) Writing Pacific history from primary sources in Hawaiian repositories. Repeatable. Pre: 675.

HIST 677 Seminar in History of Hawai'i (3) Reading seminar with short papers required. Covers Kingdom of Hawai'i and 20th-century Hawai'i in alternate years. Pre: 284. Repeatable. (Alt. years: fall)

HIST 680 Seminar in Military History (3) Bibliography, research tools, readings, and special problems in military history. Repeatable. Pre: graduate standing or consent.

HIST 690 Seminar in History of Science (3) Readings in the history of science and its social context. Repeatable.

HIST 699 Directed Research (V) Individual research topics. (1) American; (2) Pacific; (3) Japanese; (4) European; (5) English; (6) Chinese; (7) Russian; (8) Hawaiian; (9) South Asian; (10) Southeast Asian; (11) Korean. Restricted to Plan A (thesis) students. Maximum 2 credit hours. Repeatable. Pre: consent.

HIST 700 Thesis Research (V)

HIST 702 Institutional History of Korea (3) Major political, economic, and social institutions. Repeatable. Pre: 327 and 328. (Alt. years: spring)

HIST 705 Asian Research Material and Methods (3) Bibliography, reference tools, and research methods in sources on Asia in Western and Asian languages. Discussion of published and archival repositories. Repeatable. (Cross-listed as ASAN 705 and LIS 705).

HIST 711 Korean Historical Sources (3) Reading in Korean or classical Chinese of various forms of historical literature, literary sources, reference materials; reading knowledge of Korean or classical Chinese required. Repeatable. (Cross-listed as KOR 711) (Alt. years: fall)

HIST 713 Chinese Historical Literature (3) Reading and use of numerous genres of Chinese historical literature and documents. Chinese bibliography. Knowledge of Chinese required. Repeatable.

HIST 717 Chinese Intellectual History (3) Intensive study in Chinese thought and institutions. Repeatable. Pre: 311 and 312. Recommended: knowledge of Chinese.

HIST 718 Chinese Intellectual History (3) Continuation of 717. Repeatable.

HIST 721 China: Classic Antiquity to 750 (3) Foundations and elaborations of Chinese tradition. Repeatable. Pre: 311 and 312.

HIST 723 China from 750–1700 (3) Political, social, economic history; source materials, interpretive problems, rise of the gentry. Pre: knowledge of Chinese. Repeatable.

HIST 725 Contemporary China Seminar: Reading (3) Topical readings, research, and discussion, emphasizing PRC. Normal sequence emphasizes reading in 725, research in 726. Repeatable.

HIST 726 Contemporary China Seminar: Research (3) Continuation of 725. Repeatable.

HIST 800 Dissertation Research (V) Pre: consent.

Honors (HON)

Honors Programs

These courses are limited to students in the Honors Programs.

HON 120 Mathematical Modes of Thinking (3) Mathematics as both a language and a thought process expressed in that language. Historical and contemporary relations to culture.

HON 130 Contemporary Writing (3) Expository writing; classroom discussion of written products; introduction to debate. Limited to entering Honors Programs students.

HON 131 Disciplinary Reading and Writing (3) Writing about reading. Emphasis on various discourses associated with the common academic disciplines. Pre: 130.

HON 132 Varieties of Literary Experience (3) A far-ranging survey of world literature from Homer to the present. Development of critical skills. Pre: 131. **DH**

HON 133 Varieties of Literary Experience (3) A far-ranging survey of world literature from Homer to the present. Development of critical skills. Pre: 132. **DH**

HON 140 Structure in Music and Dance (3) Examining the languages of the musical arts. Emphasis upon the ways these arts are created and put together.

HON 170 Persons and Society (3) Interdisciplinary examination of the various branches of social science and their relation to each other and to society as a whole.

HON 171 Persons and Society (3) Interdisciplinary examination of the various branches of social science and their relation to each other and to society as a whole. Pre: 170.

HON 180 Values: Origins and Significance (3) Interdisciplinary examination of the origins of various values in different cultures and periods. Status and roles of values in contemporary society. **DH**

HON 181 Values: Origins and Significance (3) Interdisciplinary examination of the origins of various values in different cultures and periods. Status and roles of values in contemporary society. Pre: 180. **DH**

HON 491 Junior Honors Seminar (3) Students from different disciplines meet weekly for discussion of material presented by instructor in a multi-disciplinary format. Topics vary each semester. Required of, and limited to, candidates for Honors degree. CR/NC only.

HON 492 Honors Colloquium (3) Weekly meetings for discussion of enduring issues and problems of an interdisciplinary nature. Limited to candidates for Honors degree. CR/NC only.

HON 493 Senior Honors Thesis (2) Preparation of research paper under individual faculty supervision. Limited to candidates for Honors degree. Repeatable in different major. A-F only.

HON 494 Senior Honors Thesis (2) Preparation of research paper under individual faculty supervision. Limited to candidates for

Honors degree. Repeatable in different major. A-F only. Pre: 493.

HON 495 Introduction to Research (3) Library research skills; lectures on research within a university setting; methodological issues for and across disciplines; special attention to defining a specific research problem. Limited to candidates for the Honors degree. CR/NC only.

HON 496 Senior Honors Project (3) Preparation of a research project or a performance project (with a research component) supervised by a faculty member. Limited to candidates for Honors degree. Repeatable in different major. A-F only. Pre: 495.

Selected Studies students also have the option of taking A-section courses from the following list when they are offered by departments:

- AH 100A Introduction to the Arts
- AMST 201A The American Experience
- AMST 202A Diversity in American Life
- AMST 211A Contemporary American Issues: Domestic
- AMST 212A Contemporary American Issues: World
- ART 101A Introduction to Visual Arts
- ART 103A Introduction to Fiber
- ASAN 241A Civilizations of Asia
- ASAN 242A Civilizations of Asia
- ASTR 110A Survey of Astronomy
- ASTR 140A Foundations of Astronomy
- BOT 101A General Botany
- CAS 110A Integrating Seminar I
- CAS 111A Integrating Seminar II
- CHEM 171A Principles of Chemistry
- CHEM 181A Honors General Chemistry
- ECON 120A Introduction to Economics
- ECON 131A Principles of Economics
- ENG 100A Composition I
- ENG 250A American Literature
- ENG 251A British Literature to 1800
- ENG 252A British Literature after 1800
- ENG 253A World Literature to 1600
- ENG 254A World Literature after 1600
- ENG 255A Short Story and Novel
- ENG 256A Poetry and Drama
- ENG 257A Themes in Literature
- ES 101A Introduction to Ethnic Studies
- GEOG 151A Geography and Contemporary Society
- GER 101A Elementary German
- GER 102A Elementary German
- GG 101A Introduction to Geology

- HWST 107A Hawai'i: Center of the Pacific
- HIST 161A World Cultures in Perspective
- HIST 162A World Cultures in Perspective
- HIST 241A Civilizations of Asia
- HIST 242A Civilizations of Asia
- HIST 281A Introduction to American History
- HIST 282A Introduction to American History
- IS 101A Information Literacy
- IS 291A Community Service Practicum
- IS 300A Field Study
- LIS 100A Libraries, Scholarship, and Technology
- LING 102A Introduction to the Study of Language
- MATH 100A Survey of Mathematics
- MATH 215A Applied Calculus I
- MATH 241A Calculus I
- MATH 242A Calculus II
- MICR 140A Microbiology Laboratory
- POLS 110A Introduction to Political Science
- PHIL 100A Introduction to Philosophy: Survey of Problems
- PHIL 101A Introduction to Philosophy: Morals and Society
- PHIL 102A Introduction to Philosophy: Asian Traditions
- PHIL 110A Introduction to Logic
- PHYS 170A General Physics I
- REL 150A Introduction to the World's Major Religion
- REL 151A Religion and the Meaning of Existence
- SOC 100A Introduction to Sociology
- SOC 218A Introduction to Social Problem
- SPAN 201A Intermediate Spanish
- SPAN 202A Intermediate Spanish
- SP 151A Personal and Public Speech
- SP 251A Principles of Effective Public Speaking
- WS 151A Introduction to Women's Studies

Horticulture (HORT)

College of Tropical Agriculture and Human Resources, Tropical Plant and Soil Sciences (TPSS)

HORT 120 (Alpha) Plants for People (1) The origins; social, cultural, and ceremonial traditions; culture; food and nutritional properties; and processing of a variety of tropical horticultural plants are presented, with tasting sessions and optional field trips. Topics will rotate among (B) beverage crops (eg. coffee, tea, chocolate, kava, fruit juices); (C) herbs, spices and flavoring (selection of examples to be determined); (D) tropical fruits (assortment offered depends on availability during semester); (E) ornamental plants (flowers, houseplants, popular landscape plants, bonsai, ethnic ornamentals). Pre: consent.

HORT 351 Enterprise Management (3) Overview of financial tools essential for developing new enterprises, analyzing business performance, obtaining bank financing, improving profitability and reducing risk. Other topics: personnel management, taxation, and business plans. (Students will become proficient with Excel.) Pre: upper division or graduate status; or consent.

HORT 421 Tropical Seed Science (2) Principles of seed science, seed physiology, seed production and genetic modification. Lab. Hawai'i's seed industry and biotechnology. A-F only. Pre: 200 or consent.

HPER

See Kinesiology and Leisure Sciences (KLS)

HSSW

See Health Sciences and Social Welfare

Human Resources Management (HRM)

College of Business Administration

HRM 200 Career Development (1)

HRM 351 Human Resource Management (3) Survey of the field covering recruitment, selection, training, appraisals, grievance handling, communications, discipline, safety, compensation, and benefits.

HRM 353 Leadership and Group Dynamics (3) Develop understanding of theory and research on managerial, entrepreneurial leadership and creativity in organizations. Topics include leadership, decision making, motivation, personality, and rewards within group settings.

HRM 354 Organizational Change and Effectiveness (3) Identify and evaluate methods to promote an effective change transition through efficient integration of corporate goals with the organizational culture.

HRM 399 Directed Reading and Research (V) Reading and research in a special area within the major field under direction of faculty member(s). Project must include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by the department chair and faculty adviser.

HRM 453 Personnel Compensation (3) Selected topics. Emphasis on trends, recent issues, job evaluation, incentive systems, salary administration, executive compensation, profit sharing, benefit programs, retirement plans. Pre: 351.

HRM 455 The Staffing Process (3) Contemporary practices and trends in personnel planning for a competent work force; legal constraints, recruitment and selection, differential placement, training, career programming. Pre: 351.

HRM 663 Human Resource Management (3) Analysis and critical evaluation of basic issues, policies, and trends in personnel administration.

HRM 664 Training and Development (3) Covers issues in design, delivery, and assessment of training, theoretical background of training and development process, types of training process, cross cultural and other types of diversity training and development of training modules. A-F only.

HRM 665 Compensation (3) Survey of compensation methods and procedures including job evaluations, incentive systems, salary administration, fringe benefits, appropriate legislation, policies and strategy issues of compensation systems. A-F only.

HRM 666 Health, Safety, and Security (3) This course is concerned primarily with the safety and mental health management process which is a complex activity requiring experts from many disciplines such as industrial hygiene, occupational medicine and safety engineering, safety legislation is covered. A-F only.

HRM 667 The Staffing Process (3) Recruiting and selection to optimize organizations including job design, job analysis, recruitment and selection methods, such as types of interviews and assessment centers, within legislative environment. A-F only.

HWST

See Hawaiian Studies

Ilokano (ILO)

College of Languages, Linguistics and Literature

ILO 101 Elementary Ilokano (4) Listening, speaking, reading, writing. Structural points introduced inductively. Meets five hours weekly; daily lab work. HSL

ILO 102 Elementary Ilokano (4) Continuation of 101. HSL

ILO 111 Intensive Elementary Ilokano (6) Listening, speaking, reading, writing. Structural points introduced inductively. Intensive vocabulary development and basic conversation. HSL

ILO 112 Intensive Elementary Ilokano (10) HSL

ILO 201 Intermediate Ilokano (4) Continuation of 102. Meets five hours weekly; daily lab work. Pre: 102 or equivalent. **HSL**

ILO 202 Intermediate Ilokano (4) Continuation of 201. **HSL**

ILO 212 Intensive Intermediate Ilokano (10) HSL

ILO 301 Third-Level Ilokano (3) Continuation of 202. Conversation, advanced reading, composition. Meets three times weekly. Pre: 202 or equivalent.

ILO 302 Third-Level Ilokano (3) Continuation of 301.

ILO 401 Fourth-Level Ilokano (3) Continuation of 302. Conducted in Ilokano. Advanced reading, writing, and conversation. Contemporary Ilokano literature; cultural and historical topics. Pre: 302 or equivalent.

ILO 402 Fourth-Level Ilokano (3) Continuation of 401.

ILO 424 Introduction to Ilokano for Interpreters (3) Techniques for interpreting Ilokano into English and vice versa. A–F only. Pre: 302 or consent.

ILO 451 Structure of Ilokano (3) Introduction to phonology, morphology, and syntax. Pre: 202 or consent. **DH**

Indo-Pacific Languages (IP)

College of Languages, Linguistics and Literature

In addition to the languages normally offered by the department, other languages commanded by individual faculty members may be offered if demands and staff permit, e.g., classical Arabic, Asilulu, Avestan, Balinese, Javanese, Malaysian, Old Persian, Sudanese, and Tongan. Interested students should consult the department chair. Language concentrations in certain other degree programs, e.g., through the Liberal Studies Program, may be arranged. Inquire at the department office.

IP 101 Directed Elementary Language Study (4) Directed study of a South Asian, Southeast Asian, or Pacific language not regularly listed by the department. Pre: consent.

IP 102 Directed Elementary Language Study (4) Continuation of 101.

IP 199 Introductory Language Study (V) Introduction to a South Asian, Southeast Asian, or Pacific language not regularly offered. Contact hours and credits determined by student interests and faculty resources. Repeatable up to 8 credit hours. Pre: consent.

IP 201 Directed Intermediate Language Study (4) Continuation of 102. Pre: consent.

IP 202 Directed Intermediate Language Study (4) Continuation of 201.

IP 261 Topics in Indo-Pacific Literature/Culture (V) Study of a literature or culture of the Indo-Pacific area through readings in various

fields in English. Repeatable up to 6 credit hours. Pre: consent.

IP 273 (Alpha) Introduction to Indo-Pacific Language and Culture (3) Introduction in English to language(s) and culture(s) of Indo-Pacific country or region. (B) Indian; (C) Southeast Asian; (D) Polynesian; (E) Philippines. Pre: 101 and 102 courses in relevant language or consent. **DH**

IP 299 Intermediate Language Study (V) Intermediate study of a South Asian, Southeast Asian, or Pacific language not regularly offered. Contact hours and credits determined by student interests and faculty resources. Repeatable up to 8 credit hours. Pre: at least 6 credit hours of elementary study in the same language.

IP 301 Directed Third-Level Language Study (3) Continuation of 202. Pre: consent.

IP 302 Directed Third-Level Language Study (3) Continuation of 301.

IP 361 Southeast Asian Literature in Translation (3) Survey in English of traditional and modern literatures of Southeast Asia. **DL**

IP 363 Philippine Literature in English (3) Critical survey of 20th-century Philippine literature written in English; cultural values. Pre: one of ENG 250–257 or consent. **DL**

IP 365 South Asian Literature in Translation (3) Survey of traditional and modern literatures of South Asia; literature written originally in English. **DL**

IP 366 South Asian Literature in Translation (3) Survey of traditional and modern literatures of South Asia; a vernacular literature to be determined by faculty resources and student interest. **DL**

IP 367 Modern Philippine Drama and Film (3) Philippine culture as represented in modern drama and film; zarzuela, psychological drama, theater of protest, Philippine drama in Hawai'i. Pre: one of ENG 250–257. **DL**

IP 369B Study Abroad: Western Samoa (3)

IP 369E Study Abroad: Vietnam (3)

IP 395 Polynesian Folklore in Translation (3) Traditional Polynesian genres (legends, myths, folktales, fables, proverbs, songs, riddles, jokes) examined in translation and culturally and structurally interpreted. Pre: one of ENG 250–257. **DL**

IP 396 Philippine Literature and Folklore in Translation (3) Philippine folk literature translated into English: epics, myths, legends, and other folklore. Classic works of vernacular writers. Pre: one of ENG 250–257 or consent. **DL**

IP 399 Third-Level Language Study (V) Third-level study of a South Asian, Southeast Asian, or Pacific language not regularly offered. Contact hours and credits determined by student interests and faculty resources. Repeatable up to 6 credits. Pre: at least 6 credits of intermediate study of the same language.

IP 401 Directed Fourth-Level Language Study (3) Continuation of 302. Pre: consent.

IP 402 Directed Fourth-Level Language Study (3) Continuation of 401.

IP 411 Ilokano Literature in Translation (3) Overview of Ilokano literature from the early writings to the major works of contemporary writers. A–F only. Pre: ILO 101, one of ENG 250–257, ENG 363, or ENG 396; or consent. **DL**

IP 427 (Alpha) Topics in Samoan Literature (3) (B) Writings of Albert Wendt. Pre: SAM 227 or one of ENG 250–257; or consent. (C) Samoan Women Writers. Pre: SAM 227 or one of ENG 250–257 or WS 254; or consent. **DL**

IP 431 Rizal's Literary Works in Translation (3) Interpretation and analyses of Rizal's novels *Noli* and *Fili* as they relate to the social, political, and historical context of the Spanish regime in the Philippines. Pre: 363 or 396 or ENG 250; or consent. **DL**

IP 470 Folklore (3) Theory and method of comparative and analytical folklore study, with special applications to Pacific traditions. Pre: ANTH 200. (Cross-listed as ANTH 470) **DS**

IP 499 Directed Studies (V) Study of a Pacific, South Asian, or Southeast Asian language through vernacular readings in various academic fields. Repeatable. Pre: third-level language and consent.

IP 699 Directed Research (V) Repeatable. Pre: consent.

Indonesian (IND)

College of Languages, Linguistics and Literature

IND 101 Elementary Indonesian (4) Emphasis on the development of communicative competence in both oral and written language. Daily lab work. **HSL**

IND 102 Elementary Indonesian (4) Continuation of 101. **HSL**

IND 112 Intensive Elementary Indonesian (10) HSL

IND 201 Intermediate Indonesian (4) Continuation of 102. Meets five hours weekly; daily lab work. Pre: 102 or equivalent. **HSL**

IND 202 Intermediate Indonesian (4) Continuation of 201. **HSL**

IND 212 Intensive Intermediate Indonesian (10) HSL

IND 301 Third-Level Indonesian (3) Continuation of 202. Conducted in Indonesian. Meets three hours a week. Reading, discussion, composition, and projects. Pre: 202.

IND 302 Third-Level Indonesian (3) Continuation of 301.

IND 303 Accelerated Third-Level Indonesian (6)

IND 401 Fourth-Level Indonesian (3) Continuation of 302. Conducted in Indonesian. Meets three hours a week. Readings in various materials; speaking in various settings. Pre: 302.

IND 402 Fourth-Level Indonesian (3) Continuation of 401.

IND 452 Structure of Indonesian (3) Introduction to grammar; some sociolinguistic background. Pre: 302 or equivalent. **DH**

IND 454 History of Indonesian (3) Social and linguistic development of Indonesian from roots in earlier Malay to contemporary form and function. Pre: 202 and 452, or consent. **DH**

IND 461 Modern Indonesian Literature (3) Selected readings, 1900 to present. Discussion and composition. Pre: 402 or consent. **DL**

Industrial Relations (IR)

College of Business Administration

IR 361 Labor Problems (3) Problems and economics of labor; history, structure, government, activities of trade unions. **DS**

IR 463 Collective Bargaining/Dispute Settlement (3) Principles and concepts of collective bargaining; methods of settling disputes over rights and interests. Pre: 361.

IR 465 Labor and Social Legislation (3) Evolution, interpretation, and application of labor and social welfare legislation with special emphasis on impact of labor-management relations. Pre: 361.

IR 467 Labor-Management Relations/Public Sector (3) Review and analysis of basic factors that distinguish private from public employment relations; examination of the development of recent legislation and programs at the federal, state, and municipal levels. Specific consideration given to current problems on the Mainland and Hawai'i. Pre: 361 or consent.

IR 469 Labor Problems in Asia (3) Survey and comparison of labor markets, economic development, and the role of trade unions in developing countries with particular reference to Asia and the Pacific. Pre: 361. **DS**

IR 665 Labor Relations (3) Critical evaluation of theories and models of trade unionism and labor relations; evolution and contributions to social sciences.

IR 666 International Collective Bargaining (3)

IR 667 International Collective Bargaining (3) Expanded and comparative analysis of wage determination systems through collective bargaining in selected developed and underdeveloped countries—the impact of industrialization and international trade on wage-setting.

Information and Computer Sciences (ICS)

College of Natural Sciences

ICS 101 Tools for the Information Age (4) Fundamental concepts and terms of computer technology, application software for problem solving, computer technology trends and impact on individuals and society.

ICS 101A Tools for the Information Age (4) Fundamental concepts and terms of computer technology, application software for problem solving, computer technology trends and impact on individuals and society. A-F only.

ICS 111 Introduction to Computer Science I (3) Overview of computer science, writing programs. Pre: 101 or consent. Co-requisite: 111L.

ICS 111A Introduction to Computer Science I (3) Overview of computer science, writing programs. A-F only. Pre: 101 or consent. Co-requisite: 111L.

ICS 111L Introduction to Computer Science I Lab (1) Programming exercise, demonstration and discussion of computer equipment, techniques, issues. Co-requisite: 111.

ICS 141 Discrete Mathematics for Computer Science I (3) Logic, sets, functions, matrices, algorithmic concepts, mathematical reasoning, counting techniques, probability theory, relations, equivalences, partial orderings, graphs. Pre: 111 and 111L (or concurrent) or consent. **FS**

ICS 211 Introduction to Computer Science II (3) Algorithms and their complexity, introduction to software engineering, data structures, searching and sorting algorithms, numerical errors. Pre: 111, 111L, and 141 (or concurrent); or consent.

ICS 211A Introduction to Computer Science II (3) Algorithms and their complexity, introduction to software engineering, data structures, searching and sorting algorithms, numerical errors. A-F only. Pre: 111, 111L and 141 (or concurrent); or consent.

All students wishing to enroll in ICS courses above 211 must meet the prerequisite grade requirement of B or higher in ICS 111 and 211 prior to registering for the course.

ICS 212 Program Structure (3) Program organization paradigms, programming environments, implementation of a module from specifications, the C and C++ programming languages. Pre: 211 or consent.

ICS 241 Discrete Mathematics for Computer Science II (3) Recursive algorithms, program correctness, structured programs, graph theory, trees and their applications, probability theory, Boolean algebra, introduction to formal languages and automata theory. Pre: 111 and 141; or consent. **FS**

ICS 311 Algorithms and Data Structures (3) Data structures, including arrays, records, pointers, trees, and graphs, storage management, algorithms for searching and sorting, mathematical analysis of algorithms. Pre: 141 and 211, or consent.

ICS 312 Machine-Level and Systems Programming (3) Machine organization, machine instructions, addressing modes, assembler language, subroutine linkage, linking to higher-level languages, interface to operating systems, introduction to assemblers, loaders and compilers. Pre: 211 and 212 (or concurrent), or consent.

ICS 313 Programming Language Theory (3) Syntax, control structures, data binding and scope, language styles, programming in LISP and Prolog, language and automata theory. Pre: 141 and 212, or consent.

ICS 321 Data Storage and Retrieval (3) Data storage devices, timing and capacity, programming for files, hashed and indexed files,

introduction to relational database systems. Pre: 141 and 211, or consent.

ICS 331 Logic Design and Microprocessors (3) Basic machine architecture, microprocessors, bus organization, circuit elements, logic circuit analysis and design, microcomputer system design. Pre: 312 or consent. Co-requisite: 331L.

ICS 331L Logic Design and Microprocessors Lab (1) Use of laboratory tools, measurement and construction techniques, hardware debugging, interfacing techniques, microcomputer circuitry and construction. Co-requisite: 331.

ICS 412 Operating Systems (3) Operating system structure, process creation and management, memory allocation and management, scheduling, protection. Pre: 212 and 312, or consent.

ICS 413 Software Engineering I (3) System specification, modeling and analysis, prototyping, hierarchical design, program design methods, cost estimation, project management, computer-aided software design. Team-oriented software-design project. Pre: 311 or consent.

ICS 414 Software Engineering II (3) Continuation of 413. Project management, quality, and productivity control, testing and validation, team management. Team-oriented software-implementation project. Pre: 413.

ICS 415 Introduction to Programming for the Web (3) Introduction to emerging technologies for construction of World Wide Web (WWW)-based software. This course covers the programming and scripting languages used for the creation of dynamic WWW sites and client-server programming. Students will be expected to complete a medium-sized software project that uses all the languages and concepts discussed in the class. Pre: 311 or consent.

ICS 421 Database Systems (3) Principles of database systems, data modeling, relational models, database design, query languages, query optimization, concurrency control data security. Pre: 311 and 321, or consent.

ICS 422 Data Processing (3) Role of data processing in organizations, programming practices, ethics, COBOL language, sequential and indexed file processing, report writing, online transaction processing. Pre: 321 or consent.

ICS 424 Application Frameworks (3) Experience producing applications with at least two different applications frameworks. A-F only. Pre: 212, 311, and 313; or consent.

ICS 431 Computer Architecture (3) Memory management, control flow, interrupt mechanisms, multiprocessor systems, special-purpose devices. Pre: 331.

ICS 441 Theory of Computation (3) Grammars, sequential machines, equivalence, minimalization, analysis and synthesis, regular expressions, computability, unsolvability, Gödel's theorem, Turing machines. Pre: 313.

ICS 442 Analytical Models and Methods (3) Applications of mathematical methods in computer science with emphasis on discrete mathematics, numerical computation, algebraic models, operations research. Pre: MATH 216 or MATH 242 or MATH 252.

ICS 451 Data Networks (3) Network analysis, architecture, digital signal analysis and design; circuit switching, packet switching, packet broadcasting; protocols and standards; local area networks; satellite networks; ALOHA channels; examples. Pre: 141 and 212, or consent.

ICS 461 Artificial Intelligence I (3) Survey of artificial intelligence: natural language processing, vision and robotics, expert systems. Emphasis on fundamental concepts: search, planning, and problem solving, logic, knowledge representation. Pre: 311.

ICS 463 Human Computer Interaction (3) Application of concepts and methodologies of human factors, psychology and software engineering to address ergonomic, cognitive, and social factors in the design and evaluation of human-computer systems. Pre: 311 or consent.

ICS 464 Introduction to Cognitive Science (3) Introduces basic concepts, central problems, and methods from cognitive science. Identifies contributions from disciplines such as cognitive psychology, linguistics, artificial intelligence, philosophy, and neuroscience. Pre: 311 or consent.

ICS 465 Introduction to Hypermedia (3) Basic issues of interactive access to information in various formats on computers. Available hardware and software: editing, integration, programming. Implementation of a sample information system. Pre: 311.

ICS 471 Probability, Statistics, and Queuing (3) Introduction to: probability, Markov chains, queuing theory, statistical inference, and regression. Emphases on computer system applications and statistical computing and simulation. Pre: 141 or consent.

ICS 481 Introduction to Computer Graphics (3) Fundamentals of computer graphics including graphics hardware, representation, manipulation, and display of two- and three-dimensional objects, use of commercial software. Pre: 311 and either MATH 216, MATH 242, or MATH 252; or consent.

ICS 491 Special Topics (3) Reflects special interests of faculty. Oriented toward juniors and seniors. Pre: consent.

ICS 499 Computer Project (V) Individual or small-group projects in system design or application under faculty supervision. Pre: 313 or 321, or consent.

ICS 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

ICS 611 Compiler Theory and Construction (3) Design and implementation of compilers, syntactic and semantic descriptions of programming languages, algorithms for syntactic analysis and object code generation. Pre: 312 or consent.

ICS 612 Theory of Operating Systems (3) Advanced study in operating systems theory and design with emphasis on case studies and distributed systems. Pre: 412.

ICS 613 Advanced Software Engineering (3) Fundamental software engineering procedures, including planning, estimation, design, testing, process definition and improvement, and software quality assurance. Measurement techniques are used to support empirically-

driven software process improvement throughout the course. Pre: 414 or consent.

ICS 614 Software Entrepreneurship (3) Provides in-depth practice with technologies and practices important to establishing and growing a high technology business by technically-skilled individuals. A-F only. Pre: 413 or consent.

ICS 621 Analysis of Algorithms (3) Analysis and design of algorithms: modeling, comparison, measures, applications. Pre: 311.

ICS 622 Systems Modeling and Evaluation (3) Mathematical modeling, analysis, optimization, and simulation techniques, applications to design and evaluation of computer software systems. Pre: 412, 440, and 471; or consent.

ICS 623 Data Security (3) Classical ciphers, current encryption standards, public key cryptography, authentication, digital signatures, security in operating systems and databases. Pre: 321 and 412, or consent.

ICS 641 Theory of Computation (3) Advanced topics in formal languages, automata, computability, computational complexity. Pre: 440 or consent.

ICS 651 Computer Networks (3) Elementary principles of modern computer networking. Detailed coverage of overall architecture and the physical, data link, and network layers, with emphasis on the network layer. Pre: 451.

ICS 661 Artificial Intelligence II (3) Current issues in artificial intelligence, including expert systems, knowledge representation, logic programming, learning, natural language processing. Pre: 461.

ICS 662 Computer Algebra (3) Use of computers and non-numeric mathematics, including algebra and calculus, theory and applications. Pre: 440 or consent.

ICS 663 Pattern Recognition (3) Nature of the problem in pattern recognition and clustering; explanation of various algorithms. Pre: MATH 371.

ICS 664 Human-Computer Interaction (3) Studies of human performance in designing and using information systems. Emphasizes concepts and methodologies from human factors, psychology, and software engineering relating to human performance. Pre: 413.

ICS 665 User Interfaces and Hypermedia (3) Advanced concepts in construction of interfaces between computers and their users. Hypermedia information structures, guidelines, problems, and tradeoffs. Discussion of selected readings, implementation of prototypes. Pre: 465.

ICS 667 Advanced HCI Design Methods (3) Advanced analytical and empirical methods for the design and evaluation of usable, useful, and robust human-computer interfaces. Students will apply selected methodologies to a major system design project. Pre: 463 or 465; or consent.

ICS 671 Applied Regression Analysis (3) Fitting a straight line by least squares, multiple regression, hypothesis testing, examination of residuals, dummy variables, stepwise regression, analysis of variance, nonlinear estimation, computer assignments. Pre: 471.

ICS 672 Time Series Analysis (3) Least squares and maximum likelihood theory, application to

stationary and nonstationary parametric time series model fitting. Pre: 671.

ICS 673 Multivariate Analysis (3) Matrix algebra, multiple and partial correlation, factor analysis, canonical correlation, discriminant analysis with applications. Pre: 471. Recommended: 671.

ICS 681 Computer Graphics (3) Selected advanced topics in computer graphics. Substantial project required. Pre: 481 or consent.

ICS 682 Numerical Computation (3) Selected topics in numerical analysis, mathematical software, and scientific computation; examples include sparse matrix methods, finite element methods, mathematical programming. Repeatable. Pre: 440 or consent.

ICS 690 Seminar in ICS (1) Series of talks on advanced research topics. CR/NC only.

ICS 691 Topics in Software (3) Reflects special interests of faculty in advanced programming, systems programming, software systems. Repeatable. Pre: consent.

ICS 692 Topics in Theoretical Computer Science (3) Reflects special interests of faculty in theoretical computer science. Repeatable. Pre: consent.

ICS 699 Directed Reading/Research (V) Pre: graduate standing and consent.

ICS 700 Thesis Research (V) Research for master's thesis.

ICS 800 Dissertation Research (V)

Information Technology Management (ITM)

College of Business Administration

ITM 115 Introduction to Business Programming (3) Introduction to programming with business-oriented applications. Software development tools, object-oriented software development, program flow and logic. A-F only.

ITM 310 Topics in IS/ITM for Nonmajors (3) This course provides varied opportunities to study information system and decision science topics relevant to general managers. Pre: consent (not open to MIS majors).

ITM 352 Programming Application Systems (3) Introduction to applications programming. Fundamentals, essential logic, file handling, report writing. Emphasis on systems development and disciplined programming. A-F only. Pre: ICS 101 or equivalent or consent.

ITM 353 Information Systems Analysis and Design (3) Analysis and design of systems in organizations. Includes role of general systems concepts, systems development life cycle, identifying systems requirements, logical and physical design. Pre: 352 and BUS 311; or consent.

ITM 354 Database Systems (3) Introduction to database management and data structures, including database planning and design, normalization, relational and network data models, and physical organization and implementation. Pre: 352 and 353, or consent.

ITM 357 Networking (3) Basic concepts in data networking, standards, architectures. Local and wide area networks. PC networking. The Internet. Telephony and Carriers. Pre: 352 and BUS 311 or consent.

ITM 360 Current Topics in Information Systems (3) Repeatable with permission of department chair. Pre: BUS 311 or consent.

ITM 366 Information Systems in Organizations (3) Practice of information systems in organizations. Capstone course for MIS majors. A-F only. Pre: 352, 353, 354, 357 or consent.

ITM 385 Electronic Commerce (3) Survey of electronic commerce technologies and business strategies, with an emphasis on technology and application development. The development of Web-based and multimedia applications; the impacts of EC on business strategy; legal and ethical issues. A-F only. Pre: BUS 311 or consent.

ITM 387 (Alpha) Advanced Topics in Information Systems (3) Computerized management information systems, operations research, or business statistics: (B) risk assessment and business decisions; (C) advanced topics in COBOL; (D) introduction to systems software; (E) advanced technology in MIS; (F) systems development practicum; (G) database systems; (H) impact of advanced technology on organizations; (J) simulation modeling and analysis; (K) decision support systems. Repeatable with permission of department chair. Pre: varies with topic.

ITM 396 Methods of Scientific Research (3) Study of fundamentals of research methodology; planning, organizing, and executing a research project; techniques of gathering data; analysis and interpretation of data; strategy of presenting findings. Pre: BUS 310.

ITM 399 Directed Reading and Research (V) Reading and research in special area of major under direction of faculty member(s). Project must include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by the department chair and the faculty adviser.

ITM 451 Nonparametric Methods (3) Techniques for estimation of parameters and testing hypotheses that require no assumption about the form of the distribution function; application to business problems. Pre: BUS 310.

ITM 453 Sample Design (3) Theory and practice in the selection and statistical treatment of probability samples most appropriate for estimating characteristics of diverse populations. Pre: BUS 310.

ITM 454 Experimental Design (3) Analysis of variance techniques for identification and measurement of factors or treatments which affect productivity or quality of output in action systems. Pre: BUS 310.

ITM 455 Applied Regression Analysis (3) Application of multiple regression analysis to practical business problems. Related techniques of analysis of variance and co-variance, and discrimination analysis also discussed. Pre: BUS 310.

ITM 614 Operations Research for Management I (3) Operations research methods from managerial viewpoint. Emphasis on application of deterministic models to management decision-making. Pre: BUS 610 or consent.

ITM 615 Operations Research for Management II (3) Operations research models under risk and uncertainty including game theory, decision theory, Markov chains, replacement theory, and queuing theory. Emphasis on applications in the business environment. Pre: BUS 610 or consent.

ITM 660 Current Topics in Information Systems (3) Selected current practices and trends in decision sciences and MIS. May be repeated with change in topic. Pre: BUS 615 or consent.

ITM 680 Statistical Decision Theory (3) Modern statistical decision theory as applied to business. Topics include probabilistic models, decision making under uncertainty, and Bayes decision rules. Pre: BUS 610.

ITM 683 Management of Information Systems (3) Nature of organizational information systems. Concepts and impact of modern information technology, including computer hardware and software, database management, data communications and telecommunications, office automation. Pre: BUS 615 or consent.

ITM 684 Decision Support Systems (3) Theory and technology of management information systems with emphasis on decision support systems. Includes characteristics of MIS and DSS, technology support for decision making, integration of decision models, data analysis, and human-computer interaction. Pre: BUS 615 or consent.

ITM 685 Electronic Commerce (3) Fundamentals of electronic commerce technology and business strategy issues. The use of the Internet for marketing, supply-chain management, and retailing; an overview of networking technologies; the development of Web-based applications; policy, legal and ethical issues. A-F only. Pre: BUS 615C or consent.

ITM 686 Computer Simulation (3) Computer simulation as a research and analysis tool, present and potential uses of simulation models, technology of model construction, and the use of computer simulation for studying systems. Pre: BUS 615 or consent.

ITM 687 (Alpha) Seminar in Information Systems (3) Computerized management information systems, operations research, or business statistics: (B) data management and database approach; (C) impact of information technology on organizations; (D) telecommunications; (F) business forecasting methodology; (G) project investment decisions; (H) applied decision analysis; (I) risk assessment and business decisions; (J) data communication; (K) end-user computing; (M) communication and technology. May be repeated for credit. Pre: BUS 615 or consent.

ITM 704 Doctoral Seminar in Information Systems (3) Extensive and critical review of the IS research literature. Can be retaken for credit. Repeatable three times. A-F only. Pre: CIS 703 (or concurrent) or consent.

Insurance (INS)

College of Business Administration

INS 300 Principles of Insurance (3) Analysis and treatment of pure risks; utilization of insurance programs to provide protection against financial losses caused by property losses; third-party claims and premature death.

INS 311 Property and Casualty Insurance (3) Treatment of risk of financial loss of personal and business property and resulting loss of income occasioned by fire and allied perils. Forms of insurance used by individual business executives and firms including crime, transportation, liability, and worker compensation. Pre: 300.

INS 331 Life Insurance (3) Treatment of the risk of premature death through use of various life insurance policies. Policy forms, calculation of premiums, reserves, non-forfeiture values, underwriting, regulation of policy provisions, related coverage. Pre: 300.

Interdisciplinary Studies (IS)

IS 100 Marine Option Program Seminar (1) Statewide overview of ocean issues and organizations involved with marine activities, management, education, research and business. Exploration of opportunities for internships, research projects, study and careers. Proposal writing, project implementation, and report preparation guidelines. Portions on HITS with participation of students and faculty from throughout the UH system. Orientation to the Marine Option Program.

IS 101A Information Literacy (3) Examines scholarly discourse in the information and technology age. Introduces the nature of investigation and presentation in an academic environment. Practice in research and information technologies to think critically and analytically about education and community issues. A-F only.

IS 291A Community Service Practicum (V) Supervised fieldwork in community agency, arranged by student. Repeatable one time. Pre: written proposal approved by Honors director and appropriate faculty adviser.

IS 300A Field Study (V) Pre-arranged systematic field investigation of selected topics. Repeatable three times. Pre: written proposal approved by Honors director and appropriate faculty member.

IS 311 Independent Study Tutorial (V) Comprises a full-semester load. Not open to freshmen or students on probation. Pre: acceptable proposal and consent of Honors director and appropriate faculty adviser.

IS 312 Independent Study Tutorial (V) Continuation of 311.

IS 361 People, the Ocean and the Environment (3) People's impact on quality of coastal and ocean environments, especially Hawaiian; scientific, legal, socioeconomic aspects. Ocean pollution, ocean technology. Pre: OCN 201, ORE 202, or ZOOL 200; or consent.

IS 369 British Life and Culture (3) For Study Abroad Program students participating in the UHM Semester in London. Emphasis is placed on understanding within historical contexts important issues for contemporary British society — particularly those of class, power, gender, and race. A-F only. Pre: participation in London Semester Program.

IS 489 Environmental Practicum (3) Field experience in study and abatement of environmental problems under faculty direction. Project proposal, narrative activity log, and documentary report are required. Pre: upper division standing, courses in appropriate discipline, and consent.

IS 610 Field Study in Gerontology (V) Individually designed field experience for advanced certificate in gerontology students. Placements arranged at community programs, research sites, and special projects at the Center on Aging. Repeatable.

IS 611 Interdisciplinary Seminar in Gerontology (3) Understanding of gerontology as an interdisciplinary field of study and application of such understanding to both theoretical and applied aspects of aging. Repeatable.

International Cultural Studies (CUL)

College of Social Sciences

CUL 609 Faculty Seminar Series (1) Seminar consists of a series of presentations by certificate faculty on topics of ongoing research. Presentations will open current debates about theory and method in cultural studies. A-F only. Co-requisite: 610.

CUL 610 International Cultural Studies: History and Theory (3) Seminar on the history and theory of interdisciplinary cultural studies. The politics of culture are examined in comparative perspective, focusing on their significance for identity formation, intercultural relations, and global flows of images, people and capital. Approaches to the study of media and popular culture are taken up in terms of their relevance for contemporary issues, especially in Hawai'i and the Asia/Pacific/U.S. region. A-F only. Co-requisite: 609.

CUL 750 International Cultural Studies: Research Project (3) Directed reading and research culminating in a project that engages issues in international cultural studies. Types of projects include scholarly essays, community-based projects, performances or exhibitions. Written statement of purpose and self-evaluation required. A-F only. Pre: 609 and 610.

Interpretation and Translation (IT)

College of Languages, Linguistics and Literature

Students must pass a screening examination in order to enroll in all of the following courses (except 401, 403, and 404). Students may enroll for the (A) translation, (B) interpretation, or (C) translation and interpretation programs.

IT 401 Principles of Translation (3) This course aims to make the student aware of the translation process and the criteria for evaluating translations. It includes readings and discussions of the translation process, terminology research as well as intensive practice in precise writing, paraphrasing, and summarizing. Pre: at least 300-level proficiency in a second language.

IT 402 Professional Orientation (1) Survey course. Translation as a profession. Professional history. Professional organizations. Deontological principles underlying working conditions. Contracts. Professional certification and licensing. Repeatable once. Pre: 401, senior or graduate standing, and pass CITS screening exam. Co-requisite for translation students: 412, 414, 422, and 452. Co-requisite for interpretation students: 432, 442, and 452.

IT 403 Principles of Interpretation (3) This course is designed to develop an awareness of the principles and the current issues involved in interpretation. The theoretical principles, ethics, and underlying techniques will be discussed in reference to conference, court, community, etc., interpreting. Pre: at least 300-level proficiency in a second language.

IT 404 Basics of Interpretation (2) Furnishes practical information through readings and discussions about the interpretation practice and profession. Develops an awareness through hands-on practice of the skills involved in the field of consecutive and simultaneous interpretation. Pre: at least 300-level proficiency in a second language.

IT 405 Principles of Court Interpretation (3) Introduction to the theoretical principles, ethics, practical techniques, and current issues surrounding the practice and profession of court and other legal interpreting. Repeatable once only.

IT 406 Community Interpreting (2) Basic principles, ethics and skills involved in community interpreting; practical information about the community interpreter's role and profession; practice of various community interpreting situations and techniques. Repeatable once.

IT 411 (Alpha) Translation Skills (English) (2) Language specific course. Basic techniques and procedures used in bilingual translation of nonfiction texts. Emphasis on the stylistic, syntactic, cultural, lexical, and terminological problems. Translation into English only. (G) general skills; (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable once. Pre: senior or graduate standing and pass CITS screening exam. Co-requisite: 401, 413, 421, and 451.

IT 412 (Alpha) Technical Translation (English) (3) Translation of nonfiction texts into English. Forms and formats. Emphasis on editing target version and producing camera-ready copy. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable once. Pre: 411, senior or graduate standing, and pass CITS screening exam. Co-requisite: 402, 414, and 452.

IT 413 (Alpha) Translation Skills (Second Language) (2) Language specific course. Basic techniques and procedures used in bilingual translation of nonfiction texts. Emphasis on the

stylistic, syntactic, cultural, lexical, and terminological problems. Translation from English into student's working languages. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable once. Pre: senior or graduate standing, and pass CITS screening exam. Co-requisite: 401, 411, 421, and 451.

IT 414 (Alpha) Technical Translation (into Second Language) (3) Translation of nonfiction texts from English into student's working languages. Forms and formats. Emphasis on editing target version and producing camera-ready copy. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable once. Pre: 413, senior or graduate standing, and pass CITS screening exam. Co-requisite: 402, 412, 422, and 452.

IT 421 Research Tools and Technological Aids for Translation (2) Word processing, graphics, spreadsheet, database management, and communication programs for professional practice. Reference and bibliographic searches. Traditional and nontraditional resources. Repeatable once. Pre: senior or graduate standing, and pass CITS screening exam. Co-requisite: 401, 411, and 451.

IT 422 Computer-Assisted Translation (2) (1 Lec, 1 1.5-hr Lab) The use of computers as aids in the translation process. Basic desktop publishing and technical writing. Computer aids for terminology studies and glossary building. Repeatable once. Pre: 421, senior or graduate standing, and pass CITS screening exam. Co-requisite: 402, 412, 452.

IT 431 (Alpha) Pre-Consecutive Techniques (3) Introduction to consecutive interpretation. Abstraction, noting, and recall of information. (G) general skills; (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable once. Pre: senior or graduate standing, and pass CITS screening exam. Co-requisite: 401, 441, and 451.

IT 432 (Alpha) Consecutive Interpretation (3) Extensive note-taking and note-reading in a bilingual context. Focuses on the translation of numbers, acronyms, initials, and economic and financial information. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable once. Pre: 431, senior or graduate standing, and pass CITS screening exam. Co-requisite: 402, 422, and 452.

IT 441 (Alpha) Pre-Simultaneous Techniques (3) Introduction to simultaneous interpretation. Focus on multitasking, attention, shadowing, EVS, and pacing. (G) general skills; (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable once. Pre: senior or graduate standing, and pass CITS screening examination. Co-requisite: 401, 431, and 451.

IT 442 (Alpha) Simultaneous Interpretation (3) Simultaneous interpretation of speeches. Focus on the study of formulaic and frozen language characteristically used in international meetings. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable once. Pre: 441, senior or graduate standing, and pass CITS screening exam. Co-requisite: 402, 432, and 452.

IT 451 (Alpha) Pre-Sight Translation (3) Basic course. Study of the linguistic (discourse analysis) and communicative (public speaking)

skills needed for translation and interpretation work. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable once. Pre: senior or graduate standing, and pass CITS screening exam. Co-requisite for translation students: 401, 411, and 421. Co-requisite for interpretation students: 401, 431, and 441.

IT 452 (Alpha) Sight Translation (3) Basic course. Focus on the ability to translate orally information from a written text. Emphasis on improving linguistic (discourse analysis) and communicative (public speaking) skills. (J) Japanese; (K) Korean; (M) Mandarin; (S) Spanish; (O) other. Repeatable once. Pre: 451, senior or graduate standing, and pass CITS screening exam. Co-requisite for translation students: 402, 412, 414, and 422. Co-requisite for interpretation students: 402, 432, and 442.

IT 499 Directed Reading/Studies (V)

IP

See *Indo-Pacific Languages*

IR

See *Industrial Relations*

Italian (ITAL)

College of Languages, Linguistics and Literature

Students choosing Italian for the language requirement should realize it may not be offered if demand is limited.

ITAL 101 Elementary Italian (3) Conversation, grammar, and reading. Pre: consent. **HSL**

ITAL 102 Elementary Italian (3) Conversation, grammar, and reading. Pre: consent. **HSL**

ITAL 160 Intensive Elementary Italian Abroad (V) Intensive course of formal instruction on the first-year level in Italian language and culture in Italy. **HSL**

ITAL 201 Intermediate Italian (3) Reading, conversation, laboratory drill, composition. Pre: 102. **HSL**

ITAL 202 Intermediate Italian (3) Continuation of 201. Pre: 201. **HSL**

ITAL 258 Intermediate Italian Abroad (3) Intensive course of full-time formal instruction in Italy on the second-year level in Italian language and culture. Pre: 102 or 160 or equivalent. **HSL**

ITAL 259 Intermediate Italian Abroad (3) Continuation of 258. **HSL**

ITAL 260 Intensive Intermediate Italian Abroad (V) Intensive course of formal instruction on the second-year level in Italian language and culture in Italy. For semester programs only. Pre: 102 or 160. **HSL**

ITAL 358 Third-Level Italian Abroad (3) Intensive course of full-time formal instruction in Italy on the third-year level in Italian language and culture. Pre: 202 or 259 or 260 or equivalent.

ITAL 359 Third-Level Italian Abroad (3) Continuation of 358.

ITAL 360 Intensive Third-Level Italian Abroad (V) Intensive course of formal instruction on the third year level in Italian language and culture in Italy. For semester programs only. Pre: 202 or 260 or equivalent.

ITAL 458 Fourth-Level Italian Abroad (3) Intensive course of full-time formal instruction in Italy on the fourth-year level in Italian language, linguistics, culture, and literature. Pre: 359 or 360 or equivalent.

ITAL 459 Fourth-Level Italian Abroad (3) Continuation of 458.

ITAL 460 Intensive Fourth-Level Italian Abroad (V) Intensive course of formal instruction on the fourth-year level in Italian language and culture in Italy. For semester programs only. Pre: 360 or equivalent.

Japanese (JPN)

College of Languages, Linguistics and Literature

All students taking language courses in this program for the first time must take a regularly scheduled placement test; those with no background must come to the Department of East Asian Languages and Literatures for a brief interview. A grade of C or better is required in the prerequisite courses for continuation.

JPN 100 Elementary Japanese, Special (3) Same material as 101, covered more quickly for students with some language background. Pre: placement test. **HSL**

JPN 101 Elementary Japanese (4) Listening, speaking, reading, writing, grammar. Meets one hour, four times a week, plus lab work. Pre: placement test or consent. **HSL**

JPN 102 Elementary Japanese (4) Continuation of 100 or 101. Pre: 100 or 101; or consent. **HSL**

JPN 105 Accelerated Elementary Japanese (8) Content of 101 and 102 covered in one semester. Meets two hours, four times a week, plus lab work. Pre: consent. **HSL**

JPN 111 Elementary Japanese for Oral Communication I (3) The first of a series of courses focusing on speaking and listening skills necessary to performing in common situations in Hawai'i and Japan. Pre: consent.

JPN 112 Elementary Japanese for Oral Communication II (3) Continuation of 111. Pre: 100 or 101 or 111, or consent.

JPN 201 Intermediate Japanese (4) Continuation of 101 and 102. Meets one hour, four times a week, plus lab work. Pre: 102, 105, or placement test; or consent. **HSL**

JPN 202 Intermediate Japanese (4) Continuation of 201. Pre: 201 or placement test; or consent. **HSL**

JPN 205 Accelerated Intermediate Japanese (8) Content of 201 and 202 covered in one semester. Meets two hours, four times a week, plus lab work. Pre: 102, 105, or consent. Fall and Spring only. **HSL**

JPN 211 Intermediate Japanese for Oral Communication I (3) Continuation of 111-112. Pre: 102 or 105 or 112, or consent.

JPN 212 Intermediate Japanese for Oral Communication II (3) Continuation of 211. Pre: 201 or 211, or consent.

JPN 213 Second-Year Japanese for Business/TIM (4) Specific aspects of Japanese language and culture intended to meet the social demands and working requirements of business and/or travel industry management. Meets four hours a week plus lab work. Pre: 102, 105, or consent; and business or TIM major. **HSL**

JPN 214 Second-Year Japanese for Business/TIM (4) Continuation of 213. Pre: 201, 213, or consent; and business or TIM major. **HSL**

JPN 258 Intermediate Japanese Abroad (4) Intensive course of formal instruction on the second-year level in Japanese language and culture in Japan. Pre: 102. **HSL**

JPN 259 Intermediate Japanese Abroad (V) Continuation of 258. A-F only. Pre: 201 or consent. **HSL**

JPN 301 Third-Year Japanese (4) Transitional course employing four skills (listening, speaking, reading, writing) and grammar training to prepare students to address academic content in Japanese. Meets one hour, four times a week, plus lab work. Pre: 202, 205, or placement test; or consent.

JPN 302 Third-Year Japanese (4) Continuation of 301. Pre: 301 or placement test; or consent.

JPN 305 Accelerated Third-Year Japanese (8) Content of 301 and 302 covered in one semester. Meets two hours daily, Monday–Friday, plus daily lab work. Pre: 202 or 205; or consent.

JPN 307 Special Japanese Reading and Writing (3) For bilingual students whose aural and spoken skills in Japanese were acquired informally. Emphasis on reading and writing through 301 level. Pre: placement test. **HSL**

JPN 308 Special Japanese Reading and Writing (3) Continuation of 307. Pre: 307 or placement test. **HSL**

JPN 315 Third-Year Japanese Aural Comprehension (3) Training in strategies for listening to various types of spoken material presented in narrations, interviews, news broadcasts, and lectures, etc. Pre: 302 or consent.

JPN 350 Introduction to Japanese Linguistics (3) Introduction to major areas of linguistic description as applied to Japanese language. Pre: 302 or 305. **DH**

JPN 358 Third-Level Japanese Abroad (4) Intensive course of full-time formal instruction on the third-year level in Japanese language and culture in Japan. Pre: 202.

JPN 359 Third-Level Japanese Abroad (4) Continuation of 358. Pre: 301 or 358.

JPN 370 Language in Japanese Society (3) Review of the use of Japanese respect language in relation to social structure, interpersonal relationships, and ways of thinking. Pre: 302, 305, or consent.

JPN 399 Directed Third-Level Reading (V)

For those who need special assistance, e.g., reading texts in area of specialization or at a pace more rapid than those of standard courses. CR/NC only. Repeatable. Pre: consent.

JPN 401 Fourth-Level Japanese Reading (3)

Continuation of 301 and 302 with emphasis on development of reading skills. Pre: 302, 305, or placement test.

JPN 402 Fourth-Level Japanese Reading (3)

Continuation of 401. Pre: 401 or placement test.

JPN 405 Fourth-Level Japanese Reading:

Accelerated (6) Content of 401 and 402 covered in one semester. Meets daily Monday–Friday. Pre: 302, 305, or placement test.

JPN 407 (Alpha) Readings in Original Texts

(3) (B) newspapers and magazines; (C) social sciences; (D) humanities; (E) modern literature. Pre: 402, 405, or consent.

JPN 415 Japanese Aural Comprehension (3)

Training in comprehension of spoken material presented in news broadcasts, documentary narration, formal lectures, etc. Pre: 402, 405, or consent. May be concurrent with 407.

JPN 420 Fourth-Level Spoken Japanese (3)

Training in oral communication skills in varied social contexts. Pre: 402 or 405.

JPN 421 Japanese Composition (3)

Writing skills refined through practice in various styles (essays, letters, etc.). Pre: 402, 405, or consent.

JPN 425 Japanese Translation (3)

Training in techniques of translating Japanese into English. Pre: 407 or consent.

JPN 451 Structure of Japanese (3) Introduction to phonology, morphology, syntax, and semantics of modern colloquial Japanese. Pre: 402 or 405, and 350 or LING 320; or consent.

DH**JPN 458 Fourth-Level Japanese Abroad (3)**

Intensive course of full time instruction on the fourth-year level in Japanese language and culture in Japan. Pre: 302.

JPN 459 Fourth-Level Japanese Abroad (3)

Continuation of 458. Pre: 401 or 458.

JPN 461 Introduction to Classical Japanese

(3) Basic classical Japanese grammar to develop reading skills. Pre: 407 or consent.

JPN 466 Readings in Classical Japanese (3)

Introduction to major genres of prose and poetry. Repeatable once with permission. Pre: 461 or consent. **DL**

JPN 485 (Alpha) Advanced Reading in

Modern Japanese (3) (B) literature; (C) nonfiction. Repeatable once. Pre: 407E and one of 407B, 407C, or 407D; or consent. **DL**

JPN 490 Advanced Language Study: Japanese

(3) Advanced course in spoken and written Japanese stressing intensive research using the Internet, electronic mail in Japanese and conventional media. Oral presentations, written reports and journal writing. Repeatable. Pre: 485 or equivalent and consent.

JPN 495 Internship Program (3)

Analysis of intercultural communication processes under faculty supervision through participation in an

organization serving native speakers of Japanese. Pre: 302 and 370 (or concurrent), or consent.

JPN 499 Directed Fourth-Level Reading (V)

For those who need special assistance, e.g., in reading texts in area of specialization or at a pace more rapid than those of standard courses. Primarily for graduate students from other departments. CR/NC only. Repeatable. Pre: consent.

JPN 601 Japanese Phonology and Morphology

(3) Introduction to the phonology and morphology of modern colloquial Japanese. Pre: LING 320 or consent.

JPN 602 Japanese Syntax and Semantics (3)

Introduction to theories of syntax, sentence structure, parts of speech, constituency, grammatical relations and case marking, word order, passives, causatives, tense, aspect, and embeddings. Pre: LING 320 or consent.

JPN 604 Introduction to Japanese Language

Pedagogy (3) Training in the identification and analysis of general problems in Japanese language learning, teaching, and testing by examining theoretical issues and conducting classroom research. Pre: 407 or equivalent, 451 and 605 (or concurrent); or consent.

JPN 605 Research Methodology in Japanese

Linguistics and Language Teaching (3) Japanese-specific training in the formulation of testable hypotheses, in basic statistical and other evaluation techniques, and in the organization and presentation of ideas and data in paper, abstracts, etc. Pre: 407 or equivalent.

JPN 606 Introduction to Japanese

Sociolinguistics (3) Introduces theories of language use and provides training in the methodology and analysis of Japanese sociolinguistics. Pre: 370, 407 or equivalent, and 605 (or concurrent); or consent.

JPN 610 (Alpha) Japanese Poetry (3)

Historical survey of major poetic types. Repeatable once with consent. (B) classical; (C) medieval Edo; (D) modern. Pre: 466 or consent for (B) and (C); 485 or consent for (D).

JPN 611 (Alpha) Modern Japanese Literature

(3) Representative literary works, emphasis on fiction. Repeatable once with consent. (B) Meiji–Taisho (1868–1926); (C) Showa–Heisei (1926–present). Pre: 485 or consent.

JPN 612 Edo Literature (3)

Critical reading and analysis; emphasis on prose. Repeatable once with consent. Pre: 466 or consent.

JPN 613 Medieval Japanese Literature (3)

Critical reading and analysis of Kamakura and Muromachi literature, emphasis on prose. Repeatable once with consent. Pre: 466 or consent.

JPN 614 Classical Japanese Literature (3)

Critical reading and analysis of Heian literature; emphasis on prose. Repeatable once with consent. Pre: 466 or consent.

JPN 620 Practicum: Teaching Japanese

Language (3) This course is designed for graduate students pursuing Japanese language teaching and learning, while developing teaching skills, curriculum competence, and leadership. Pre: 604 or EALL 601 or consent.

JPN 631 History of the Japanese Language

(3) Survey, theories of origin; related topics in linguistic methodology. Pre: 461 and 601, or consent.

JPN 632 Teaching Japanese as a Second

Language (3) Practical overview of major problems; motivation; adult second language learning; communicative and linguistic competence; practical classroom techniques of teaching and testing. Pre: 604 and 605; or consent.

JPN 633 Japanese Sociolinguistics (3)

Variations in language form and use depending on social factors. Pre: 601 or 602 (or concurrent), 605 and 606; or consent.

JPN 634 Advanced Japanese Syntax and

Semantics (3) Theoretical problems in description of Japanese; contributions of Japanese linguistic study to syntactic theory. Pre: 602 or consent.

JPN 640 Themes in Japanese Literature (3)

Intensive study of selected themes in Japanese literature, primarily in the modern period. Content to be announced. Open to nonmajors. Repeatable with consent. Pre: 485 or equivalent, or consent.

JPN 641 Traditional Literary Theory (3)

Reading and analysis of major works of literary theory and criticism from the classical, medieval, and Edo periods. Pre: 466 or consent.

JPN 642 Kambun (3)

Introduction to kambun [the Japanese manner of reading and writing classical Chinese], with critical reading of kambun by Japanese authors. Pre: 461 or consent.

JPN 650 (Alpha) Topics in Japanese

Linguistics (3) (C) Japanese/English contrastive analysis (Pre: 601 and 602); (G) structure; Pre: 634 (H) historical change; Pre: 631 (K) history of Japanese language studies (*Kokugo-gaku-shi*); Pre: 631 (M) morphophonemics; Pre: 601 (P) pedagogy; Pre: 632 (S) sociolinguistics; Pre: 633.

JPN 699 Directed Research (V)

CR/NC only. Pre: consent of chair.

JPN 710 (Alpha) Research Seminar in

Japanese Literature (3) (M) modern; Pre: 611 (P) pre-modern; Pre: 612, 613, or 614.

JPN 730 (Alpha) Research Seminar in

Japanese Linguistics (3) (C) Japanese/English contrastive analysis; Pre: 451, or 601 and 602 (G) structure; Pre: 634 (H) historical change; Pre: 631 (K) history of Japanese language studies (*Kokugo-gaku-shi*); Pre: 631 (M) morphophonemics; Pre: 601 (P) pedagogy; Pre: 632 (S) sociolinguistics; Pre: 633.

Journalism (JOUR)

College of Social Sciences

JOUR 150 The Press and Society (3)

Communications media in theory and practice. Development, role, influence; rights, responsibilities, problems, issues, and trends. **DS**

JOUR 205 News Writing (3)

Fundamentals of news style, reporting, ethics. Pre: minimum grade of B in ENG 100 (no ELI 100); or consent.

JOUR 206 News Editing (3) Training in editing news material for accuracy, clarity, and relevance. Headline writing. A–F grading only. Pre: 205 or consent.

JOUR 307 Photojournalism (3) Production, selection, and use of photographs for publications. Storytelling with black and white action and feature photos. Students must have a 35 mm single lens reflex camera and supply own black and white film and photographic paper. Pre: 205.

JOUR 315 Public Affairs Reporting (3) Writing about governmental affairs, contemporary issues by using techniques of interviewing and of analyzing library materials plus court, legislative, real property, and other public records. A–F grading only. Pre: 206 (or concurrent) or consent.

JOUR 316 Advanced Editing (3) Intensive training in editing, planning, and organizing stories and visual elements for publication; news judgment; managing projects. Pre: 206 or consent.

JOUR 320 Public Relations (3) Current practice and problems in systematic use of media and techniques to influence the public. Pre: 205 or consent.

JOUR 325 Magazine Writing (3) Writing nonfiction articles for magazines, newspapers, and newsletters; preparing material for specific audience; marketing articles. Pre: 206 (or concurrent).

JOUR 327 Interpretive Journalism (3) Writing articles of news analysis, editorials, and critical reviews. Pre: 206 (or concurrent) or consent.

JOUR 360 Journalism History and Trends (3) Development of the news media and trends that may affect the future of journalism. Pre: upper division standing. **DS**

JOUR 365 Media and the Law (3) Function of American legal system as it relates to news media. Libel, copyright, freedom of information, free press vs. fair trial, regulation of broadcasting. A–F grading only. Pre: upper division standing or consent. **DS**

JOUR 366 Broadcast News Writing and Editing (3) Writing and editing of news for radio and television. Lectures and assignments to develop the special skills required. Pre: 205 or consent.

JOUR 385 Practicum (1) Working on campus student or quasi-professional publications under professional and faculty supervision. CR/NC only. Repeatable. Pre: 205 or consent.

JOUR 390 (Alpha) Journalism Workshops (V) Short-term intensive workshops in journalism and mass communication skills and projects. (B) workshop in new media; (C) workshop in reporting; (D) workshop in editing; (E) workshop in broadcast journalism; (F) workshop in public relations. Repeatable one time. A–F only. Pre: 206 or consent.

JOUR 407 Advanced Photojournalism (3) Computer experience in the creation, manipulation, and editing of color news, feature, sports, and documentary images. Study of the ethical

and legal dimensions of electronic imaging. Pre: 307 or consent.

JOUR 410 Writing for Public Relations (3) Techniques of researching, planning, and writing public relations messages for a variety of audiences and media. Pre: 206 and 320, or consent.

JOUR 412 Contemporary Public Relations (3) Advanced research, planning, and writing techniques for production and dissemination of persuasive messages, research reports, and campaign proposals, as applied to specialized contemporary public relations practice. Pre: 410 or consent.

JOUR 415 Advanced Reporting (3) Intensive training in reporting and writing in sensitive news areas for advanced students; fieldwork. A–F grading only. Pre: 315 or consent.

JOUR 420 Advanced Public Relations (3) Application of traditional and innovative techniques to establish relationships, develop understanding and goodwill, and solve complex contemporary public relations problems. A–F grading only. Pre: 206 and 320, or consent.

JOUR 425 Publication Layout and Design (3) Visual display concepts and procedures for newsletters, brochures, newspapers, magazines. Pre: 206 and upper division standing.

JOUR 436 Broadcast News Reporting (3) Reporting, writing, scripting, on-air delivery, producing for broadcast news. Laboratory and fieldwork. A–F grading only. Pre: 315 (or concurrent) and 366; or consent.

JOUR 445 Specialized Reporting (3) Coverage of a selected field or beat, developing background materials, news sources, and story ideas. A–F grading only. Pre: 315.

JOUR 460 Media Ethics (3) Ethics and social responsibility for media professionals. Application of ethical theories and principles to case studies and research projects. Pre: any 300-level course in journalism or communication.

JOUR 466 Advanced Broadcast News (3) Preparation of TV news public affairs programs and mini-documentaries; delivery on air; use of videotape recorders in reporting. Pre: 315 (or concurrent) and 366; or consent.

JOUR 475 International News Coverage (3) Evaluation of coverage and selection of foreign news by American news media; emphasis on news of Asia and Pacific. Techniques of foreign correspondence. International flow of news. Pre: upper division standing.

JOUR 485 Fieldwork (3) Internship in media or PR operations under professional and faculty supervision. CR/NC only. Pre: one of 315, 320, 366, or 425; and consent.

JOUR 499 Directed Research (V) Individual research projects. Pre: senior standing and consent of department chair.

JOUR 515 Advising School Publications (2)

Kinesiology and Leisure Science (KLS)

College of Education

Students registering for 101–186, 323, 331–338, 371–374, and 487 will be requested to complete a medical history form and a liability disclaimer form on the first day of instruction. All students taking 393, 394, 493, and 494 must be immunized for hepatitis B virus prior to admission in the class.

KLS 101 Physical Fitness (1) Conditioning exercises and activities to develop and maintain physical efficiency. Motor fitness tests administered to measure status and progress.

KLS 102 Aerobic Fitness: Beginning (1) Aerobic fitness improvement upon completion of course. Learning and practicing safe total body workout routines done to music. Developing an individual fitness program and recording progress in that program.

KLS 103 Swimming: Beginning (1) Adjusting to and immersing in water, floating, sculling; correct arm stroke, leg kick, breathing techniques and their coordination. (Student to provide own swimming attire approved by instructor.)

KLS 104 Swimming: Intermediate (1) Perfecting and integrating basic strokes with added emphasis for distance and speed. (Student to provide own swimming attire approved by instructor.) Pre: 103 or consent.

KLS 105 Swimming: Advanced (1) Correct techniques used in competitive swimming, racing starts, correct turning techniques, long-distance swimming. (Student to provide own swimming attire approved by instructor.) Pre: 104 or consent.

KLS 106 SCUBA Diving: Beginning (1) Learning watermanship, equipment handling skills, and the knowledge to become safe divers. Additional costs for equipment, diver manual, dive tables, and certification fee.

KLS 110 Golf: Beginning (1) Rules, etiquette, grip, stance, drive, normal iron shots, approach shots, putting.

KLS 111 Golf: Intermediate (1) Corrective work on basic swing mechanics and rhythm; adjustments for bunker play, uphill lies, downhill lies, short game around and on the green; handicapping and match play competition. Pre: 110 and consent.

KLS 112 Golf: Advanced (1) Improving drive, fairway wood shots, long iron shots, control shots, trouble shots, putting, course management, competitive strategy, problems in rules. Greens fees paid by students for play on courses. Pre: 111 and consent.

KLS 115 Bowling (1) Rules, etiquette, arm swing, approach, execution, scoring, spare pickups. Students pay charge for use of alley.

KLS 118 Rifle Marksmanship (1)

KLS 120 Badminton (1) Rules, etiquette, grip, forehand and backhand strokes, serving, smash, drive, net play, offensive and defensive strategy; singles and doubles play.

KLS 123 Folk and National Dances (1)

Popular dances of various national groups, including square dances. **DA**

KLS 124 Dances of Hawai'i (1) Background and fundamentals of hula. Selected dances with and without instruments. **DA**

KLS 125 Dances of Hawai'i: Advanced (1) Advanced techniques in hula movements. Selected dances taught will be more complex, including work with instruments. Individual choreography will be emphasized. Pre: 124 or consent. **DA**

KLS 126 Social Dance: Western (1) Social dances including fox trot, waltz, swing, line dances, and other popular dances. Basic steps, rhythm pattern, styling, and variations are taught. Social etiquette is stressed. **DA**

KLS 127 Social Dance: Latin (1) Social dances of a Latin flavor including rhumba, cha-cha, tango, samba, and others. Basic steps, rhythm pattern, styling, and variations are taught. Social etiquette is stressed. **DA**

KLS 130 Tennis: Beginning (1) Rules, etiquette, grip, forehand and backhand strokes, serving, volleying; singles and doubles play.

KLS 131 Tennis: Intermediate (1) Corrective work in three basic strokes and in net play; the lob, drop shot, overhead smash, and half-volley; applying spin in basic strokes; basic strategy in singles and doubles play. Pre: 130 or consent.

KLS 132 Tennis: Advanced (1) Improving upon the strokes introduced in 130 and 131; advanced competitive strategy; problems in rules; officiating; elements of tournament play. Pre: 131 or consent.

KLS 135 Volleyball (1) Rules, serving, passing, setting up, spiking, blocking, offensive and defensive team play strategy.

KLS 137 Basketball (1) Rules, passing, shooting, dribbling, rebounding, individual defensive and offensive maneuvers; team offense and defense.

KLS 151 Adapted and Prescribed Exercises (1) Small group and individual guidance and instruction for students recommended by student health service. Pre: consent.

KLS 152 Weight Training (1) Kinesiology of lifting and weight training, various types of exercises and methods of training with resistance.

KLS 153 Olympic and Power Lifting (1) Exercise technique and prescription with an emphasis on anaerobic exercise. The course explores advanced periodization models and their utilization, mastery of Olympic lifts, and plyometric programs. Pre: 152, 253, 254, and 263; or consent.

KLS 154 Tumbling and Rebound Tumbling (1) Single and combination stunts on tumbling mats and trampoline, balancing stunts; techniques of spotting; safety procedures.

KLS 156 Heavy Apparatus (1) Single and combination stunts on side horse, horizontal bar, parallel bars, still rings; techniques of spotting; safety procedures.

KLS 160 Judo (1) Rules, etiquette, method of falling and breaking the fall, simple throws and

their counters, simple holds and breaking of such holds, randori. (Student to provide own gi.)

KLS 161 Aikido (1) Rules, etiquette, basic rolls, simple holds and the breaking of such holds, specific physical conditioning exercises. (Student to provide own gi.)

KLS 163 T'ai Chi Ch'uan (1) Classic forms of t'ai chi ch'uan.

KLS 164 Karate: Beginning (1) Rules, etiquette, basic stances, blocks, thrusts, kicks, ippon kumite, and selected kata. (Student to provide own gi.)

KLS 165 Karate: Intermediate (1) Emphasis on improving the basic techniques (stances, punches, kicks, forms, and sparring); introduction to combination techniques. (Student to provide own gi.) Pre: 164.

KLS 167 Wrestling: Beginning (1) Rules: fundamental defensive and offensive maneuvers and competitive strategy, i.e., takedowns, reversals, escapes, and pinning combinations; conditioning exercises.

KLS 170 Yoga: Beginning (1) Experiencing yoga and its effects on body, mind and consciousness of individual. Course encompasses exercise, breathing techniques, deep relaxation, meditation, practice in concentration, and yogic postures.

KLS 171 Yoga: Intermediate (1) Corrective work and improvement of basic techniques. Exercise sets and combinations designed to develop endurance, flexibility, muscle and nerve strength, meditation, and deep relaxation technique. Pre: 170 or consent.

KLS 173 Water Polo (1) Fundamentals of basic water polo skills, namely, ball handling, passing, shooting, dribbling plus a brief introduction into beginning techniques of individual offense and defense. Pre: 104 or consent. (Student to provide own swimming attire approved by instructor.)

KLS 180 Soccer and Speedball for Physical Educators (1) Half semester of each sport, covering basic skills, rules, etiquette, offensive and defensive strategies, position play, and playing of game. Primarily for KLS majors; others admitted on space-available basis.

KLS 181 Sport Proficiency: Net (2) Knowledge, skill development, positioning and strategy of various net type games (e.g., badminton, pickleball) are introduced within a tactical framework. Primarily for KLS majors; others are admitted on space-available basis. Repeatable once. A-F only.

KLS 182 Sport Proficiency: Target/Striking (2) Knowledge, skill development, etiquette and strategy of various target and striking type games (e.g., softball, golf, archery) are introduced within a tactical framework. Primarily for KLS majors; others are admitted on space-available basis. Repeatable once. A-F only.

KLS 183 Sport Proficiency: Field/Invasion (2) Knowledge, skill development, positioning, offensive and defensive strategies of various field/invasion type games (e.g., flag football, team handball) are introduced within a tactical framework. Primarily for KLS majors; others are admitted on space-available basis. Repeatable once. A-F only.

KLS 184 Sport Proficiency: Fitness (2)

Knowledge introducing program implementation, promoting healthy lifestyles, and modeling of appropriate behaviors of fitness activities (e.g., aerobics, personal fitness) across the life-span are introduced. Primarily for KLS majors; others are admitted on space-available basis. Repeatable once. A-F only.

KLS 185 Floor Exercise Gymnastics (1) An entry-level course designed to develop students' knowledge of men's and women's gymnastics floor exercise routines, including injury prevention, skill progression, spotting techniques, and routine choreography. Primarily for KLS majors; others admitted on space-available basis.

KLS 186 Track and Field for Physical Education (1) Knowledge, skills, and rules of various track and field events. Organization of track meets and strategy in competition. Primarily for KLS majors; others admitted on space-available basis.

KLS 195 Personal Health and Wellness (3) Scientifically based information will be presented to help the student make decisions and take responsibility for his/her own health and health-related behaviors. The student will develop a personal, daily physical activity/exercise program, in which he/she will participate and be monitored. **DB**

KLS 201 School Health Problems: Elementary (2) Responsibilities of elementary school teacher in recognizing and meeting pupils' needs, emphasizing teacher's role in health instruction, health services, school health policies.

KLS 202 School Health Problems: Secondary (2) Responsibilities of secondary school teacher in recognizing and meeting pupils' needs, emphasizing health instruction, health services, healthful school living, school health policies.

KLS 203 Foundations of Physical Education (3) Physical Education as a professional field. Overview of history, philosophy, and current practices in Physical Education. Survey of psychological and sociological foundations of exercise and sport. KLS majors or approval. Repeatable one time. A-F only. Recommended: 195

KLS 204 Introduction to Coaching Athletics (2) Nature, responsibilities, personal and professional requirements of coach. Scientific principles applicable to coaching methodology and athletic competition.

KLS 205 Introduction to Sports Medicine (3) Overview of the entire area of sports medicine. Students briefly review major musculoskeletal relationships, types of injuries, and concepts of treatment. **DB**

KLS 208 Recreation Services in Contemporary Society (3) Theories and philosophies in recreation: history; contemporary issues; roles in modern society; relationship to health, physical education, and exercise science.

KLS 232 Safety and Risk Management (2) Understanding the fundamental principles and techniques of safety and accident-prevention programming emphasizing school, home, public places, on the job, and motor vehicle situations.

KLS 238 Outdoor Recreation Management (3) Objectives and values of outdoor recreation; characteristics and determinants of programs; planning, organization, leadership, and facilities for recreational uses of natural environments. Pre: 208 or consent of instructor.

KLS 241 Health Education Curriculum (2) Objectives of school health program, emphasizing scope and sequence of health instruction; critical examination of health curriculum guides from various states. Pre: 201 or 202.

KLS 249 Programming and Leadership (3) Factors in planning and leading recreation programs; characteristics and responsibilities of leadership in relation to nature, scope, and resources of a variety of programs. Pre: 208 or consent.

KLS 253 Applied Musculoskeletal Anatomy (3) Gross human anatomy, emphasizing identification and description of parts of musculoskeletal system; selected applications to motor activity. Primarily for physical education majors, but open to others with consent. Pre: PHYL 141 and PHYL 141L and PHYL 142 (or concurrent) and PHYL 142L (or concurrent).

DB

KLS 254 Exercise and Sport Physiology (3) Emphasis on physiological responses to exercises and physical training as related to strength, muscular endurance, circulo-respiratory endurance. Primarily for physical education majors, but open to others with consent. Pre: 253 (or concurrent) or consent. **DB**

KLS 263 Introduction to Sport Biomechanics (3) Concepts and scientific principles essential to efficient human movement; proper application of kinesiological and mechanical principles to fundamental movements and selected complex motor skills. Pre: 253, PHYS 100, and MATH 140 or equivalent; or consent. **DB**

KLS 270 Introduction to Physical Education (2) Methods and materials in teaching physical activities program; techniques in leadership; selection of activities and program evaluation for K-12 licensure. Majors only. Repeatable once. A-F only.

KLS 271 Evaluation in Health Education (2) Processes involved in assessing school health education program with emphasis on measurement criteria and instruments, interpretation of data and content, organization and conduct of evaluation program. Pre: 201 or 202.

KLS 302 School's Role in Community Health (2) Functional interrelationships between school and other community health organizations in solving school-community health problems. Pre: consent.

KLS 310 Coaching of Football (2) Theory and strategy of offensive and defensive football coaching. Emphasis on coaching philosophy, selecting and developing an offense and defense, organizing practices, special situations, scouting, and training and conditioning. Pre: 204 or consent.

KLS 311 Coaching of Basketball (2) Theory and strategy of offensive and defensive basketball coaching. Emphasis on coaching philosophy, selecting and developing an offense and defense,

organizing practices, special situations, scouting, and training and conditioning. Pre: 204 or consent.

KLS 312 Coaching of Baseball (2) Theory and strategy of offensive and defensive baseball coaching. Emphasis on coaching philosophy, selecting and developing an offense and defense, organizing practices, special situations, scouting, and training and conditioning. Pre: 204 or consent.

KLS 313 Coaching of Volleyball (2) Theory and strategy of offensive and defensive volleyball coaching. Emphasis on coaching philosophy, selecting and developing an offense and defense, organizing practices, special situations, scouting, and training and conditioning. Pre: 204 or consent.

KLS 323 Music and Rhythm in Physical Education (2) Use of music in physical education program, emphasizing selection of appropriate music for specific activities as expressive or creative movement, movement exploration, rhythmic gymnastics, dancing. Pre: consent.

KLS 329 Managing Recreation Services (3) Administrative framework and procedures pertinent to the operation of agencies providing recreational services to the various publics. Pre: 208 or consent.

KLS 331 Water Safety Training (3) Theory and methods of advanced lifesaving and water safety leading to American Red Cross Water Safety Instructor (WSI) certification. Pre: 104 or consent. (Student to provide own swim attire approved by the instructor.)

KLS 332 Emergency Care and First Aid Training (2) Practicum in training of persons to become qualified in emergency care knowledge, basic life support, and first aid skills. First Aid and CPR certificates may be earned. **DB**

KLS 333 Movement Education (2) Experiential learning of basic motor skills for teachers of elementary school children. Emphasis given to exploratory (indirect) approach.

KLS 334 Upper Elementary Movement Education (2) Development of skills and concepts of games, dance, and gymnastics for grades three–seven. Emphasis given to designing appropriate learning activities. Pre: 333 (or concurrent) or consent.

KLS 335 Coaching of Track and Field (2) Techniques and rules of sprints, distance runs, relays, hurdles, long jump, high jump, pole vault, shot put, discus, and javelin throws; conduct of track and field meets; specific conditioning and training problems. Pre: 204.

KLS 336 Coaching of Swimming (2) Theory and methods of coaching competitive swimming. Technical, organizational, and administrative aspects. Emphasis on stroke mechanics and training methods. Pre: 204 or consent.

KLS 337 Fieldwork in Recreation I (5) Initial supervised leadership experience in recreational agencies. One hour per week in class discussion sessions. For recreation majors only. Pre: consent of recreation adviser.

KLS 338 Field Work in Strength and Conditioning (1) Supervised practicum in strength training and conditioning. Students will

be exposed to the theory and practice of designing and implementing both strength/power, and general conditioning programs. Repeatable one time. Pre: 152, 253, 254, 263, and 489 (or concurrent); or consent.

KLS 339 Special Recreation (3) Special recreation as a professional field. Overview of special recreation services. Emphasis on recreation services for special populations. Pre: 208 or consent.

KLS 371 Teaching Techniques—Net (2) Teaching techniques and methods of selected net sport/activities. These include sports/activities that emphasize the tactical approach in court space. Primarily for KLS majors. Repeatable once. A-F only. Pre: 181, 253, 254, 263 (or concurrent), and 270 (or concurrent); or consent.

KLS 372 Teaching Techniques—Target/Striking (2) Teaching techniques and methods of selected target/striking sports/activities. Including sports/activities that emphasize the tactical approach in sports (e.g., softball, golf, archery). Primarily for KLS majors. Repeatable once. A-F only. Pre: 182, 253, 254, 263 (or concurrent), and 270 (or concurrent); or consent.

KLS 373 Teaching Techniques—Field/Invasion (2) Teaching techniques and methods of selected field/invasion sports/activities. These include sports/activities that emphasize the tactical approach in field space. Primarily for KLS majors. Repeatable once. A-F only. Pre: 183, 253, 254, 263 (or concurrent), and 270 (or concurrent).

KLS 374 Teaching Techniques—Fitness (2) Teaching techniques and methods of selected fitness sports/activities. These include fitness sports/activities that emphasize promoting a healthy lifestyle. Primarily for KLS majors. Repeatable once. A-F only. Pre: 184, 253, 254, 263 (or concurrent), and 270 (or concurrent).

KLS 384 Drugs and Society (3) Introduction to psychoactive drugs and their effects; drug regulations; education and rehabilitation programs; psycho-social variables related to the decisions to use/abuse drugs. Pre: 195 or consent.

KLS 385 Physical Fitness for Physical Education Teachers (1) Diagnosis and prescription for basic health and fitness problems, scientific principles of training, guidelines for exercise; essentials of scientifically based individualized physical fitness program. Pre: 254.

KLS 393 Athletic Training Practicum I (1) Introductory-level supervised experiences within the profession of athletic training. This practicum is a requirement for entry to the KLS Master's Athletic Training Program. A-F only.

KLS 394 Athletic Training Practicum II (1) Introductory-level supervised experiences within the profession of athletic training. This practicum is a requirement for entry to the KLS Master's Athletic Training Program. A-F only.

KLS 399 Directed Reading (V) Individual problems. Limited to senior majors in health education, physical education, athletic training, or recreation with a minimum GPA of 2.75 in major field.

KLS 401 Current Trends in Health (3)

Critical analysis of current problems and trends in basic health education areas that contribute to healthful living in community, home, school. Pre: 201 or 202, or consent. Recommended: 302.

KLS 402 Teaching Practicum in Physical Education (2)

Field experience in teaching physical education activities program in private and public schools; techniques in leadership; selection of activities and program evaluation for K-12 licensure. Repeatable one time. A-F only. Pre: 253, 254, 263, 270, and 371-374; or consent. Co-requisite: 404.

KLS 404 K-12 Teaching Methods in Physical Education (3)

Methods and materials in teaching physical education activities program; techniques in leadership; selection of activities and program evaluation for K-12 licensure. Repeatable one time. A-F only. Majors only. Co-requisite: 402.

KLS 405 Teaching Residency (9) Full-time supervised experience in elementary and secondary school level. Repeatable one time. A-F only. Pre: 402 and 404; requirements for registration listed under "student teaching"; or consent. Co-requisite: 406.

KLS 406 Seminar in Teaching Residency (3)

Analysis and resolutions of issues in teaching residency; teaching strategies and techniques; curriculum planning; professional growth and development. Repeatable one time. A-F only. Pre: 402 and 404; or consent. Co-requisite: 390.

KLS 415 Prevent/Care of Athletic Injuries (3)

An examination of the most recent practices and procedures in the prevention and care of athletic and sports injuries. Observational field experiences in athletic training will be required. A-F only. Pre: 253, 254, 263, ANAT 301, ANAT 301L, ANAT 302, ANAT 302L or consent.

KLS 416 Fundamentals of Ergonomics (3)

Introduction to ergonomics principles and their application in understanding and prevention of Muscular Skeletal Disorders encountered in the working environment including introduction to legal aspects of ergonomics. Pre: 263 or consent. (Cross-listed as NURS 416)

KLS 419 Athletic Training Administration (3)

An examination of the administration and organization of athletic training programs. Field experiences in athletic training will be required. A-F only. Pre: 415 or consent.

KLS 420 Lower Extremity Assessment (3)

An examination of the pathology of injuries to the lower extremities and their care and treatment. Field experiences in athletic training will be required. A-F only. Pre: 253, 254, 263, 415, ANAT 301, ANAT 301L, ANAT 302, ANAT 302L or consent.

KLS 421 Upper Extremity Assessment (3)

An examination of the pathology of injuries to the upper extremities and their care and treatment. Field experiences in athletic training will be required. A-F only. Pre: 253, 254, 263, 415, 420, ANAT 310, ANAT 301L, ANAT 302, ANAT 302L or consent.

KLS 423 Curriculum and Supervision (3)

Effective program development, planning, and supervision, including issues in legal liability and administration of all aspects of physical education programming in grades K-12. Repeatable once. A-F only. Pre: 253 (or concurrent), 254 (or concurrent, 263, and 270; or consent. Majors only.

KLS 428 Current Issues in Leisure Services (3)

Philosophical foundations and current and emerging issues in leisure services management and programming. Coverage of leisure research and its implications to practice. Pre: 208, 238, 249, and 329; or consent.

KLS 429 Evaluating and Marketing Leisure Services (3)

Basic methods in marketing, planning, evaluating programs and problem-solving methods, survey research, research design, data analysis, and report generation for park, recreation, and tourism systems. A-F only. Pre: 208 and 329 (or concurrent); or consent.

KLS 434 Techniques of Officiating (2)

Techniques used by officials in selected sports, emphasizing general concepts of role of official and working knowledge of basic mechanics of officiating. Primarily for physical education and recreation majors.

KLS 437 Camp Resources and Planning (2)

(1 Lec, 1 3-hr Lab) Combined lecture and lab course for camp counselors and camp leadership. Plan and evaluate camp experiences for children and youth, including those with disabilities. Includes field trips. Pre: 331 and 332; or consent.

KLS 438 Practicum in Camping (V)

Supervised leadership at a camp setting with children and youth, including those with disabilities. Day or residential camps. One full week camping for each credit hour. Maximum of four credit hours. Pre: 437 (or concurrent) or consent.

KLS 443 Physical Education for Students with Disabilities (3)

Basics of various disabilities, assessment of physical and motor skill status, individualized activity programs for children and youth with disabilities; relationships among school/community/agency providing special programs and services. Pre: 253 and SPED 404, or consent. (Cross-listed as SPED 443)

KLS 474 Introduction to Tests and Measurement in Physical Education (3)

Basic measurement theories, statistical tools and tests used in the measurement and evaluation of physical education knowledge, motor performance, and physical fitness factors.

KLS 476 Motor Learning and Performance (3)

Basic consideration is kinesthesia, motor ability, fatigue, developmental factors, practice, motivation in relation to motor learning and human performance. Pre: EDEP 311 or consent.

KLS 477 Motor Development and Learning (3)

Motor development through the life span with emphasis on developmental principles, fundamental patterns, and factors affecting motor learning performance. Function of memory, practice, knowledge of performance, and motivation are incorporated.

KLS 480 Nutrition in Exercise and Sport (3)

KLS 481 Introduction to Research in KLS (3) Research methods in the study of physical activity, types of research, statistical concepts and techniques, and reporting research results.

KLS 482 Commercial Recreation (3)

Overview of leisure services and trends in commercial, private and employee recreation, and resort and recreational tourism. The social, economic, and environmental significance is examined. Pre: 208, 329, and 428; or consent.

KLS 483 Recreation Planning and Maintenance (3)

Examination of social, economic, and environmental factors of recreation and tourism development. Emphasis on methods, processes, citizen participation, design issues/regulations, and land use. Pre: 208, 238, and 329; or consent.

KLS 484 Mood and Behavior Modifiers (3)

Identification of substances used by man to modify mood and behavior; sociological problems resulting from their use, misuse, or abuse; analysis of motivations involved in their use, misuse, abuse, or nonuse. Skills in self-awareness, values and alternative training. Implications for health education. Pre: 195 and 202 (or concurrent).

KLS 485 Family Life and Sex Education (3)

Physiological, psychological, and sociological aspects of sexuality; analysis of related problems such as venereal diseases, abortion, and contraception. Analysis of sex education in schools, K-12. Implications for health education. Pre: 202, 253, and consent.

KLS 487 Exercise Assessment and Conditioning Lab (4)

A course designed to provide knowledge of laboratory techniques and procedures for aerobic and anaerobic fitness assessment, interpretation of aerobic and anaerobic testing results, and individual exercise program/prescription. A-F only. Pre: 253, 254, 263, 480, and EDEP 429; or consent. Fall only.

KLS 488 Internship: Physical Fitness Assessment (4)

Application of various testing procedures on human subjects with different physical capacities. Pre: 487.

KLS 489 Program Design Strength Training (3)

A course designed to provide theoretical and practical experience in supervision of a strength training center. Content includes program design, exercise techniques, organization, testing, evaluation, methods of strength development, facility design and special populations. A-F only. Pre: 152, 153, 253, and 263; or consent. Fall only.

KLS 493 Athletic Training Practicum III (1)

Advanced-level supervised experiences within the profession of athletic training. This practicum is a requirement for entry to the KLS Master's Athletic Training Program. A-F only. Pre: 393, 394, 415, 419 or consent.

KLS 494 Athletic Training Practicum IV (1)

(5 2-hr Practicum) Advanced-level supervised experiences within the profession of athletic training. This practicum is a requirement for entry to the KLS Master's Athletic Training Program. A-F only. Pre: 393, 394, 415, 419, 420, 493 or consent.

KLS 581 (Alpha) Practicum in KLS: Teaching Methods/Techniques (1) For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. Pre: teaching experience or consent.

KLS 582 (Alpha) Practicum in KLS: Teaching Methods/Techniques (2) For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. Pre: teaching experience or consent.

KLS 583 (Alpha) Practicum in KLS: Administration (1) For in-service teachers/administrators to upgrade subject matter and develop methods and materials for physical education administration. Repeatable. Pre: teaching or administrative experience or consent.

KLS 584 (Alpha) Practicum in KLS: Administration (2) For in-service teachers/administrators to upgrade subject matter and develop methods and materials for physical education administration. Repeatable. Pre: teaching or administrative experience or consent.

KLS 585 (Alpha) Practicum in KLS: Coaching Methods/Techniques (1) For in-service coaches/teachers/administrators to upgrade subject matter and develop methods and materials for athletic coaching. Repeatable. Pre: coaching, teaching, or administrative experience or consent.

KLS 586 (Alpha) Practicum in KLS: Coaching Methods/Techniques (2) For in-service coaches/teachers/administrators to upgrade subject matter and develop methods and materials for athletic coaching. Repeatable. Pre: coaching, teaching, or administrative experience or consent.

KLS 587 (Alpha) Practicum in KLS: Health/Wellness (1) For in-service coaches/teachers/administrators to upgrade subject matter and develop methods and materials in health/wellness. Repeatable. Pre: coaching, teaching, or administrative experience or consent.

KLS 588 (Alpha) Practicum in KLS: Health/Wellness (2) For in-service coaches/teachers/administrators to upgrade subject matter and develop methods and materials in health/wellness. Repeatable. Pre: coaching, teaching, or administrative experience or consent.

KLS 589 (Alpha) Practicum in KLS: Athletic Training/Sports Medicine (1) For in-service coaches/teachers/administrators to upgrade subject matter and develop methods and materials in athletic training/sports medicine. Repeatable. Pre: coaching, teaching, or administrative experience or consent.

KLS 590 (Alpha) Practicum in KLS: Athletic Training/Sports Medicine (2) For in-service coaches/teachers/administrators to upgrade subject matter and develop methods and materials in athletic training/sports medicine. Repeatable. Pre: coaching, teaching, or administrative experience or consent.

KLS 591 (Alpha) Practicum in KLS: Sports Psychology (1) For in-service coaches/teachers/administrators to upgrade subject matter and develop methods and materials in sport psychology. Repeatable. Pre: coaching, teaching, or administrative experience or consent.

KLS 592 (Alpha) Practicum in KLS: Sports Psychology (2) For in-service coaches/teachers/administrators to upgrade subject matter and develop methods and materials in sport psychology. Repeatable. Pre: coaching, teaching, or administrative experience or consent.

KLS 593 (Alpha) Practicum in KLS: Recreation/Leisure Science (1) For in-service recreation personnel to upgrade subject matter and develop methods and materials in recreation. Repeatable. Pre: recreation service experience or consent.

KLS 594 (Alpha) Practicum in KLS: Recreation/Leisure Science (2) For in-service recreation personnel to upgrade subject matter and develop methods and materials in recreation. Repeatable. Pre: recreation service experience or consent.

KLS 601 Physiology of Exercise (4) Physiological bases of modern physical training methods and sports science. Lectures, laboratory, and field experience. Pre: 253 and 254, or ANAT 301 and 302, or PHYL 301 and 302, or PHYL 401. (Cross-listed as PHYL 601)

KLS 602 Metabolic Analysis (3) Theory and practice of metabolic analysis of human performance examining each of the power systems used in energy production during exercise and how to use this information to prescribe exercise programs. Pre: 480, 601, graduate standing; or consent.

KLS 603 Advanced Theories of Fitness and Human Movement (3) Scientific laws and principles relevant to man's physical and social environment in relation to physical fitness and human movement. Pre: 203, 253, 254, and 263; or consent.

KLS 604 Body Composition and Weight Management (3) Analysis of the theory and practice used in the assessment of body composition and human physique. Includes strategies for implementing changes in body composition. Pre: 480, 601, graduate standing; or consent.

KLS 605 Social Psychological Aspects of Youth Sports and Leisure (3) Survey of advanced theory and practice in youth sports and leisure science. Research in area selected by student. Preparation and presentation of research paper. The seminar will focus on the study of social and psychological concepts concerning youth sport and leisure behavior in various settings. Repeatable one time.

KLS 606 Advanced Program Design and Planning in Recreation (3) Current theory and practice in recreation program design and planning applied to selected settings with emphasis on Hawai'i and the Asia/Pacific region.

KLS 607 Scientific Principles of Physical Conditioning (3) Application of physiological principles to physical conditioning and athletic performance. Pre: graduate standing or consent.

KLS 608 Muscular Strength and Power Development (3) Interpretation of scientific principles of muscular strength and power development. Examination of muscular adaptations to increased and decreased use. Pre: graduate standing or consent.

KLS 609 Athletic Training, Clinical I (3) (1 Sem, 5 3-hr Practicum) Practicum in which the student will perform the duties and responsibilities of a student athletic trainer. This practicum is to be completed during the first semester post admission into the program. A-F only. Pre: ANAT 301, ANAT 301L, ANAT 302, ANAT 302L, KLS 393, KLS 394, KLS 415, KLS 419, KLS 420, KLS 421, KLS 493, KLS 494, or consent.

KLS 610 Athletic Training, Clinical II (3) (1 Sem, 5 3-hr Practicum) Practicum in which the student will perform the duties and responsibilities of a student athletic trainer. This practicum must be completed during the second semester post admission to the program. A-F only. Pre: ANAT 301, ANAT 301L, ANAT 302, ANAT 302L, KLS 393, KLS 394, KLS 415, KLS 419, KLS 420, KLS 421, KLS 493, KLS 494, KLS 609, or consent.

KLS 611 Athletic Training, Clinical III (3) (1 Sem, 5 3-hr Practicum) Culminating practicum in which the student will perform the duties and responsibilities of a second year graduate student athletic trainer. A practical field experience in athletic training will be required. A-F only. Pre: ANAT 301, ANAT 301L, ANAT 302, ANAT 302L, KLS 393, KLS 394, KLS 415, KLS 419, KLS 420, KLS 421, KLS 493, KLS 494, KLS 609, KLS 610, or consent.

KLS 612 Athletic Training, Clinical IV (3) (1 Sem, 5 3-hr Practicum) Culminating practicum in which the student will perform the duties and responsibilities of a second year graduate student athletic trainer. A practical field experience in athletic training will be required. A-F only. Pre: ANAT 301, ANAT 301L, ANAT 302, ANAT 302L, KLS 393, KLS 394, KLS 415, KLS 419, KLS 420, KLS 421, KLS 493, KLS 494, KLS 609, KLS 610, KLS 611, or consent.

KLS 613 Athletic Training, Clinical V (3) (1 Sem, 5 4-hr Practicum) Advanced practicum in which the NATA certified graduate student athletic trainer will work with interscholastic or inter collegiate athletic teams at a high school, college, or university. Certification eligible graduate students will perform athletic training duties under the supervision of a NATA certified athletic trainer. A-F only. Pre: ANAT 301, ANAT 301L, ANAT 302, ANAT 302L, KLS 393, KLS 394, KLS 415, KLS 419, KLS 420, KLS 421, KLS 493, KLS 494, KLS 611, KLS 612, or consent.

KLS 614 Athletic Training, Clinical VI (3) (1 Sem, 5 4-hr Practicum) Advanced practicum in which the NATA certified graduate athletic trainer will work in an allied health or research setting. A-F only. Pre: ANAT 301, ANAT 301L, ANAT 302, ANAT 302L, KLS 393, KLS 394, KLS 415, KLS 419, KLS 420, KLS 421, KLS 493, KLS 494, KLS 611, KLS 612, or consent.

KLS 615 Head, Neck, and Spine Evaluation (3) (2 Lec, 1 3-hr Lab) Examination, care and treatment of neurological/neuromuscular conditions and pathology of the head, neck, spine, and trunk. Pre: ANAT 301, ANAT 301L, ANAT 302, ANAT 302L, KLS 393, KLS 394, KLS 415, KLS 419, KLS 420, KLS 421, KLS 493, KLS 494, or consent.

KLS 616 Advanced Orthopedic Assessment (3) (2 Lec, 1 3-hr Lab) Advanced knowledge and skills of athletic training as they are specifically applied to the understanding, treatment, and rehabilitation of sport-related injuries. (e.g. epidemiology, legal, ethical concerns, sports psychology, pharm, drug abuse, health issues) Pre: ANAT 301, ANAT 301L, ANAT 302, ANAT 302L, KLS 393, KLS 394, KLS 415, KLS 419, KLS 420, KLS 421, KLS 493, KLS 494, or consent.

KLS 617 Therapeutic Modalities (4) (3 Lec, 1 3-hr Lab) The physiology principles and operational procedures and operational procedures of contemporary Therapeutic modalities as they related to the care and treatment of athletic injuries. Pre: ANAT 301, ANAT 301L, ANAT 302, ANAT 302L, KLS 393, KLS 394, KLS 415, KLS 419, KLS 420, KLS 421, KLS 493, KLS 494, or consent.

KLS 618 Therapeutic Exercise (4) (3 Lec, 1 3-hr Lab) Concepts and principles of comprehensive rehabilitation programs (e.g. therapeutic goals and objectives, exercise selection, methods of evaluation and recording progress, progression and return to competition criteria, and the physiological effects of tissue trauma and inactivity). Pre: ANAT 301, ANAT 301L, ANAT 302, ANAT 302L, KLS 393, KLS 394, KLS 415, KLS 419, KLS 420, KLS 421, KLS 493, KLS 494, or consent.

KLS 620 Seminar in Athletic Training (1) This course is designed to provide the student with analytical skills and practical experience relative to research as it applies to sports related injuries. Repeatable five times. Pre: ANAT 301, ANAT 301L, ANAT 302, ANAT 302L, KLS 393, KLS 394, KLS 415, KLS 419, KLS 420, KLS 421, KLS 493, KLS 494, or consent.

KLS 623 Administration in Kinesiology and Leisure Science (3) Current problems, trends, and strategies in the administration of physical education, recreation, sport and fitness programs in school and non-school settings. Pre: 423 (or concurrent). (Cross-listed as EDEA 623)

KLS 634 Adapted Physical Education (3) Factors essential to practice of adapted physical education; disabilities, problems, and needs of physically challenged pupils with emphasis on accepted procedures for meeting these needs. Pre: 253, 254, and 263; or consent. (Cross-listed as SPED 634)

KLS 640 Seminar in Physical Education (3) Trends, research, and problems in instruction in physical education. Pre: 390, 391, 643, and teaching experience; or consent. (Cross-listed as TECS 640)

KLS 641 Seminar: Exercise/Sport Science and Leisure (3) Review of selected current literature in exercise/sport science and leisure studies. Practice of presentation in group setting. Pre: 673 (or concurrent) and EDEP 629 (or concurrent) or EDCI 632 (or concurrent).

KLS 643 Public School Curriculum for Physical Education (3) Detailed examination of contents of adequate curriculum for physical education in public schools, K-12. Pre: 343, 390, and 391, or consent. (Cross-listed as TECS 643)

KLS 663 Biomechanics of Human Motion (3) Principles of motion as applied to sport and physical rehabilitation. Introduction to the technology used in the analysis of motion. Pre: consent.

KLS 673 Research Methods in KLS (3) The use of experimental designs/models in physical education research with emphasis on understanding the concepts, applications, and interpretations of statistical analysis. Pre: TECS 632 or EDEP 601 (or concurrent).

KLS 699 Directed Reading and/or Research (V) Individual reading and/or research. Pre: consent of instructor and department chair.

KLS 700 Thesis Research (V) Research for Master's thesis.

Korean (KOR)

College of Languages, Linguistics and Literature

All students taking language courses in this program for the first time must take a regularly scheduled placement test; those with no background must come to the Department of East Asian Languages and Literatures for a brief interview. A grade of C or better is required in the prerequisite courses for continuation.

KOR 101 Elementary Korean (4) Listening, speaking, reading, writing, grammar. Meets one hour, four times a week, plus lab work. Pre: placement test and consent. **HSL**

KOR 102 Elementary Korean (4) Continuation of 101. Pre: 101 or consent. **HSL**

KOR 111 Elementary Conversational Korean I (3) The purpose of this course is to offer the student the basic knowledge (listening, speaking and grammar) of spoken Korean, and to train the student to handle some familiar everyday topics. Pre: consent.

KOR 112 Elementary Conversational Korean II (3) Continuation of 111. Pre: 111 or consent.

KOR 201 Intermediate Korean (4) Continuation of 101 and 102. Meets one hour, four times a week, plus lab work. Pre: 102 or placement test; or consent. **HSL**

KOR 202 Intermediate Korean (4) Continuation of 201. Pre: 201 or placement test; or consent. **HSL**

KOR 211 Intermediate Conversational Korean I (3) The purpose of this course is to further strengthen the student's listening and speaking skills in Korean. The student is expected to be able to comprehend and produce speech at the paragraph level. Pre: 112 or consent.

KOR 212 Intermediate Conversational Korean II (3) Continuation of 211. Pre: 211 or consent.

KOR 301 Third-Level Korean (3) Continuation of 201 and 202. Major emphasis on comprehension of modern written Korean. Chinese characters. Pre: 202 or consent.

KOR 302 Third-Level Korean (3) Continuation of 301. Pre: 301 or consent.

KOR 399 Directed Third-Level Reading (V) For those who need special assistance, e.g., in reading texts in area of specialization or at a pace more rapid than those of standard courses. Offered if staff available. CR/NC only. Repeatable. Pre: consent.

KOR 401 Fourth-Level Korean (3) Continuation of 302. Pre: 302 or consent.

KOR 402 Fourth-Level Korean (3) Continuation of 401. Pre: 401 or consent.

KOR 420 Korean Composition (3) Training in modern structural and stylistic techniques; writing on designated themes. Repeatable once. Pre: 402 or consent.

KOR 451 Structure of Korean (3) Introduction to phonology, morphology, and history. Pre: 202 or consent.

KOR 452 Structure of Korean (3) Introduction to syntax and semantics. Pre: 202 or consent.

KOR 463 Introduction to Traditional Korean Literature (3) Critical readings from earliest times and presentations that emphasize genre, style, and context. Pre: 402 or consent. **DL**

KOR 464 Introduction to Modern Korean Literature (3) Critical readings of 20th-century materials and presentations that emphasize context and the development of style. Pre: 402 or consent. **DL**

KOR 470 Language and Culture of Korea (3) Relation of Korean language to literature, history, philosophy, social structure, values, and interpersonal relationships; social and regional varieties. Pre: 402 or consent. **DL**

KOR 481 Selected Readings in Korean (3) Selected readings in various disciplines. Repeatable once with consent. Pre: 402 or consent.

KOR 499 Directed Fourth-Level Reading (V) For those who need special assistance, e.g., in reading texts in area of specialization or at a pace more rapid than those of standard courses. Primarily for graduate students from other departments. CR/NC only. Repeatable. Pre: consent of department chair.

KOR 613 (Alpha) Korean Verse (3) Intensive and analytical reading of selected works of Korean lyric and didactic verse (e.g., *hyangga*, *changga*, *hanshi*, *sijo*, *kasa*, free form): (M) modern; Pre: 464 or consent (T) traditional; Pre: 463 or consent.

KOR 614 (Alpha) Korean Narrative (3) Intensive and analytical reading of selected works of Korean narrative (e.g., myth, *p'ansori*, shaman song, essay, biography, fiction): (M) modern; Pre: 464 or consent (T) traditional; Pre: 463 or consent.

KOR 615 (Alpha) Korean Drama (3) Intensive and analytical reading of selected materials in Korean performing arts (e.g., spectacle, farce play, mask dance, staged narratives, theatrical drama): (M) modern; Pre: 464 or consent (T) traditional; Pre: 463 or consent.

KOR 631 History and Dialects of Korean Language (3) Survey of various hypotheses on

the genetic relationship of Korean; evolution of Korean from the 15th century to the present; Korean dialects. Pre: 451 and 452, or consent.

KOR 632 Korean Phonology and Morphology (3) Review of Korean vocalic and consonantal phonology. Phonological and morphological analysis of Korean derivation and inflection. Pre: 451 and 452, or consent.

KOR 633 Korean Syntax and Semantics (3) Review of theoretical problems in Korean syntax and semantics; different approaches; and contributions of Korean linguistic study to syntactic and semantic theory. Pre: 452 or consent.

KOR 634 Korean Sociolinguistics (3) Variations in form and use depending on sociocultural factors. Role of language in politics, mass media, group identity, bilingualism, and intercultural communication. Pre: 401, 402, 470, or consent.

KOR 635 Teaching Korean as a Second Language (3) Identification and analysis of major problems in Korean language learning, teaching, testing, and materials development by examining theoretical issues and conducting classroom research; practical techniques of teaching and testing skills in listening, reading, speaking, writing and culture. Pre: 451 and 452; or consent.

KOR 640 Literary Translation of Korean (3) The art and craft of translating traditional and modern Korean literary works into English. Repeatable. Pre: 463 and 464, or consent.

KOR 699 Directed Research (V) CR/NC only. Pre: consent.

KOR 711 Korean Historical Sources (3) Systematic reading in Korean or classical Chinese of various forms of historical literature, literary sources, reference materials; use of reference materials. Pre: reading knowledge of Korean or classical Chinese. (Cross-listed as HIST 711)

KOR 720 Research Seminar in Korean Literature (3) Advanced study of an author, school, period, genre, or problem leading to a research paper. Repeatable. Pre: consent.

KOR 730 Research Seminar in Korean Language (3) Advanced study in history and dialects, phonology and morphology, syntax and semantics, and sociolinguistics and pedagogy leading to a research paper. Repeatable. Pre: consent.

Languages and Literatures of Europe and the Americas (LLEA)

College of Languages, Linguistics and Literature

Courses given in English do not require knowledge of a foreign language. None of the courses count toward requirements for any undergraduate major in the department. Many, like the literature courses, may count toward the University's humanities requirement.

CLASSICS

LLEA 122 Greek and Roman Mythology (3) Principal myths of Greek and Roman literature. DL

LLEA 123 Greek and Latin Elements in English (3) Important roots, prefixes, and suffixes for building a literary vocabulary.

LLEA 124 Greek and Latin Elements in Scientific Terminology (3) Important roots, prefixes, and suffixes for building a scientific vocabulary.

LLEA 227 Introduction to Greek Literature (3) Major writers: emphasis on Homer, drama, and philosophy. DL

LLEA 228 Introduction to Roman Literature (3) Major writers: emphasis on Vergil, satire, and novel. DL

FRENCH

LLEA 237 French Film (3) Study of French film history and technique. A–F only. Pre: freshman standing. DH

LLEA 264 French Culture for Americans (3) Study of the shared cultural and historical foundations of France and the United States both past and present. A–F only. Pre: ace student. DH

LLEA 335 French Literature Since 1800 (3) Rapid reading in translation; lectures, discussions, reports. Pre: junior standing or one course in French language or literature. DL

LLEA 336 French African Literature (3) Black African literature in French in 20th century. Major themes of negritude, national political unity, colonialism, traditional culture. Pre: junior standing or one course in French language or literature. DL

LLEA 339 French Literature as Film (3) Exploration of the distinction between literature and film as artistic genres as well as study of major works of literature in respect to the present, from the Middle Ages through the 20th century. Pre: sophomore standing. DL

LLEA 364 Survey of French Civilizations (3) A historical survey of the development of French and Francophone cultures. The course is interdisciplinary, dealing with politics, music, art, other forms of cultural expression, and daily life. DH

GERMAN

LLEA 338 German Film (3) Introduction to German film, film theory, and film analysis. Viewing and discussion of exemplary German films from Expressionism through new German cinema. Pre: two courses from English 250–257. DL

LLEA 340 Classical German Literature (3) Readings in translation from dramatic works of Lessing, Goethe, Schiller. Philosophic and aesthetic views of leading writers of the Enlightenment, Storm and Stress, and classical periods. DL

LLEA 342 German Expressionism (3) Search for the “new man” after World War I. Readings in shorter prose, drama, and lyric poetry. DL

LLEA 343 Modern German Literature (3) Perspective of reality and poetic representations in the 20th century, including influences from Oriental and Eastern philosophy. DL

LLEA 410 German Idealism (3) Origin, impact in other disciplines and movements. Readings from Fichte, Schelling, Hegel, etc. Pre: PHIL 100. DH

ITALIAN

LLEA 236 Italian Film (3) Study of Italian film history and technique. A–F only.

RUSSIAN

LLEA 350 Russian Short Story (3) Origin and development (19th and 20th century); periods, themes, styles, and major authors. Pre: 3 credit hours from one of ENG 250–257. DL

LLEA 351 19th-Century Russian Literature (3) Survey in English of major writers from Pushkin through Chekhov; lectures, discussions, short papers. Pre: 6 credit hours from ENG 250–257 or consent. DL

LLEA 352 Russian Literature 1900–1950 (3) Survey in English of major Russian writers from 1900–1950. Pre: 6 credit hours from ENG 250–257 or consent. DL

LLEA 353 20th-Century Russian Arts and Culture (3) Aspects of culture (literature, film, theater, music, arts, etc.) in 20th-century Russian society. Pre: 6 credit hours from HIST 151 and 152; or consent. DL

LLEA 354 Russian Literature Today (3) Survey in English of contemporary authors and their works for perspective of reality and poetic representation. Pre: 3 credits from ENG 250–257. DL

LLEA 355 Russian Film (3) A study of Russian film from the 1920's to the present. Pre: sophomore standing or consent. DH

SPANISH

LLEA 261 Hispanic Civilization (3) Way of life of Spanish-speaking peoples. Civilization of Peninsular Spain. DH

LLEA 360 Spanish Peninsular Literature (3) Reading and discussion of classic works of Spanish literature. Pre: sophomore standing or consent DL

LLEA 362 Latin American Literature (3) Reading and discussion of classic works of Latin American literature. Pre: sophomore standing or consent. DL

LLEA 363 U.S. Latino Culture and Literature (3) The culture and history of U. S. Latinos through an analysis of their literature and arts and their sociopolitical relationship to the U. S. mainstream culture. Pre: sophomore standing or consent. DH

LLEA 365 Spanish Film (3) A chronological survey of films from Spain, from the Silent Era to the present. Conceptually, a cultural history

of Spain in the 20th Century, as seen through films. Pre: sophomore standing or consent. **DH**

LLEA 366 Latin American Film (3) A chronological survey of films from Latin America, from the Silent Era to the present. Conceptually, a cultural history of Latin America in the 20th Century, as seen through films. Pre: sophomore standing or consent.

LLEA 372 Indigenous Peoples of Latin America (3) A survey of the history and culture of the indigenous peoples of Latin America through a study of their literatures, texts, and practices. Pre: sophomore standing or consent.

GENERAL AND GRADUATE COURSES

LLEA 270 Freaks and Monsters (3) Monsters, freaks and otherness in literature, film, history and medicine. Suitable for non-literature majors. Pre: sophomore standing or consent. **DL**

LLEA 371 Europeans in the Pacific (3) European presence in the Pacific, in relation to literature, art, culture, civilization. Not applicable to language requirement. **DL**

LLEA 376 (Alpha) History of World Cinema (3) Film as a reflection of the 20th Century's social, cultural, and political upheavals: (B) silent cinema to neorealism; (C) new (national) cinemas to present. Pre: sophomore standing or consent.

LLEA 480 Classical Foundations of European Literature (3) Greek-Roman origin and evolution of main genres of European literature: epic, lyric, drama, satire, and novel. Works which greatly influenced medieval to modern literature. Pre: junior standing and 6 credit hours in literature courses at 400 level or above. **DL**

LLEA 481 Basic Literary Movements (3) Renaissance, the baroque, Classicism, Romanticism, realism, and contemporary trends in Europe and Latin America. MA candidates in European languages read works in their area of concentration in the original. Pre: junior standing and 6 credit hours in literature courses at 400 level or above. **DL**

LLEA 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

LLEA 630 Seminar in Research Methods (V) (1) French; (2) Spanish; (3) German; (4) Classics; (5) Russian. Study of source materials; basic research tools and methods.

LLEA 671 Western Literature and Cultures in the Pacific (3) Impact of and reaction to western writings and cultural influences in the Pacific as represented in texts from the 16th century to the present. Pre: graduate standing or consent.

LLEA 680 (Alpha) Topics in Literature (3) Study in English of a topic, period, or genre; aesthetic considerations common to European literatures: (B) the modern novel; (C) European literature as a path to self-knowledge; (D) Middle Ages; (E) introduction to literary theory. MA candidates in European languages read works in their major in the original. Pre: graduate standing or consent of department chair.

LLEA 681 (Alpha) Topics in Language (3) Study in English of topics, periods, etc., in the languages taught in the department: (B) comparison of Romance languages; (C) interpersonal communication; (D) social perspectives. Repeatable. A-F only. Pre: graduate standing or consent.

LLEA 682 Masterpieces of Medieval Welsh Literature (3) Key prose and poetry underlying the Arthurian tradition in Europe. Language instruction leading to reading knowledge of medieval Welsh. Pre: consent.

LLEA 683 Hispanic Cultural Studies (3) Critical overview of contemporary theories on Hispanic culture. Issues of identity such as mestizaje, hybridity, and pluralism will be discussed from a hemispheric perspective. A-F only. Pre: consent.

LLEA 699 Directed Research (V) Pre: consent of department chair.

LLEA 700 Thesis Research (V)

LANGUAGE COURSES

LLEA 199 Directed Language Study (V) Study in European languages not taught regularly, depending on demand and staff. Pre: consent of department chair.

LLEA 399 Directed Reading (V) Pre: limited to senior majors with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in major, and consent of department chair.

Lao (LAO)

College of Languages, Linguistics and Literature

LAO 101 Elementary Lao (4) Listening, speaking, reading, writing. Structural points introduced inductively. Daily lab work. **HSL**

LAO 102 Elementary Lao (4) Continuation of 101. **HSL**

LAO 112 Intensive Elementary Lao (10) HSL

LAO 201 Intermediate Lao (4) Continuation of 102. Daily lab work. Pre: 102 or equivalent. **HSL**

LAO 202 Intermediate Lao (4) Continuation of 201. **HSL**

LAO 212 Intensive Intermediate Lao (10) HSL

Latin (LATN)

College of Languages, Linguistics and Literature

LATN 101 Elementary Latin (3) Grammar and vocabulary, with reading of simple Latin. **HSL**

LATN 102 Elementary Latin (3) Continuation of 101. **HSL**

LATN 201 Intermediate Latin (3) Development of reading and translation skills. Emphasis on prose. Pre: 102 or equivalent. **HSL**

LATN 202 Intermediate Latin (3) Continuation of 201; emphasis on poetry. **HSL**

LATN 303 Roman Historians (3) Selections from Caesar, Sallust, and others. Pre: 201 and 202, or consent. **DL**

LATN 304 Roman Epic (3) Selections from Virgil, Ovid, and others. Pre: 201 and 202, or consent. **DL**

LATN 425 Roman Philosophy (3) Selections from Lucretius, Cicero, and Seneca. Pre: 303 and 304, or consent. **DL**

LATN 432 Roman Drama (3) Selections from Plautus, Terence, and Seneca. Pre: 303 and 304, or consent. **DL**

LATN 433 Roman Lyric (3) Selections from Catullus, Horace, and others. Pre: 303 and 304, or consent. **DL**

LATN 438 Roman Novel (3) Selections from Petronius and Apuleius. Pre: 303 and 304, or consent. **DL**

LATN 445 Roman Satire (3) Selections from Horace and Juvenal. Pre: 303 and 304, or consent. **DL**

LATN 490 Seminar in Roman Studies (3) Study of an author or phase in Roman studies. Repeatable. Pre: 303 and 304, or consent.

LATN 651 Seminar in Roman Literature (3) Study of an author, genre, period, or work. Repeatable. Pre: graduate standing or consent.

LATN 660 Literature of Roman Republic (3) Selections from major prose and poetry. Pre: graduate standing or consent.

LATN 661 Literature of Roman Empire (3) Selections from major prose and poetry. Pre: graduate standing or consent.

LATN 699 Directed Research (V) Pre: consent of department chair.

Law (LAW)

School of Law

LAW 501 Pre-Admission Seminar (4) Special seminar for pre-admission students. Credits in this seminar do not count toward requirements for the JD degree. CR/NC only.

LAW 502 Pre-Admission Seminar (4) Special seminar for pre-admission students. Credits in this seminar do not count toward requirements for the JD degree. CR/NC only. Pre: 501.

LAW 503 Wildlife and Natural Resources Law (V) Seminar covering federal and Hawai'i laws that govern the management of wildlife resources, with a particular focus on wildlife conflicts arising in Hawai'i.

LAW 504 Legal Method Seminar (3) Development of lawyering skills with special emphasis on legal research, argument, writing, and the psychological and ethical dimensions of lawyering.

LAW 505 Appellate Advocacy (2) Appellate brief writing and oral advocacy. Pre: 504.

LAW 506 Legal Research (1) This course introduces students to the process and resources of legal research. Students will be introduced to print and electronic resources. Classroom sessions and library exercises help students develop the strategies and skills to become effective researchers.

LAW 507 Employment Discrimination

(3) A study of the law of employment discrimination.

LAW 508 Negotiation and Alternative Dispute Resolution (V)

Lawyers negotiate settlements in almost all their cases. This class presents a “hands-on,” skill-building approach to the newest ideas, as well as centuries-old techniques, about the skill lawyers will use most often in their private practice - negotiation. The class also examines the rapidly developing field of alternative dispute resolution (ADR), including mediation, facilitation, arbitration, and court-annexed ADR. (Cross-listed as CEE 614)

LAW 509 Contracts I (3) Survey of the law relating to the formation, validity, performance, and breach of contracts and the remedies for breach.

LAW 509L Contracts Tutorial I (1) Pre-admission program course. CR/NC only.

LAW 510 Contracts II (3) Continuation of 509. Pre: 509.

LAW 510L Contracts Tutorial II (1) Continuation of 509L. Pre: 509L.

LAW 511 Professional Responsibility (V)

Introductory consideration of selected topics relating to functions, structure, and responsibilities of the legal profession and its future role in society. CR/NC only.

LAW 512 Environmental Compliance and Regulated Industries (V)

In depth study of the federal and state environmental laws that impact modern businesses and industries, and exploration of the compliance issues that arise under the statutes, regulations and case law.

LAW 513 Criminal Justice (4) Examination of substantive rules, enforcement procedures, and rationales of criminal law in the United States

LAW 514 Law and Society in Japan (V) An extended historical review of the foundations of Japanese law in society: Japan’s adoption and adaptation of Chinese legal doctrines, continental European legal structures and ideas, and American influences. Consideration of the structure of contemporary law in Japan: a look at the various players in the legal system, some important legal doctrines, and the real-world operation of Japan’s laws today.

LAW 515 Business Reorganization in Bankruptcy (V)

Examination of the rights and remedies available to a failing business and its creditors when the business seeks to reorganize its business and financial affairs under chapter 11 of the federal bankruptcy code. The course is structured as a “practicum,” which tracks a single business through restructuring and emphasizes the practical and strategic aspects of lawyering. Pre: 554 (or concurrent). Recommended: 562.

LAW 516 Civil Procedure I (3) Study of pre-trial, trial, and appellate procedures in the federal and Hawai’i courts.

LAW 516L Civil Procedure Tutorial I (1) Pre-admission program course. CR/NC only.

LAW 517 Civil Procedure II (3) Continuation of 516. Pre: 516.

LAW 517L Civil Procedure Tutorial II (1) Continuation of 516L. Pre: 516L.

LAW 518 Real Property Law I (V) Basic course in property ownership, development, regulation. Emphasis on theory.

LAW 519 Real Property Law II (3) Contract of sale, equitable conversion, deed. Pre: 518.

LAW 520 Advanced Legal Studies (V) Faculty members or visiting scholars present selected topics focusing upon subject areas in their area of specialty or expertise. Recent topics have included Gender and Law, Indigenous People’s Rights, and Art and Law.

LAW 521 Elder Law (V) Introduction to the myriad legal issues that confront the elderly, such as age discrimination, elder abuse, estate planning, living wills, entitlement to government benefits, and guardianship.

LAW 522 Torts I (2) Introduction to law, policy of civil recovery for injury, process of tort law application.

LAW 523 Torts II (3) Continuation of 522. Intentional torts, nuisance, defamation, privacy, and misrepresentation. Pre: 522.

LAW 524 Advanced Torts and Insurance Law (V) Advanced study of several areas of torts, compensation and insurance law and policy of considerable contemporary importance to practicing lawyers. Recent developments in Hawai’i tort and insurance law.

LAW 526 Group Directed Study (V)

Designed for maximum flexibility, this course allows a professor to work with a small number of students on a reading/discussion project of mutual interest. Pre: consent.

LAW 527 Topics in Environmental Law (V)

An entry-level course focusing on current topics and developments in environmental law.

LAW 528 International Environmental Law (3)

Study of the international regulation of activities and processes used to prevent environmental degradation and to preserve resources of environmental value. Pre: 585 (or concurrent).

LAW 529 Environmental Litigation Seminar (2)

Seminar on the techniques, law, and strategy involved in federal and state court environmental litigation.

LAW 530 Second-Year Seminar (4) Seminar required for spring semester of all second-year law students. Substantial paper required. Topics announced in previous fall semester. Placement by lottery.

LAW 531 Corporations (V) Principal emphasis in the areas of agency and partnership and in the formation, control, management, and regulation of corporations.

LAW 532 Health Care Law (3) Introduction to medical jurisprudence, forensic medicine, presentation of medical evidence, medical ethics, the health-care industry, managed health-care services, financed health care, life and death decisions, and the role of government in health care.

LAW 533 Constitutional Law I (3) Introduction to judicial function in constitutional cases, jurisdiction of the U.S. Supreme Court, and discretionary barriers to judicial review.

LAW 534 Constitutional Law II (3) Advanced course in constitutional law with special

emphasis on rights secured by the First, Fifth, and Fourteenth Amendments to the Constitution of the United States. Pre: 533.

LAW 535 Intellectual Property (3) Law relating to the property rights of ideas—copyrights, patenting, trademarks.

LAW 536 (Alpha) Moot Court Team (1) An honors program for students who prepare for and compete in national advocacy. Repeatable one time. CR/NC only. (C) client counseling team; (E) environmental law moot court team; (H) Native American moot court team; (J) Jessup international moot court team; (O) other. Pre: selection by competition.

LAW 537 Moot Court Board (1) An honors program for students who organize the Fall semester intramural Moot Court competition, serve as teaching assistants to Appellate Advocacy professors in the Spring, and assist in the Moot Court program. CR/NC only.

LAW 538 Conflict of Laws (3) Problems respecting the law applicable in transactions or to relationships with elements in more than one state.

LAW 539 Remedies (V) This course principally examines both practice aspects and theoretical underpinnings of equitable remedies. Frequently, compensatory damages cannot adequately protect clients or provide them with the relief they need. Topics include temporary restraining orders, preliminary and permanent injunctions, restitution and unjust enrichment, specific performance, and equitable defenses such as unclean hands, laches, and estoppel. Practice issues concerning appeal, jury trials, and the relationship of equity to law are also explored.

LAW 540 Hazardous Waste Law (2)

Examination of major federal statutes, regulatory and case law, and Hawai’i counterparts. Policies behind hazardous waste laws and their impact on individuals, community, and businesses.

LAW 541 Criminal Procedure (3) Issues of free press and fair trial, illegal search and seizure, arrest and confession, speedy trial, double jeopardy are covered through student interactions as defense or prosecution attorneys and as judges.

LAW 542 Advanced Civil Procedure (V)

Addresses various aspects of complex litigation and recent criticism of the civil litigation system itself. Theoretical in emphasis. Developed from two directions: (1) a study jurisprudential material concerning adversarial dispute resolution, the substance/procedure dichotomy and value-identification; and (2) in-depth analysis of procedural aspects of complex cases with special focus on new procedural rules aimed at reducing waste and delay.

LAW 543 Evidence (V) “Objection, your Honor!” This course examines the rules of evidence that govern trials in both federal and Hawai’i courts and will focus on such topics as hearsay, witness examination, impeachment, physical and demonstrative evidence, expert testimony, writings, relevance, judicial notice, and presumptions.

LAW 544 Race, Culture, and Law (V) U.S. cases and legal theory emphasizing law in the social construction of racial categories, shifts in

race-based anti-discrimination law, and the interaction of culture and law in judicial decision-making. Repeatable.

LAW 545 Law Review (1) Students selected for the *Law Review* editorial board have responsibility for editorial research, writing, and production of the *Law Review* published by the School of Law. CR/NC only.

LAW 546 Asian-Pacific Law Journal (1) Students selected for the Asian-Pacific Law and Policy Journal editorial board have writing, researching, editorial and production responsibility for publication of the Journal. Repeatable five times. CR/NC only.

LAW 547 Gender and Law (2) This course will apply legal analytic skills to materials showing the ways in which Anglo-American legal traditions and systems deal with women and women's roles, examining how society views women and women's roles, and how that view affects the ultimate *de jure* and *de facto* legal status of women comparing with other legal cultures in Asia, the Pacific, and Hawai'i where appropriate. Repeatable one time. Pre: 533 (or concurrent). Co-requisite: 533.

LAW 548 Immigration Law (2) An introduction to U.S. Immigration and Nationality Law: a brief overview of historical development of immigration law; analysis of exclusion and deportation grounds and remedies; the study of both immigrant and nonimmigrant visa applications and petitions. Current law on asylum and refugee applications and U.S. citizenship and naturalization requirements.

LAW 549 Admiralty Law (3) Introduction to U.S. maritime law and admiralty jurisdiction emphasizing development of rules of maritime law and rights of seamen and maritime workers.

LAW 550 Corporate and Partnership Taxation (3) Examines tax aspects of formation, operation, reorganization, and liquidation of partnerships and corporations. Pre: 531, 567.

LAW 552 Trusts and Estates (V) The course deals primarily with the disposition of family wealth including: the making of wills; the creation, enforcement, administration, and termination of trusts; and intestate succession, including probate. Attention is focused on Hawai'i practice and procedure, and particularly on practice under the Uniform Probate Code.

LAW 553 Antitrust Law (3) Historical and legal background of governmental regulation of private property with emphasis on antitrust and anti-competitive practices.

LAW 554 Secured Transactions (V) Introduction to Uniform Commercial Code, particularly Article 9—reducing risk of nonpayment by obtaining an interest in borrowers' property.

LAW 555 (Alpha) Externship (V) Legal work for judges and attorney supervisors in public agencies, private law firms, and the legislature. (H) Hawai'i; (P) Pacific. CR/NC only. Pre: consent.

LAW 556 Asian Comparative Labor Law (3) Area studies of Asian legal systems and issues, focusing on administration of Asian labor laws in a comparative context. Possible effects on foreign direct investment and foreign migrant contract workers. Comparison of Chinese,

Japanese and other legal approaches in dealing with common issues. Required research paper in lieu of examination.

LAW 557 Negotiable Instruments, Payment Systems and Credit Instruments (2) A study of the Uniform Commercial Code provisions that deal with commercial paper (Article 3), bank collections and deposits (Article 4), funds transfers (Article 4A) and letters of credit (Article 5), as well as material on alternative payment systems, including credit cards, electronic fund transfers and related federal law.

LAW 559 Labor Law I (3) Regulation of union-management relations under state and federal laws.

LAW 561 Administrative Law (3) Procedure and remedies for resolving controversies between citizens and government officials exercising administrative power.

LAW 562 Debtors' and Creditors' Rights (V) Bankruptcy laws and rules, laws of liens, receiverships. Pre: 554 or consent.

LAW 563 Trial Practice (2) Examination of sequential stages of pre-trial and trial practice in a problem setting. Topics include investigation, pleadings, motions, discovery, voir dire examination, opening statements, direct and cross examination, closing argument, selected evidentiary problems, post-trial motions, and appellate practice. Students engage in simulated exercises, and their work is critiqued. CR/NC only. Pre: 543 or consent.

LAW 564 Pre-Trial Litigation (2) Theory and practice of civil pre-trial litigation with focus on pleading, discovery, and pre-trial motions. CR/NC only.

LAW 566 American Legal History (3) Development of American law. Law as an instrument of social progress.

LAW 567 Federal Income Taxation (V) An introduction to the federal income taxation of individuals. The tax consequences of a variety of common transactions are explored, but primary emphasis is given to the theory and policy considerations that underlie specific rules. Students are expected to develop proficiency in the use of the Internal Revenue Code and Treasury Regulations.

LAW 568 Family Law (3) Legal forms of—and responses to—formation, maintenance, and dissolution of the family. Marriage, annulment, divorce, alimony, separation agreements, child custody and adoption, parentage.

LAW 569 Sales (V) In-depth study of Uniform Commercial Code, Article 2—domestic sales of goods, including warranties, manner, time and place of performance, buyers' and sellers' remedies for breach of contract, limitations of freedom of contract.

LAW 571 Federal Courts (3) An examination of the jurisdiction and law-making powers of the federal courts, including standing issues, the appellate jurisdiction of the Supreme Court, the federal-question and diversity-of-citizenship jurisdiction of the federal district courts, the immunities from suit in the federal courts possessed by governmental entities and officers, intervention by federal courts in state proceedings, and choice of law in the federal courts.

Particular emphasis is placed on relevant Federal Rules of Civil Procedure. Co-requisite: 533.

LAW 572 International Protection of Human Rights (V) The growing body of international human rights laws, including procedural law and role of non-governmental organizations.

LAW 573 Jurisprudence (3) Relationships between the concepts of law and morality with views of legal and moral philosophers.

LAW 574 State and Local Government Law (3) City, town, county, district governments: administrative organization; regulatory powers; police power; local governmental taxation; relationship between local, state, and federal government.

LAW 575 Topics in International Legal Studies (V) Selected topics presented by faculty members or visiting scholars, focusing upon subjects in the Pacific and Asian area. (C) China; (J) Japan; (K) Korea; (P) Pacific; (S) Southeast Asia. CR/NC only.

LAW 576 Directed Study and Research (V) Individual research and writing under the direction of faculty.

LAW 577 U.S. – Japan Business Transactions (V) Focus on the legal environment facing foreign businesses operating in Japan. Includes consideration of the business environment and culture, issues relating to governmental oversight, contract consciousness, corporate law, and dispute resolution. Uses the example of an actual joint venture between an American and a Japanese company as a tool for studying the relevant issues from a practical perspective.

LAW 578 Chinese Business Law (V) Introduction to Chinese business and commercial law; focus on domestic business law and property regulations, foreign investment vehicles, investment protection statutes, and dispute resolution.

LAW 579 International Business Transactions (V) Examines five or six international business transactions from the perspective of a lawyer advising a client on the tax, trade, antitrust, exchange control, and other legal aspects of the transactions.

LAW 580 Land Use Management and Control (3) Survey course of public land use management.

LAW 581 Native Hawaiian Rights (V) Status and evolution of rights of native Hawaiians to the land and its usufructs. Potential of utilizing native rights based on statute, custom, and use to fashion new and expanded rights.

LAW 582 Environmental Law (3) Basic policy questions and problems concerning environment. Examination of federal and Hawaiian statutes. Focus on environmental problems of Hawai'i.

LAW 583 Real Estate Development and Financing (V) Federal and state laws in the practice of real estate development and financing law. Condominium, securities, subdivision, consumer protection, and mortgage areas. Pre: 519.

LAW 584 Civil Rights (2) This course focuses on the civil rights of Americans and introduces alternative remedies and procedures for securing these rights.

LAW 585 International Law (3) Evolving process of formulating rules to govern nations and peoples of the world in their attempts to solve problems recognized as requiring global solutions.

LAW 586 Law and Society in China (V) Overview of the historical foundations of Chinese law and introduction to the present legal system in the People's Republic of China.

LAW 587 Asian Comparative Law (3) Introduction to the civil law tradition, focusing on East and Southeast Asia. Review of comparative law study and the historical development of civil law. Examination of the structure and role of the courts, the judicial process, constitutional law and administrative law in Western Europe and in the Asian civil law countries.

LAW 588 Legal Aspects of Water Resources and Control (2) Legal aspects of water and water rights with focus on Hawai'i.

LAW 589 Labor and Employment Law (3) Employment law, statutory rights affecting the employment relation, and alternative contract provisions to secure the parties' intentions. Focus on the practical application of labor and employment law. Materials relating to the unionized employment relationship. Emphasis on the labor arbitration process and possibly, to issues regarding internal union affairs.

LAW 590 (Alpha) Workshops in Legal Process (V) (B) prosecution clinic; (C) defense clinic; (G) estate planning workshop, CR/NC only; (H) legal aid clinic; (I) native Hawaiian rights clinic; (J) family law clinic; (M) mediation clinic. Repeatable for (I) only. Pre: 543 for (B); 552 and 567, or consent for (G); 581E for (I); 568 for (J).

LAW 591 Government Contract Law (3) Introduction to Government Contract Law is a primer on statutory, regulatory, and decisional laws that shape the government procurement process. This course covers contract relationships between private party contractors and Federal, State, and local governments. This course examines the federal acquisition process, bids and proposals, and contract award controversies before judicial and administrative tribunals. This course reviews socioeconomic contracting provisions and programs and Qui Tam litigation. Repeatable one time. Spring only.

LAW 592 Domestic Ocean and Coastal Law (3) Examination of the history of United States and Hawai'i sea-use law; comprehensive coverage of modern issues concerning the use of the sea including special Hawaiian problems.

LAW 593 International Ocean Law (2) Examination of the history of international sea-use law, including comprehensive coverage of modern problems and issues concerning the use of the sea among nations. Repeatable once.

LAW 594 Pacific Islands Legal Systems (V) Study of substantive rules of one or more Pacific Islands jurisdictions, development of legal systems, relationship of legal systems to culture and tradition.

LAW 595 Internet Law and Policy (3) This course is a primer on the impact of new technologies on global business and social culture. It will reassess the applicability of current laws and policies in the age of the

revolutionary new medium of the Internet. This course will also explore the legal implications of the new economy, intellectual property law, e-commerce, privacy, security, and tort liability in relation to the Internet.

LAW 596 International Intellectual Property (V) International Intellectual Property is a primer on the World Intellectual Property Organization and the treaties it administers. The course will explore the various international legislative and judicial developments in intellectual property as well as analyze international methods to harmonize several regional and national laws to protect rights in trademarks, patents, and copyrights. In addition, students will be exposed to issues of territoriality and jurisdiction, international antitrust issues, and international dispute resolution.

Library and Information Science (LIS)

College of Natural Sciences

LIS 100 Libraries, Scholarship and Technology (3) Use of libraries and information technology for scholarly investigation; examines information literacy, critical thinking, digital libraries, university role in knowledge creation. A-F only. (Cross-listed as CAS 101)

LIS 100A Computer and Information in Arts and Humanities (3) An introduction to computer application for students in arts and humanities. Includes coverage of computers in writing, information storage and retrieval, specific applications in arts and humanities disciplines.

LIS 500 Master's Plan B/C Studies (1)

LIS 591 Library and Information Studies Workshop (1) Designed for in-service librarians and other information specialists needing to update their professional skills, focus on a particular topic, or learn new approaches and concepts. Repeatable for credit. Credits earned in these courses cannot be applied for graduate degrees.

LIS 592 Library and Information Studies Workshop (2) Designed for in-service librarians and other information specialists needing to update their professional skills, focus on a particular topic, or learn new approaches and concepts. Repeatable for credit. Credits earned in these courses cannot be applied for graduate degrees.

LIS 593 Library and Information Studies Workshop (3) Designed for in-service librarians and other information specialists needing to update their professional skills, focus on a particular topic, or learn new approaches and concepts. Repeatable for credit. Credits earned in these courses cannot be applied for graduate degrees.

LIS 601 Introduction to Reference and Information Services (3) Lecture/discussion course on principles and practice of reference services in libraries, information centers, online communities. Nature of reference work, information needs, information literacy. Bibliographic control, evaluation/use of materials, reference interviews, search techniques, field component.

LIS 605 Basic Cataloging and Classification (3) Introductory cataloging and classification covering AACR2, Library of Congress and Dewey decimal classification systems, LC subject headings, use of OCLC.

LIS 606 Advanced Cataloging and Classification (3) Continuation of 605 with retrieval techniques from card to online catalogs, Precis, extensive use of MARC, utilization of bibliographic utilities. Pre: 605 or consent.

LIS 610 Introduction to Library and Information Science (3) Lecture/discussion course on role of libraries, their social utility in information societies. History and future of libraries in changing technological world. Information professions, information ethics, intellectual freedom, intellectual property, information access, national/international library developments.

LIS 612 History of Books and Libraries (3) History of print communication: the recording, preservation, and transmission of knowledge. Development of libraries through the early 20th century as instruments of communication and cultural transmission.

LIS 615 Collection Development (3) Criteria and tools for selecting library materials and maintaining an acquisitions program. Structure of the book trade.

LIS 618 Government Documents (3) Sources, types, and uses of government documents of United States and international agencies. Pre: 601 or consent.

LIS 619 Conservation of Library Materials (3) Nature of library materials and processes that cause their deterioration; procedures useful in combatting deterioration. Point of view of administrator rather than practitioner.

LIS 620 Preservation Management (3) Strategies for establishing preservation programs in libraries and archives, including planning, survey, disaster planning, grantsmanship, policy and power development. Pre: 619 or consent.

LIS 642 Media Technology and Resources (3) Overview of the use of media technology and the development of media collections and services in libraries. Use and integration of new emerging technologies, including problems and issues.

LIS 647 The Systems Approach to Library Operations (3) Systems analysis; techniques, benefits, and limitations with focus on libraries. Structured, top-down solutions are stressed.

LIS 650 Management of Libraries and Information Centers (3) Basic theories and principles of administration for effective management of public, academic, and special libraries and information centers, with emphasis on planning, organizing, staffing, directing, and control. Administrative aspects of public and technical services, facilities, planning, evaluation, public relations, interagency cooperation, and the management of change in bureaucratic organizations.

LIS 652 Introduction to Archives Management (3) Study of archival principles and management theories applicable to all types of archives. Includes policy, appraisal, computer, and micrographic applications, ethical and legal issues.

LIS 653 Seminar in Archival Studies (3)

Theory of archival studies from historical and contemporary perspectives. Includes public administration, legislation, and relationship to other repositories. Pre: 652 or consent.

LIS 660 Information Sources and Systems in Science (3)

Bibliographical structure and sources in the basic and applied sciences, including physics, chemistry, biology, medicine, agriculture, engineering. Field component. Pre: 601 or consent.

LIS 661 Information Sources and Systems in Humanities (3)

Lecture course on information structures of humanities disciplines, including fine arts, theater arts, literature, music, religion, philosophy. Information cycle, print and digital reference information seeking research in the humanities. Field component. Pre: 601.

LIS 662 Information Sources and Systems in Social Science (3)

Lecture course on information structures of social and behavioral science disciplines, including anthropology, sociology, psychology, education, business, history. Information cycle, print and digital reference services, information-seeking research in the social sciences. Field component. Pre: 601.

LIS 663 Basic Online/CD-ROM Database Searching (3)

A study of the use of online and CD-ROM databases for interactive retrieval of bibliographic, full text and directory information. Learning the concepts of interactive searching, strategy development, interface and search engine characteristics and essential database content evaluation. Practical experiences in the query languages of various online and CD-ROM systems. Pre: 601.

LIS 664 Abstracting and Indexing for Information Services (3)

Lecture course on theory and practice of enhancing subject access to documents, impact of indexing vocabulary on retrieval; types of controlled vocabularies; evaluation of abstracts in professional databases, creation of abstracts for special local and regional documents. Pre: 670.

LIS 665 Teaching Information Technology Literacy (3)

Lecture course on history, theories, principles, and concepts of library and information literacy instruction, learning theory and user-based research methods. Examines program design, administration, and evaluation. Field component. Pre: 601.

LIS 667 Advanced Online/CD-ROM Database Searching (3)

Lecture course on advanced features of online, Web-based, CD-ROM databases and software (natural language searching, similarity searching by image attributes, term mapping, etc.). Methodologies for evaluating qualitative/quantitative contents, accessibility of databases, capabilities of search software. Pre: 663.

LIS 668 The Information Industry (3)

Overview of the information industry, with special emphasis on electronic publishing and entrepreneurial possibilities. Covers current and future products, services, and enabling technologies. Pre: 663.

LIS 670 Introduction to Information Storage and Retrieval (3)

A survey of practices, problems, and theory relating to processing, storage, and retrieval of information in libraries,

information centers, and database search services. Non-conventional and automated techniques are stressed.

LIS 672 Library Automation (3) Survey of theories, concepts, methods, and practices relating to the automation of library operations. Concentrates on systems employing supermicrocomputers, minicomputers, or mainframes. Pre: 605 or consent.

LIS 673 Information and Records Management (3)

Introduction to the basic theories, methodologies, and technologies applicable to the management of operating records and internal data in organizations. Pre: 670 or consent.

LIS 674 Database Design and Creation (3)

Lecture course on design, database marketing, and creation of textual numerical databases from the information specialist and database producer viewpoints. Covers need analysis, record content and structuring, software choice and design marketing. Pre: 670.

LIS 676 Expert Systems for Library and Information Environment (3)

Artificial intelligence applications. DBM pattern recognition, automatic indexing, user interfaces for integrated library systems. Pre: 670.

LIS 677 Human Dimension in Information Systems (3)

Lecture course on human element in information systems, including physical, cognitive, and affective behaviors in interactions with non-automated and computerized information systems. Information retrieval system use research, qualitative and quantitative research methods, cognitive science research. Pre: 670.

LIS 679 Library Systems Operation and Interpretation (3)

The management and operation of automated library systems. Topics include typical systems librarian responsibilities, the computer room, hardware operation and maintenance, communications and networks, security, and human factors. Practical aspects of actual operating systems are emphasized. Pre: 672.

LIS 680 Seminar for Beginning School Librarians (1)

Series of five seminar meetings on topics, issues for beginning school librarians. Emphasis on building skills and support networks to help entry level professionals create effective school library programs. CR/NC only.

LIS 681 Books and Media for Children (3)

History and criticism of children's literature. Contemporary books and media. Trends in book publishing and media production. Developmental needs and interests of children. Selection and evaluation. Research studies.

LIS 682 Books and Media for Young Adults (3)

History and criticism of literature for young adults. Contemporary books and media. Trends in media for young adults. Developmental needs and interests of adolescents. Selection and evaluation. Research studies.

LIS 683 Services in Libraries (3)

Planning and implementing services and programming in public and school libraries. Trends, issues, concerns, networking, competencies, developmental needs and interests, research, preparing grant proposals.

LIS 684 Administration of School Library Media Centers (3)

Effective management of school library media centers. Philosophy and objectives, standards, personnel, facilities, resources, budget, services, library instruction, public relations, program planning and evaluation.

LIS 685 Traditional Literature and Oral Narration (3)

Analysis of Pacific and Asian traditional literature emphasizing cultural values. To be used as source material for storytelling.

LIS 686 Information Literacy and Learning Resources (3)

Emphasis on a process approach to information literacy and integration of information literacy instruction with components of elementary and secondary curricula. Covers evaluation and use of print and nonprint/electronic resources in various content areas. (Cross-listed as ETEC 686)

LIS 687 Information Sources for Hawaiian Studies (3)

Survey of reference and research materials in Hawaiian studies. Includes historical and contemporary works, arts, humanities, social and natural sciences, AV, and other non-book sources.

LIS 688 Pacific Islands Information Resources (3)

The study of reference and bibliographical materials for the three major culture areas of the region—Melanesia, Micronesia, and Polynesia (excluding Hawai'i).

LIS 689 Asian-American Resources for Children and Youth (3)

Study of Asian-American resources for young people: socio-historical roots, evaluation and selection, curricular and program uses in a multicultural context.

LIS 690 Internship (3)

The internship is jointly sponsored by the school and library agencies. Selection is based on interviews, tests and possession of required competencies. Selection is by agency. CR/NC only. Pre: 601

LIS 693 Special Topics in Librarianship (V)

Course reflects interests of visiting and permanent faculty. Topics such as human relations, service to special groups, networks, reprography, etc.

LIS 694 Special Topics in Information Technology (V)

This is an open-ended course intended to provide a mechanism for allowing special topics in such areas as information transfer, networks, library information systems, and information management.

LIS 695 Seminar in Research in Librarianship (3)

Various methodologies and application to problems of librarianship. Evaluation of research studies; developing, writing, and critiquing proposals. Experience with statistical packages for data analysis.

LIS 696 Practicum in Librarianship (V)

Skill development and application of academic study through observation and practice in a fieldwork program with accompanying seminar. Required for school library certification in Hawai'i. Repeatable once. CR/NC only. Consent of practicum coordinator required.

LIS 699 Directed Reading and/or Research (V)

Individualized program of directed reading and/or research outside the scope of regularly titled course.

LIS 700 Thesis Research (V) Research for master's thesis. Pre: 695.

LIS 701 Seminar in International Librarianship (3) Comparative librarianship with emphasis on Asia and/or the Pacific Islands; professional organizations, international agencies, influence of world literacy and social, cultural, political factors.

LIS 705 Asian Research Materials and Methods (3) Literature of Asia in Western and Asian languages; bibliography, reference tools, research methods, sources, published and archival repositories. (Cross-listed as ASAN 705 and HIST 705)

LIS 715 Seminar in Information Policy and Planning (3) Public and organizational information policy and planning in society; public access; impact and control of computers and information technology. Pre: 610.

Linguistics (LING)

College of Languages, Linguistics and Literature

LING 101 Language in Hawai'i and the Pacific (3) An introduction to the study of language and language-related issues, with a focus on Hawai'i and the Pacific. A-F only.

LING 102 Introduction to the Study of Language (3) Nature and workings of language; its role in culture and history. **DH**

LING 170 The Language of Children (3) Survey of findings about the child's acquisition of language. **DS**

LING 320 General Linguistics (3) Approaches, concepts, component areas of linguistics; its development as a science. **DS**

LING 331 Computer Applications (3) Background; uses for machine translation, dictionary programs, speech synthesis, grammar modeling, etc. Pre: 320 (or concurrent) or consent.

LING 344 Languages of the World (3) Survey of major language families; typological classification and language universals; writing systems, "contact" languages. Variety of grammatical structures illustrated by selected languages. Pre: 320 or consent. **DS**

LING 345 The Polynesian Language Family (3) Introduction to the language family of Hawaiian, Samoan, Maori, Tahitian, Tongan, etc. Theories of migration and settlement. Influence of present-day languages upon sound system, grammar, and vocabulary of proto-Polynesian. Pre: 102 and some familiarity with a Polynesian language, or consent. **DS**

LING 346 The Philippine Language Family (3) Introduction; phonological and grammatical systems; historical developments; emphasis on Filipino, Cebuano, and Ilokano. Pre: 102 and a Philippine language or enrollment in Ilokano or Filipino, or consent. **DH**

LING 347 Pidgin and Creole Languages (3) Nature, history, structure, geographical distribution. Pre: 102. **DS**

LING 410 Articulatory Phonetics (3) Intensive training in recognition, reproduction, and recording of human speech sounds;

preparation for fieldwork with unrecorded languages and for clinical work in speech pathology. Fall only. **DH**

LING 412 Psycholinguistics (3) The mental processes involved in producing, understanding, and acquiring language. Students will conduct a small psycholinguistic experiment. Open to nonmajors. Pre: one of 102, 320, PSY 100, or SPA 300; or consent.

LING 414 Introduction to Linguistic Anthropology (3) Ethnographic study of speech and language. Pre: consent. (Cross-listed as ANTH 414) **DS**

LING 420 Morphology (3) Theory of word structure; analysis of a variety of morphological types. Pre: 320 (or concurrent). Spring only. **DH**

LING 421 Introduction to Phonological Analysis (3) Phonological analysis and theory. Pre: 410 (or concurrent). Fall only. **DH**

LING 422 Introduction to Grammatical Analysis (3) Syntactic analysis and grammatical theory. Pre: 421 (or concurrent). Fall only. **DH**

LING 423 Cognitive Linguistics (3) Conceptual systems and language from a cognitive science perspective. Linguistic evidence on conceptual structure, reasoning, categorization, and understanding. Open to nonmajors. Pre: 102, 320, PSY 100, or ICS 111; or consent.

LING 431 Computational Modeling (3) Hands-on introduction to modeling language. Focuses on connectionism, relations between language perception, and motor control. Requires no programming experience. Open to nonmajors. Pre: 102, 320, PSY 100, or ICS 111; or consent.

LING 440 Semantics (3) Linguistic semantics, including lexical and logical semantics, and an introduction to speech acts. Pre: 320 or consent. **DH**

LING 441 Meaning (3) Theories of how literal and figurative language encode meaning and processes of meaning encoding and decoding. Open to nonmajors. Pre: 102, 320, PSY 100, or ICS 111; or consent.

LING 451 Induction of Linguistic Structure (3) Phonological and grammatical structures of a previously uncodified language are determined by linguistic analysis of data obtained from speakers of the language. Pre: 102 or 320. **DH**

LING 470 Children's Speech (3) Individual strategies, baby talk, language socialization, language variation including multilingualism. Relation of cognitive to language development. Pre: 320. **DS**

LING 499 Directed Research (V) Repeatable up to 3 credit hours. CR/NC only. Pre: one 400-level linguistic course and consent.

LING 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

LING 611 Acoustic Phonetics (3) Principles of acoustics and audition as they relate to speech sounds, use of computer-based analysis tools to investigate acoustic properties of speech. A-F only. Pre: 410 or consent. Spring only.

LING 615 The Nature of Language (3) Language as a communication system, current theories of grammar, meaning, sociolinguistics, linguistic change and comparison.

LING 616 Biological Foundations of Language (3) Human anatomy and neurology in relation to language and linguistic theory. Pre: 422.

LING 621 Phonology (3) Phonological theory and problems of analysis. Pre: 421. Spring only.

LING 622 Grammar (3) Grammatical theory and problems of analysis. Pre: 422. Spring only.

LING 623 Semantics and Pragmatics (3) Ways in which the interpretation of sentences in natural language depends upon the literal meaning of propositions and their logical (semantic) and conversational (pragmatic) inferences. Pre: 422 or consent.

LING 624 Discourse Grammar (3) Phonological, grammatical, semantic, and pragmatic dimensions of spoken and written discourse, placing the level of sentence grammar in context. Pre: 622 (or concurrent) or consent.

LING 625 Mathematical Properties of Natural Languages (3) Construction of logical and other mathematical systems that mirror properties of natural languages. Pre: 622 or background in formal logic.

LING 630 Field Methods (3) Work with native speakers of lesser-known languages to develop techniques for data collection and analysis. Repeatable. Pre: 421 and 422.

LING 631 Language Data Processing (3) Preparation of language data for computer processing; use ready-made programs; write simple language processing programs using SNOBOL4. Applications to student's research. Pre: 422.

LING 635 Language Variation (3) Review of various approaches to class, style, regional, and other variation; including sociolinguistics, dialectology, and studies of language contact, diglossia, pidgins, and creoles. Pre: 622.

LING 640 (Alpha) Topics in Linguistics (3) History of the discipline, schools of linguistic thought, current issues, etc. Repeatable. (E) English linguistics; (F) phonology and phonetics; (G) general; (H) history of the discipline; (S) sociolinguistics; (T) theory; (X) syntax; (Y) psycholinguistics. Pre: consent.

LING 645 The Comparative Method (3) Introduction to historical-comparative linguistics; attention to both Indo-European and languages with few or no written records. Pre: 421 and 422, or consent. Fall only.

LING 646 The Comparative Method (3) Continuation of 645. Pre: 645. Spring only.

LING 650 Advanced Linguistic Analysis (3) Advanced problems; discussion of theory and techniques in morphology and syntax. Repeatable. Pre: 621, 622, and consent.

LING 651 Advanced Linguistic Analysis (3) Advanced problems; discussion of theory and techniques in phonology. Repeatable. Pre: 650.

LING 661 Proto-Austronesian (3) Introduction to Austronesian comparative linguistics; Dempwolff's reconstruction and subsequent modifications; problems of subgrouping. Pre: 645.

LING 670 Developmental Linguistics (3) Survey of the literature in language acquisition; emphasis on relation to linguistic theory. Pre: 410, 421, and 422.

LING 699 Directed Research (V) CR/NC only. Repeatable. Maximum 6 credit hours. Pre: graduate standing and consent.

LING 700 Thesis Research (V) Repeatable up to 12 credit hours.

LING 750 (Alpha) Seminar (3) Reporting and discussion of current research in linguistics. Repeatable. (C) language data processing; (E) ethnolinguistics; (F) phonology and phonetics; (G) general; (M) semantics; (Q) language acquisition; (R) written language; (S) sociolinguistics; (T) theory; (X) syntax; (Y) psycholinguistics. Pre: consent.

LING 760 Problems in Comparison and Prehistory (3) Reconstruction, classification, divergence measures, dialect geography, other historical-comparative studies. Repeatable. Pre: 645, 660, 661, 662, or 663 where applicable.

LING 770 Areal Linguistics (3) Structures of languages of various areas of the world; diffusion. Repeatable. Pre: 622.

LING 799 Apprenticeship in Teaching Linguistics (V) An experience-based introduction to college-level teaching; doctoral students serve as student teachers to professors; responsibilities include supervised teaching and participation in planning and evaluation. Repeatable. Pre: admission to doctoral program and consent.

LING 800 Dissertation Research (V)

Management (MGT)

College of Business Administration

MGT 320 Fundamentals of Entrepreneurship (3) Covers the role of new ventures and entrepreneurship in the world economy, the formation, funding, marketing, structure and implementation of business ventures.

MGT 321 Project/Venture Management (3) Project/venture management application or project/venture management techniques such as planning methods; PERT/CPM forecasting; application of most current practices. Pre: BUS 310 and 315.

MGT 322 Supply Chain Management (3) Improving organization productivity with an emphasis on supply chain management principles in terms of scheduling, inventory, quality control techniques, through most current practices. Pre: BUS 310 and 315.

MGT 341 Behavior in Organizations (3) Contributions made by sociology, psychology, and related behavioral sciences to the understanding and prediction of human behavior in organizations. Pre: BUS 315. **DS**

MGT 342 Multinational Business Management (3) Introduction to the unique problems and challenges in managing multinational business enterprises. Systems approach to the management process in such multinational firms stressed. Pre: BUS 315.

MGT 343 Comparative Management Systems: United States and Japan (3) Similarities and differences in managers, in

process of management, and in relevant environmental constraints in Japan and the United States. Pre: BUS 315.

MGT 344 Seminar in Management (3) In-depth analysis of selected current practices and trends in administration. May be repeated with change in topic. Pre: consent.

MGT 345 Entrepreneurial Ventures (3) Integrative course in entrepreneurship designed around the development of an original business concept and the completion of a comprehensive business plan for a new venture. Intended as final course for students completing entrepreneurship minor. Pre: 320 or consent.

MGT 348 History of American Business (3) The evolution of business enterprise from colonial times to the present. Emphasis on entrepreneurship, technological change, labor-management relations, government-business relations, and economic thought. Case studies of industrial development. (Cross-listed as HIST 378)

MGT 399 Directed Reading and Research (V) Reading and research in a special area within the major field under direction of faculty member(s). Project must include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by the department chair and faculty adviser.

MGT 450 Family Business (3) The exploration of business, personal, and interpersonal issues associated with a family owned and managed company. Topics include: family psychology and organizational structure, life cycles in family business, strategic family and business planning, succession planning, family business conflict resolution, estate planning, the role of professional managers, and others. This is not a course about how to become an entrepreneur or how to start or manage a business. It is most appropriate for those students who are part of a family that owns and manages a business. Pre: BUS 315 or graduate status or consent.

MGT 460 Asia Pacific Business Systems (3) Business systems in Asia Pacific countries including Japan, Korea, China, Taiwan, Singapore, and Hong Kong in terms of particular organization strategies and how they relate to the industrial trade policies. Pre: BBA core excluding BUS 345, or consent.

MGT 461 Corporate Entrepreneurship (3) Exploration of the nature and role of entrepreneurship behavior inside larger, established organizations. An examination of obstacles to entrepreneurial activity and approaches to creating work environments that foster entrepreneurship. Pre: 320 or consent.

MGT 605 Production and Operations Management (3)

MGT 643 (Alpha) Advanced Organizational Behavior (3) (B) experiential learning (EL); (C) organizational development (OD) and major concepts in organizational behavior.

MGT 644 Comparative Management (3) Cross-cultural analysis of the values and environmental constraints that shape management patterns and policies. Emphasis on Pacific area nations.

MGT 645 New Venture Management (3) Technical aspects of entrepreneurship, components and requirements for developing a business plan.

MGT 646 Production and Operations Management (3)

MGT 648 International Business: Environment and Enterprise (3)

MGT 650 Management Topics (3) In-depth analysis of selected current practices and trends in administration. May be repeated with change in topic. Pre: consent.

MGT 660 Negotiation (3) Theory and practice of negotiation. Exploration of appropriate strategies, tactics, and communication techniques. Study of dyadic multi-party, cross-cultural, and assisted negotiations.

MGT 670 (Alpha) International Management and Industrial Relations (3) Selected topics in international management and industrial relations: (B) Chinese management systems; (C) Japanese management systems; (D) management of multinational corporations; (E) Asian/Pacific entrepreneurship; (F) contemporary issues in international business foreign direct investment; (G) cross-cultural communication in international business; (H) interactive strategies in Asian culture; (I) international human resource management; (J) international joint ventures; (K) international management of technology; (M) Korean management systems; (N) multinational corporation and environmental issues; (O) strategy of the multinational corporation; (P) international transfer of technology. Pre: consent.

MGT 697 Knowledge-based Strategy (3) Introduces students to knowledge-based theory of the firm and provides structured learning environment to apply this theory to identify business development and investment opportunities. Pre: BUS 613 or consent.

Marketing (MKT)

College of Business Administration

MKT 311 Consumer Behavior (3) Analysis of consumer behavior and motivation; principles of learning, personality, perception, and group influence, with emphasis upon mass communication effects. Pre: BUS 312 or consent. (Cross-listed as PSY 385) **DS**

MKT 321 Marketing Research (3) Research aids to marketing management; nature of the research process; planning research including problems of sampling and measurement; experimental and non-experimental methods and techniques; analysis of data. Pre: BUS 310 and BUS 312, or consent. **DS**

MKT 331 Marketing Communications (3) In-depth coverage of the major communication tools used in marketing such as advertising, sales promotion, public relations and the internet. Emphasis on integrated marketing communications. Pre: BUS 312 or consent.

MKT 332 Integrated Communication Campaigns (3) Management of integrated marketing communications campaigns. Includes: conducting target market and competitor

research, developing creative content and media strategies, production of communication materials and completion of major real world project. Pre: 331 and BUS 312.

MKT 341 Retailing Management (3)

Principles, functions, and analysis of opportunities and problems in retailing; location and layout; merchandise planning; buying and selling; organizational forms and design; expense analysis and control; coordination of store activities. Pre: BUS 312 or consent.

MKT 351 Professional Selling (3) Emphasis on selling technique, social-psychological principles of persuasion, and interpersonal communication. Lecture, discussion, and application of relevant principles and techniques. CR/NC only. Pre: BUS 312 or consent.

MKT 352 Sales Management (3) Course delves into the Sales Management process. Through a variety of activities, students gain experience in sales planning, recruiting and training sales people, methods of motivating and compensating, territory management and sales team communications. Pre: 351, BUS 312, or consent.

MKT 361 Seminar in Marketing (3) Study and discussion of significant topics and problems in the field of marketing. May be repeated with change in topic. Pre: consent and usually senior standing.

MKT 362 Internet Marketing (3) Examines use of Internet in the marketing of goods and services; for example new product development, marketing research, direct sales and marketing communications on the World Wide Web. Real world projects provide opportunities for application. Pre: BUS 311 and BUS 312; or consent.

MKT 363 Database Marketing (3) This course focuses on the evolving fields of database marketing. Students learn optimal ways of developing and using a customer database to design, implement and evaluate direct, loyalty and other marketing programs. A-F only. Pre: BUS 311 and MKT 321; or consent.

MKT 371 Marketing Management (3) Real world decision-making simulation providing strategic experience in a group setting. Pre: BUS 312 or consent.

MKT 372 Guerrilla Marketing (3) Dual examination of role of marketing in development of entrepreneurial ventures and role of entrepreneurial behavior in the marketing function. Emphasis on innovative approaches to marketing activities that produce high impact results at low cost. Pre: BUS 305 or BUS 312 or consent.

MKT 381 Multinational Marketing (3) Principles and topics related to international marketing, with emphasis on strategic planning and applications. Pre: BUS 312 or consent.

MKT 391 Marketing Strategies (3) Decision-making by the marketing executive; integration of all elements of the marketing program based on actual business situations. Pre: 311, 321, and one other marketing course above 311; or consent.

MKT 399 Directed Reading and Research (V) Reading and research in a special area of major under direction of faculty member(s). Project

must include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by the department chair and the faculty adviser.

MKT 410 Software Tools in Marketing (3) This course focuses on computer software tools designed to help managers make more informed marketing decisions. Through hands-on experience, students learn software skills useful in marketing management, marketing research, sales and advertising. A-F only. Pre: BUS 310 and BUS 312; or consent.

MKT 411B Imagination, Entrepreneurship and Business Problem-Solving (3) Application of creative process to problems encountered in venture creation/growth. Student problem-solving styles are characterized and implications drawn for generation of breakthrough ideas. Tools for facilitating creative solutions to marketing problems are investigated. Pre: junior standing and BUS 305 or BUS 312; or consent.

MKT 651 Advanced Marketing Management (3) A case course in the application of advanced marketing methods. Pre: BUS 615 or consent.

MKT 652 Japanese Marketing Systems (3) Specialized study of Japanese marketing systems, considers both global and domestic marketing activities in the context of the Japanese economy. Pre: BUS 615 or consent.

MKT 653 International Marketing Management (3) Integrated and comparative approach to international marketing management. Emphasis on the development of a competitive strategy in a global environment. Applications to both developing and industrialized markets. Pre: BUS 615 or consent.

MKT 654 Marketing Communications Management (3) Emphasis on developing integrated advertising, sales promotion, public relations and internet communication strategies that build brand equity. Includes relevant customer behavior and real world applications. Pre: BUS 615 or consent.

MKT 655 Marketing Research Methodology (3) Research aids to marketing management: problem specification, hypothesis formulation, sample design, questionnaire construction, data collection, analysis, and policy recommendations. Pre: BUS 615 or consent.

MKT 656 Creativity in Marketing (3) Thought processes that relate to creativity. Through a series of exercises, students experience enriched creativity and enhanced communication skills. Pre: BUS 615 or consent.

MKT 657 Services Marketing (3) Conceptual understanding of distinctive aspects of services, services management, and services research. Pre: BUS 615 or consent.

MKT 690 Advanced Seminar in Marketing (3) Significant topics, problems in marketing. May be repeated with change in topic. Pre: BUS 615 or consent.

Mathematics (MATH)

College of Natural Sciences

MATH 100 Survey of Mathematics (3) Selected topics designed to acquaint nonspecialists with examples of mathematical reasoning. May not be taken for credit after 215 or higher. FS

MATH 140 Trigonometry and Analytic Geometry (3) Functions, with special attention to polynomial, rational, exponential, logarithmic, and trigonometric functions, plane trigonometry, polar coordinates, conic sections. Pre: two years of high school algebra, one year of plane geometry, and precalculus assessment. FS

MATH 190 Basic and Fortran Programming (1) An introduction to numerical algorithms and programming in Basic and Fortran. Pre: one semester of calculus (or concurrent), or consent.

MATH 203 Calculus for Business and Social Sciences (3) Basic concepts; differentiation and integration; applications to management, finance, economics, and the social sciences. Pre: two years high school algebra, one year plane geometry, and precalculus assessment. FS

MATH 215 Applied Calculus I (4) Basic concepts; differentiation, differential equations and integration with applications directed primarily to the life sciences. Pre: C or better in 140 or precalculus assessment. FS

Math 215A Applied Calculus I (4) Basic concepts; differentiation, differential equations and integration with applications directed primarily to the life sciences. Pre: C or better in 140 or precalculus assessment.

MATH 216 Applied Calculus II (3) Differential calculus for functions in several variables and curves, systems of ordinary differential equations, series approximation of functions, continuous probability, exposure to use of calculus in the literature. Pre: 215 or consent.

MATH 241 Calculus I (4) Basic concepts; differentiation with applications; integration. Pre: a grade of C or better in 140 or 215 or precalculus assessment. FS

MATH 242 Calculus II (3) Integration techniques and applications, series and approximations, differential equations. Pre: a grade of C or better in 241 or 251 or a grade of B or better in 215; or consent. Co-requisite: 242L.

MATH 242L Calculus Computer Lab (1) Introduction to symbolic computer software for solving calculus problems, graphing functions and experimenting with calculus concepts. No knowledge of computers required. Co-requisite: 242.

MATH 243 Calculus III (3) Vector algebra, vector-valued functions, differentiation in several variables, and optimization. Pre: A grade of C or better in 242 or 252 or a grade of B or better in 216 and 242L (or concurrent).

MATH 244 Calculus IV (3) Multiple integrals; line integrals and Green's Theorem; surface integrals, Stokes's and Gauss's Theorems. Pre: 243 or consent.

MATH 251 Accelerated Calculus I (4) Basic concepts; differentiation with applications; integration. Pre: a grade of A in 140 or precalculus assessment and consent. **FS**

MATH 251A Accelerated Calculus I (4) Basic concepts; differentiation with applications; integration. A-F only. Pre: a grade of A in 140 or precalculus assessment and consent.

MATH 252 Accelerated Calculus II (3) Integration techniques and applications, series and approximations, differential equations, introduction to vectors. Pre: a grade of C or better in 251 or a grade of B or better in 241 and consent. Co-requisite: 242L.

MATH 252A Accelerated Calculus II (3) Integration techniques and applications, series and approximations, differential equations, introduction to vectors. A-F only. Pre: a grade of C or better in 251 or a grade of B or better in 241 and consent. Co-requisite: 242L.

MATH 253 Accelerated Calculus III (4) Vector calculus; maxima and minima in several variables; multiple integrals; line integrals, surface integrals and their applications. Pre: 252.

MATH 253A Accelerated Calculus III (4) Vector calculus; maxima and minima in several variables; multiple integrals; line integrals, surface integrals and their applications. A-F only. Pre: 252.

MATH 301 Introduction to Discrete Mathematics (3) Symbolic logic, sets and relations, algorithms, trees and other graphs. Additional topics chosen from algebraic systems, networks, automata. Pre: one semester of calculus from mathematics department and one semester programming; or consent. Recommended: 190.

MATH 302 Introduction to Differential Equations I (3) First order ordinary differential equations, constant coefficient linear equations, oscillations, Laplace transform, convolution, Green's function. Pre: 216 or 243 (or concurrent) or 253 (or concurrent), or consent.

MATH 303 Introduction to Differential Equations II (3) Constant coefficient linear systems, variable coefficient ordinary differential equations, series solutions and special functions, Fourier series, partial differential equations. Pre: 302, 311 (or concurrent); or consent.

MATH 311 Introduction to Linear Algebra (3) Algebra of matrices, linear equations, real vector spaces and transformations. Pre: 243 or 253 (or concurrent) or consent.

MATH 321 Introduction to Advanced Mathematics (3) Formal introduction to the concepts of logic, finite and infinite sets, functions, methods of proof and axiomatic systems. Pre: 243 or 253 (or concurrent) or consent.

MATH 351 Foundation of Euclidean Geometry (3) Axiomatic Euclidean geometry and introduction to the axiomatic method. Pre: 243 or 253, and 321 (or concurrent); or consent.

MATH 352 Non-Euclidean Geometries (3) Hyperbolic, other non-Euclidean geometries. Pre: 351 or consent.

MATH 371 Elementary Probability Theory (3) Sets, discrete sample spaces, problems in combinatorial probability, random variables, mathematical expectations, classical distributions, applications. Pre: 216 or 242 or 252 or consent.

MATH 373 Elementary Statistics (3) Estimation, tests of significance, the concept of power. Pre: 371 or consent.

MATH 402 Partial Differential Equations I (3) Integral surfaces and characteristics of first and second order partial differential equations. Applications to the equations of mathematical physics. Pre: 243 or 253, or consent. Recommended: 244 and 302.

MATH 403 Partial Differential Equations II (3) Laplace's equation, Fourier transform methods for PDEs, higher dimensional PDEs, spherical harmonics, Laplace series, special functions and applications. Pre: 402 or consent.

MATH 405 Ordinary Differential Equations (3) Systems of linear ordinary differential equations, autonomous systems, and stability theory applications. Optional topics include series solutions, Sturm theory, numerical methods. Pre: 302 and 311, or consent.

MATH 407 Numerical Analysis (3) Numerical solution of equations, interpolation, least-squares approximation, quadrature, eigenvalue problems, numerical solution of ordinary and partial differential equations. (These topics are covered in the year sequence 407–408.) Pre: 311 and one semester programming; or consent. Recommended: 190.

MATH 408 Numerical Analysis (3) Continuation of 407. This is the second course of a year sequence and should be taken in the same academic year as 407. Pre: 407 or consent.

MATH 411 Linear Algebra (3) Vector spaces over arbitrary fields, minimal polynomials, invariant subspaces, canonical forms of matrices; unitary and Hermitian matrices, quadratic forms. Pre: a grade of B or better in 311 or consent.

MATH 412 Introduction to Abstract Algebra (3) Introduction to basic algebraic structures. Groups, finite groups, abelian groups, rings, integral domains, fields, factorization, polynomial rings, field extensions, quotient fields. (These topics are covered in the year sequence 412–413.) Pre: 311 or consent.

MATH 413 Introduction to Abstract Algebra (3) Continuation of 412. This is the second course of a year sequence and should be taken in the same academic year as 412. Pre: 412 or consent.

MATH 414 Operations Research: Discrete Models (3) Techniques of mathematical programming. Topics may include linear programming, integer programming, network analysis, dynamic programming, and game theory. Pre: 311 or consent.

MATH 416 Operations Research: Probabilistic Models (3) Queuing theory, inventory theory, Markov chains, simulation. Pre: 311 and 371, or consent.

MATH 420 Introduction to the Theory of Numbers (3) Congruences, quadratic residues, arithmetic functions, distribution of primes. Pre: 311 or consent.

MATH 421 Topology (3) Geometric and combinatorial topology. Surfaces, homology, Euler characteristics, winding numbers, Jordan curve theorem. Pre: two courses from 311, 321, 351, 411, 412, or 420; or consent.

MATH 431 Advanced Calculus (3) Topology of \mathbb{R}^n , continuous functions, Riemann integration, sequences and series, uniform convergence, implicit function theorems, differentials and Jacobians. (These topics are covered in the year sequence 431–432.) Pre: three courses from 311, 321, 412, 413, 420, 455, 471, or consent.

MATH 432 Advanced Calculus (3) Continuation of 431. This is the second course of a year sequence and should be taken in the same academic year as 431. Pre: 431 or consent.

MATH 442 Vector Analysis (3) Vector operations, wedge product, differential forms, and smooth mappings. Theorems of Green, Stokes, and Gauss, both classically and in terms of forms. Applications to electromagnetism and mechanics. Pre: 244 or 253, and 311; or consent.

MATH 443 Differential Geometry (3) Properties and fundamental geometric invariants of curves and surfaces in space; applications to the physical sciences. Pre: 244 or 253, and 311; or consent.

MATH 444 Complex Variable (3) Analytic functions, complex integration, introduction to conformal mapping. Pre: 244 or 253, and 311; or consent.

MATH 449 (Alpha) Topics in Undergraduate Mathematics (3) Advanced topics from various areas: algebra, number theory, analysis, and geometry. Repeatable. Pre: consent.

MATH 454 Axiomatic Set Theory (3) Sets, relations, ordinal arithmetic, cardinal arithmetic, axiomatic set theory, axiom of choice and the continuum hypothesis. Pre: 321 or graduate standing in a related field or consent. Not open to mathematics graduate students.

MATH 455 Mathematical Logic (3) A system of first order logic. Formal notions of well-formed formula, proof, and derivability. Semantic notions of model, truth, and validity. Completeness theorem. Pre: 454 or consent.

MATH 471 Probability (3) Probability spaces, random variables, distributions, expectations, moment-generating and characteristic functions, limit theorems. Continuous probability emphasized. Pre: 244 or 253 (or concurrent), and 371; or consent.

MATH 472 Statistical Inference (3) Sampling and parameter estimation, tests of hypotheses, correlation, regression, analysis of variance, sequential analysis, rank order statistics. Pre: 471 or consent.

MATH 475 Combinatorial Mathematics (3) Finite configurations. Topics may include counting methods, generating functions, graph theory, map coloring, block design, network flows, analysis of discrete algorithms. Pre: 311 or consent.

MATH 480 Senior Seminar (1) A seminar for senior mathematics majors, including an introduction to methods of research. CR/NC only. Pre: one 400-level mathematics course or consent.

MATH 499 Directed Reading (V) Limited to advanced students who must arrange with an instructor before enrolling. Repeatable once for a maximum of 3 credits each.

MATH 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: Master's Plan B or C candidate and consent.

MATH 602 Ordinary and Partial Differential Equations (3) Classical existence and uniqueness theory for ODEs and PDEs, qualitative properties, classification, boundary value and initial value problems, fundamental solutions, other topics. (These topics are covered in the year sequence 602–603.) Pre: 402, 431, 432, 442, or consent.

MATH 603 Ordinary and Partial Differential Equations (3) Continuation of 602. This is the second course of a year sequence and should be taken in the same academic year as 602. Pre: 602.

MATH 607 Numerical Analysis (3) Perron-Frobenius theory, nonnegative matrices, matrix numerical analysis, iterative methods, discrete approximation to partial differential equations. Pre: 402, 407, 408, or consent.

MATH 611 Modern Algebra (3) Modules, Sylow theorems, Jordan-Holder theorem, unique factorization domains, Galois theory, algebraic closures, transcendence bases. (These topics are covered in the year sequence 611–612.) Pre: consent.

MATH 612 Modern Algebra (3) Continuation of 611. This is the second course of a year sequence and should be taken in the same academic year as 611. Pre: 611.

MATH 613 Group Theory (3) Sylow theorems, solvable groups, nilpotent groups, extension theory, representation theory, additional topics. Pre: consent.

MATH 615 Ring Theory (3) Ideal theory in Noetherian rings, localization, Dedekind domains, the Jacobson radical, the Wedderburn-Artin theorem, additional topics. Pre: consent.

MATH 618 Lattice Theory (3) Introduction with applications to general algebra. Partially ordered sets, decomposition theory, representations of lattices, varieties and free lattices, coordinatization of modular lattices. Pre: 612 or consent.

MATH 619 Universal Algebra (3) Introduction to basic techniques, including subalgebras, congruences, automorphisms and endomorphisms, varieties of algebras, Mal'cev conditions. Pre: 612 or consent.

MATH 621 Topology (3) Properties of topological spaces; separation axioms, compactness, connectedness; metrizable; convergence and continuity. Additional topics from general and algebraic topology. (These topics are covered in the year sequence 621–622.) Pre: consent.

MATH 622 Topology (3) Continuation of 621. This is the second course of a year sequence and should be taken in the same academic year as 621. Pre: 621.

MATH 625 Differentiable Manifolds I (3) Differentiable structures on manifolds, tensor fields, Frobenius theorem, exterior algebra, integration of forms, Poincaré Lemma, Stokes's theorem. Pre: 411, 432, and 622; or consent.

MATH 631 Theory of Functions of a Real Variable (3) Lebesgue measure and integral, convergence of integrals, functions of bounded variation, Lebesgue-Stieltjes integral and more general theory of measure and integration. (These topics are covered in the year sequence 631–632.) Pre: consent.

MATH 632 Theory of Functions of a Real Variable (3) Continuation of 631. This is the second course of a year sequence and should be taken in the same academic year as 631. Pre: 631.

MATH 633 Functional Analysis (3) Linear topological spaces, normed spaces, Hilbert spaces, function spaces, function algebras, operator theory. Pre: consent.

MATH 637 Calculus of Variations (3) Simple variational problems, first and second variation formulas. Euler-Lagrange equation, direct methods, optimal control. Pre: 432 or consent.

MATH 644 Analytic Function Theory (3) Conformal mapping, residue theory, series and product developments, analytic continuation, special functions. (These topics are covered in the year sequence 644–645.) Pre: consent.

MATH 645 Analytic Function Theory (3) Continuation of 644. This is the second course of a year sequence and should be taken in the same academic year as 644. Pre: 644.

MATH 649 (Alpha) Topics in Mathematics (3) Commutative rings, function theory, geometric topology, transformation groups, etc. Repeatable. Pre: consent.

MATH 655 Set Theory (3) Axiomatic development, ordinal and cardinal numbers, recursion theorems, axiom of choice, continuum hypothesis, consistency and independence results. Pre: consent.

MATH 657 Recursive Functions and Complexity (3) Recursive, r.e., P-time, and Logspace classes. Nondeterminism, parallelism, alternation, and Boolean circuits. Reducibility and completeness. Pre: 455, ICS 441, or consent.

MATH 671 Advanced Probability (3) Independence and conditioning, martingales, ergodic theory, Markov chains, central limit theorem. Pre: 631 or consent.

MATH 672 Stochastic Processes (3) Stationary, Gaussian, and Markov processes. Pre: 671 or consent.

MATH 681 Graph Theory (3) Connected graphs and digraphs. Graph embeddings. Connectivity and networks. Factors and factorizations. Coverings. Coloring. Applications. Pre: 311 or consent.

MATH 699 Directed Reading and Research (V) Maximum of 3 credit hours. Repeatable three times. Pre: graduate standing and consent.

MATH 700 Thesis Research (V) Research for master's thesis. Pre: consent.

MATH 799 Apprenticeship in Teaching (V) An experience-based introduction to college-level teaching; students serve as student teachers to professors; responsibilities include supervised teaching and participation in planning and evaluation. Open to graduate students in mathematics only. Repeatable once. CR/NC only. Pre: graduate standing in mathematics and consent.

MATH 800 Dissertation Research (V) Research for doctoral dissertation.

MDHX

See *Medical History*

Mechanical Engineering (ME)

College of Engineering

Preference in registration is given to declared engineering majors. Please consult the current Schedule of Courses for confirmed offerings each semester.

ME 113 Introduction to Engineering Design I (2) (1 Lec, 1 2-hr Lab) Introductory experience in analysis, synthesis, design, and computer-aided modeling. Teamwork and project required. Pre: high school physics or consent.

ME 213 Introduction to Engineering Design II (2) (1 Lec, 1 2-hr Lab) Introductory experience in communication, presentation, professional ethics, social responsibility, engineering economics, quality control, and computer-aided drafting. Teamwork and project required. Pre: 113.

ME 301 Mechanical Engineering Experimentation (2) (1 Lec, 1 2-hr Lab) Design of test setups and procedures to determine the performance of a product. Pre: junior standing.

ME 311 Thermodynamics (3) Basic laws, closed and open systems. Work, heat, concept of entropy. Properties of pure simple substances. Ideal gases. Introduction to power and refrigeration cycles. Pre: PHYS 170. **DP**

ME 312 Applied Thermodynamics (3) Gas mixtures, generalized thermodynamic relationships, combustion and thermochemistry, chemical equilibrium, power and refrigeration cycles. Pre: grade of C or better in 311. **DP**

ME 322 Mechanics of Fluids (3) Incompressible and compressible ideal fluids, effects of viscosity. Similitude, boundary layer flow, elementary gas dynamics. Pre: CEE 271, and grade of C or better in ME 311. **DP**

ME 331 Material Science and Engineering (3) Electronic, atomic, and crystalline structure of materials and their effect on the mechanical, electrical, optical, and magnetic properties of engineering metals, ceramics, polymers, and composites. Pre: CHEM 171 and MATH 242. **DP**

ME 341 Manufacturing Processes (3) Manufacturing components. Energy requirements for various manufacturing methods.

Selection and design of manufacturing methods to obtain components with desired size/shape/properties. Pre: 331 or consent. **DP**

ME 341L Manufacturing Processes Lab (1) (1 2-hr Lab) Manufacturing laboratory: tension/compression tests, cold rolling, welding, casting, statistical process control, programming and milling using a CNC machine. Pre: 341 (or concurrent) or consent. **DY**

ME 360 Computer Methods in Engineering (3) Numerical solutions for algebraic and transcendental equations, simultaneous linear algebraic equations, integration and differentiation; integration of ordinary differential equations. Engineering applications. Pre: EE 150 and MATH 244.

ME 371 Mechanics of Solids (3) Stress, strain, and constitutive relations for elastic solids. Design of shafts, beams, columns, and cylinders. Failure theories, statically indeterminate systems. Pre: CEE 270 and MATH 244. **DP**

ME 372 Component Design (3) Design, analysis, and selection of machine components: shafts, screws, fasteners, welds, rolling contact bearings, journal bearings, gears, clutches, brakes, belts, and roller chains. Pre: mechanical drawing, 113, and 371; or consent. **DP**

ME 374 Kinematics/Dynamics Machinery (3) Velocity and acceleration analysis of planar mechanisms; kinematic synthesis of linkages, cams, and gears; static and dynamic force analysis of mechanisms; balancing of machinery. Pre: MATH 244 and CEE 271. **DP**

ME 375 Dynamics of Machines and Systems (3) Lumped-parameter modeling of dynamic physical systems. Methods of analysis, including transform techniques. Time response and frequency response. Modal analysis. Pre: 374. **DP**

ME 401 Measurements Lab (2) (1 Lec, 1 2-hr Lab) Design of engineering instrumentation. Techniques and procedures associated with carrying out measurements within the constraints of cost, time, and accuracy. Pre: 375 **DY**

ME 403 Advanced Mathematics for Engineers I (3) Applications of ordinary differential equations, Laplace transform, vector field theory, matrices, line integrals. Pre: MATH 244.

ME 417 Air Conditioning and Refrigeration (3) Principles, design, and performance of refrigeration and air-conditioning systems. Pre: 312 and 422 (or concurrent). **DP**

ME 418 Power and Propulsion (3) Principles, performance, and design of gas turbine power plants and propulsion systems. Pre: 312 and 422 (or concurrent). **DP**

ME 422 Heat Transfer (3) Steady and transient conduction. Fundamentals of radiation and convection. Heat exchangers. Pre: 322. **DP**

ME 424 Introduction to Gas Dynamics (3) One-dimensional compressible flow involving change of area, friction, heat transfer. Normal and oblique shocks. Prandtl-Meyer flow. Application to nozzles, diffusers, airfoils. Pre: 312 and 322. **DP**

ME 433 Failures in Materials (3) Analysis of component failures due to imperfections, fatigue, brittle fracture, wear, corrosion, bending,

impact, and overload. Fracture mechanics. Case studies. Pre: 331 or consent. **DP**

ME 434 Materials Selection for Design (3) Methodology for the selection of materials for mechanical applications to prevent mechanical failure and environmental degradation. Design considerations associated with the use of metals, ceramics, polymers, and composites. Pre: 341, 341L, and 371. **DP**

ME 435 Experimental Methods in Materials Research (3) (1 Lec, 2 2-hr Lab) Common experimental techniques in materials testing and research: x-ray diffraction, optical and electron microscopy, thermal and mechanical properties, electrochemical methods—theory and hands-on experience. Pre: 341 and consent.

ME 436 Corrosion Engineering (3) Basics of corrosion processes and emphasis on corrosion control. Thermodynamics and kinetics of corrosion, metal alloys and their behavior, corrosion control techniques (cathodic protection, anodic protection, coatings, and inhibitors). Pre: 341 and 341L, or consent. **DP**

ME 446 Advanced Materials Manufacturing (3) (2 Lec, 1 2-hr Lab) Introduction to anisotropic materials, advanced manufacturing techniques for composite and intelligent materials, joining of composites, thin film processing and stereolithography, computer aided manufacturing and rapid prototyping, manufacturing process optimization, open-ended manufacturing projects. Pre: 341, 341L, and senior standing; or consent. **DP**

ME 451 Feedback-Control Systems (3) Principles of linear control. Design methods for feedback-control systems. Application to physical dynamic systems such as industrial robots. Pre: 375 or consent. **DP**

ME 452 Robotics (3) Principles and design methods for autonomous systems. Pre: senior standing. **DP**

ME 453 Energy Conversion Systems (3) Energy conversion and its impact on the environment. Conventional, hydroelectric, nuclear fission and fusion, solar, wind, ocean, geothermal, and biomass power; energy storage, transmission, and conservation. Pre: 312, 322, and 422 (or concurrent); or consent. **DP**

ME 454 Geothermal Energy, Resources, and Utilization (3) Sources, distribution, environmental aspects of development. Chemical and physical properties of geothermal fluids; principles of energy conversion methods. Pre: 312 or 422 (or concurrent). **DP**

ME 455 Nuclear Power Engineering (3) Nuclear reactor principles. Reactor heat transfer, heat generation, and removal. Design and analysis of reactor power plants. Pre: 312 and 422 (or concurrent). **DP**

ME 465 Computer Graphics for Design (3) Two- and three-dimensional representations of solid bodies. Programming projects from conception through demonstration. Graphics primitives; data structures; transformations; hidden-line removal; animation. Pre: senior/graduate standing in engineering or ICS, or consent.

ME 473 Mechanical Vibrations (3) Response of machines and systems to transient and periodic excitation. Vibration isolation and

transmissibility. Modal analysis of multi-degree-of-freedom systems. Applications to design. Pre: 371, 375, or consent. **DP**

ME 474 Fundamentals of Acoustics (3) Plane and spherical acoustic waves. Transmission, reflection, radiation, and absorption. Near and far fields, radiation patterns. Applications to noise control. Instruments. Pre: 375, EE 211, or consent. **DP**

ME 481 Design Project I (3) (1 1-hr Lec, 2 2-hr Lab) Engineering ethics, engineering design methodology, design process, project planning, decision making, materials selection, economic analysis, quality control, finite element analysis, initiation of an open-ended design project. A-F only. Pre: 372 or consent.

ME 482 Design Project II (3) (1 Lec, 2 2-hr Lab) Continuation of design project initiated in ME 481. Extension of conceptual design to final design and a prototype. Analysis, materials and part selection, synthesis of working systems. Computer-aided design and finite element modeling. Manufacturing specifications, shop drawings, and a final report are required. A-F only. Pre: 375 and 481, or consent.

ME 491 Special Topics in Mechanical Engineering (3) Specialized topics in thermosciences, mechanics, materials, systems, or design. Pre: consent.

ME 492 Special Topics in Mechanical Engineering (3) Specialized topics in thermosciences, mechanics, materials, systems, or design. Pre: consent.

ME 499 Project (V) Investigation of advanced problems in mechanical engineering design or development. Student must find faculty sponsor before registering. Pre: senior standing.

ME 500 Master's Plan B/C Studies (1)

ME 611 Classical Thermodynamics (3) Critical study of foundations of thermodynamics. Definitions, laws and corollaries. Chemical, electrical, magnetic systems. Determination of equilibrium states. Pre: 312.

ME 612 Advanced Thermodynamics (3) Advanced classical thermodynamics and fundamentals of statistical thermodynamics. Availability; exergy; entropy generation minimization; thermoeconomics; statistics; quantum mechanics; ideal and dense gases; kinetic theory. Pre: 312, 322, and 422; or consent.

ME 617 Thermal Environmental Engineering (3) Physiological response to thermal environment, designs of passive and active cooling systems, student project. Pre: 417 or consent.

ME 621 Conduction Heat Transfer (3) Steady and unsteady heat conduction with and without heat sources in solids. Analytical, numerical, graphical, analog methods for solving heat conduction problems. Pre: 422.

ME 622 Convection Heat Transfer (3) Heat transfer in laminar and turbulent boundary layers. Analogy between heat, momentum, mass transfer. Pre: 422 and 626.

ME 623 Radiation Heat Transfer (3) Radiant interchange among surfaces. Gaseous radiation. Combined conduction, convection, and radiation heat transfer. Pre: 422 and senior standing.

ME 625 Numerical Methods in Fluid Mechanics and Heat Transfer (3) Integration of ordinary differential equations. Finite difference solutions of partial differential equations with applications to conduction and convection. Introduction to finite element methods. Pre: 422 and EE 150.

ME 626 Viscous and Turbulent Flows (3) Navier-Stokes and energy equations, their formulation, properties; some exact solutions; laminar boundary layers; laminar stability, transition, turbulence; turbulent boundary layers. Pre: 322.

ME 627 Environmental Heat, Mass, and Momentum Transfer (3) Heat and mass transfer in Earth's interior with applications to geothermal and petroleum reservoir engineering. Pre: 422 or consent.

ME 628 Chemical Reactor Analysis and Design (3) Chemical kinetics with heat and mass transfer. Balance equations applied to selected ideal reactors. Departures from ideality. Pre: 422 and 627.

ME 629 Renewable Energy Engineering I: Biomass (3) (1 Lec, 2 2-hr Lab) Experimental methods and theory of thermochemical biomass conversion: static and dynamic temperature and mass measurements, thermogravimetry, differential scanning calorimetry, GCMS and HPLC techniques. Pre: consent.

ME 631 Advanced Materials Science (3) Properties of materials interpreted from the atomistic viewpoint. Crystal structure and defects. Thermodynamics of solids; phase transformations; experimental techniques. Pre: 331.

ME 635 Corrosion Theory (3) Application of electrochemical theory and materials science to corrosion and oxidation reactions. Effect of environment, especially marine. Cathodic protection, coatings, inhibitors, treatment of water systems. Pre: 331.

ME 636 Fundamentals of Electrochemistry (3) Thermodynamics of cells, electrode kinetics, mass transfer by migration and diffusion, microelectrode techniques, forced convection, impedance, double-layer structure, and adsorbed intermediates in electrode processes. Pre: consent.

ME 642 Mechanical Behavior of Engineering Materials (3) Mechanical property tests. Stress concentrations. Fracture mechanics; applications to materials failures and to selection of materials; emphasis on mechanical engineering applications. Pre: consent.

ME 646 Mechanics and Design Composites (3) Introduction to composites; anisotropic elasticity and laminate theory; hygrothermal effects; composite beams, columns, rods, plates, and shells; energy method; failure theories; joining of composites, computer-aided design in composites. Pre: 371 or consent.

ME 651 Automatic Control (3) Linear optimal feedback control, discrete time optimal control, fundamentals of adaptive control, application to motion and force control of robot arms and manipulators. Pre: 451, EE 451, or consent.

ME 657 Methods of Search and Optimization (3) Modeling, theory, numerical methods for constrained and unconstrained parameter optimization. Linear, nonlinear programming of deterministic systems. Applications. Pre: consent.

ME 662 Computer Vision (3) Image formation, filtering, edge detection and other forms of image enhancement, segmentation of image into meaningful regions, techniques for analyzing motion, creation of models representing scene and image understanding. Psychological and physiological aspects of human vision will be discussed. Pre: graduate standing.

ME 671 Continuum Mechanics (3) Cartesian tensors in mechanics, coordinate transformations, analysis of stress and strain, principal values, invariants, equilibrium and compatibility equations, constitutive relations, field equations. Problems in elasticity. Pre: 371 or CEE 370, or consent. (Cross-listed as CEE 671)

ME 672 Finite Element Analysis (3) Introduction to finite element analysis and design in mechanical engineering. Applications to machine design, vibrations, elasticity, heat transfer. Pre: 371, 360, or consent.

ME 675 Digital Spectral Analysis (3) System identification using discrete Fourier transform (DFT) methods. Deterministic and random signal analysis. Windows, aliasing, FFT; Z-transform and DFT; real-time data acquisition and analysis using microcomputers. Pre: 375, EE 315, ICS 445, or consent.

ME 678 Advanced Dynamics (3) Lecture course on rigid-body dynamics. Topics include: dynamical systems; motion representation and constraints; Newtonian mechanics; Lagrangian mechanics; Hamilton's principle; stability analysis; introduction to multibody dynamics. Pre: 375 or equivalent; or consent.

ME 691 Seminar (1) Current problems in all branches of mechanical engineering. All graduate students are required to attend; registrants are expected to present talks. Pre: graduate standing.

ME 696 Advanced Topics in Mechanical Engineering (V) Highly specialized topics in thermosciences, mechanics, materials, system, or design. Pre: consent.

ME 699 Directed Reading or Research (V) Directed study on subject of mutual interest to student and a staff member. Student must find faculty sponsor before registering. Pre: graduate standing.

ME 700 Thesis Research (V) Thesis for degree of MS in mechanical engineering. Pre: admission to candidacy and consent of thesis adviser.

ME 799 Directed Instruction (V) Student assists in undergraduate classroom and/or project instruction under the direction and close supervision of faculty member. CR/NC only. Pre: admission to PhD candidacy or consent.

ME 800 Dissertation Research (V) Research for doctoral dissertation. Pre: candidacy for PhD in mechanical engineering.

Medical History (MDHX)

School of Medicine

MDHX 606 Medical History (1) Philosophy and history of medicine with special reference to contributions from the Pacific Islands and Asia, and interrelationships of historical, ethical, social, and scientific aspects of medicine.

MDHX 699 Directed Research (V)

Medical Technology (MEDT)

School of Medicine

MEDT 151 Introduction to Medical Technology I (2) Designed to acquaint student with relationship of medical technology to the medical field.

MEDT 251 Introduction to Medical Technology II (2) (1 Lec, 1 3-hr Lab) Designed to acquaint student with basic principles of medical technology. Pre: 151, CHEM 161 and CHEM 161L, and BIOL 171 and BIOL 171L (or concurrent). **DB**

MEDT 301 The Clinical Laboratory I (3) (2 Lec, 1 3-hr Lab) Theory and practical application of clinical laboratory methods for 366. MT-patient and MT-health team relationships. Pre: PHYL 301 (or concurrent) and junior standing in program.

MEDT 302 The Clinical Laboratory II (3) (2 Lec, 1 3-hr Lab) Continuation of 301. Pre: 301 and PHYL 302 (or concurrent).

MEDT 331 Clinical Lab Management (1) Student will become familiar with fundamental administration of a clinical laboratory to include technical, personnel, and financial management areas. CR/NC only. Pre: consent.

MEDT 366 Clerkship (2) Clerkship in an affiliated lab. CR/NC only. Pre: 301 and 302.

MEDT 431 Medical Parasitology (3) (2 Lec, 1 2-hr Lab) Diagnosis of parasitic diseases by laboratory methods; outstanding features of life cycles, classification and medical significance of parasites. Pre: MICR 351 or consent. (Cross-listed as TRMD 431)

MEDT 451 Basic Hematology (3) (2 Lec, 1 3-hr Lab) Fundamental study of blood in normal and pathological states: formation, development, and classification of blood cells. Pre: 366 or consent.

MEDT 457 Clinical Lab Methods and Analyses I (3) Principles and methods of assessing disease states using laboratory tests. Emphasis on clinical biochemistry and instrumentation. Pre: 471 or consent.

MEDT 457L Clinical Lab Methods and Analyses Lab I (2) (1 6-hr Lab) Lab experiments illustrating fundamental principles and methods of clinical laboratory analyses. Co-requisite: 457.

MEDT 458 Clinical Lab Methods and Analyses II (3) Continuation of 457.

MEDT 458L Clinical Lab Methods and Analyses Lab II (2) (1 6-hr Lab) Continuation of 457L. Co-requisite: 458.

MEDT 464 Immunohematology (3) (2 Lec, 1 3-hr Lab) Antigen-antibody relationships in human blood, study of blood groups, clinical problems in transfusion. Pre: MICR 461 or consent.

MEDT 471 Clinical Biochemistry (4) Biochemical processes in human health and disease states. Repeatable one time. Pre: BIOC 441 or BIOL 405 or CMB 405. Spring only. (Cross-listed as BIOC 471)

MEDT 495 Special Topics in Medical Technology (V) Acquaints student with role of the medical technologist and overlap of major sciences in clinical situations to help student develop qualities unique to med technology. CR/NC only. Pre: consent.

MEDT 499 Directed Reading and Research (V)

MEDT 591 Clinical Training in Medical Technology (26) Application of theory and simulated laboratory experiences in immunohematology, clinical chemistry, microbiology, parasitology, hematology, coagulation, urinalysis, immunology, to meet stated career entry-level competencies. Pre: BS in MEDT.

MEDT 690 Seminar in Medical Technology (1) Analysis of research and recent literature pertaining to various aspects of medical technology. Pre: consent.

MEDT 695 Special Topics in Medical Technology (2) Current research, discoveries, inventions, methods, and/or techniques in clinical laboratory medicine. Pre: consent.

Medicine (MED)

School of Medicine

MED 531 Internal Medicine Clerkship (16) Required course for third-year medical students, 11-week duration. Ambulatory care and hospital-based experience in a spectrum of medical problems. Application of skills and techniques to solve clinical problems. CR/NC only. Pre: BIOM 555.

MED 532 Internal Medicine Longitudinal Clerkship (5) Year long clerkship in ambulatory setting. Application of history-taking and physical examination skills for evaluation and care of clinical problems. Emphasis on primary and preventive care, clinical decision-making, and outpatient management of patients with complex problems. Repeatable twice. Pre: third-year standing and concurrent registration in 532 courses.

MED 541 Advanced Medicine Clerkship (V) Required course for fourth-year medical students, variable duration depending on progress. Advanced experiences in ambulatory and hospital-based medical care. Proficiency in this course may be established by examination by third- and fourth-year students. CR/NC only. Pre: fourth-year standing and completion of 531 or 532.

MED 545 (Alpha) Unit VII Electives in Medicine (V) Elective course for fourth-year medical students involving more advanced study of selected topics within internal medicine than was possible in 531. Repeatable once. CR/NC only. Pre: 531 or 532.

MED 546 (Alpha) Unit VII Electives in Medicine (V) Fourth-year electives in which students study selected topics within field of medicine. (B) extramural electives in medicine (miscellaneous); (C) internal medicine seminar; (D) infectious disease; (E) internal medicine sub-internship; (F) research in bioethics; (G) neurology critical care. Repeatable once for (B)–(E); not repeatable for (F); repeatable three times for (G). CR/NC only. Pre: 531 or 532 for (B) and (C); 541 for (E); and strong writing skills for (F). Background in humanities/literature recommended for (F). Co-requisite: 545 for (C); 531, 532, 541 for (G).

MED 599 Directed Research (V) Pre: consent.

Meteorology (MET)

School of Ocean and Earth Science and Technology

MET 101 Introduction to Meteorology (3) For nonscience majors and prospective science teachers. Basic atmospheric physics, sun-Earth-atmosphere interrelationships, pollution, major weather systems, weather forecasting, weather of Hawai'i. **DP**

MET 101L Introduction to Meteorology Lab (1) (1 3-hr Lab) Exercises with meteorological data and measurement systems. Characteristics of Hawaiian winds, temperatures, and rainfall. Pre: 101 (or concurrent). **DY**

MET 200 Descriptive Meteorology (3) Atmospheric variables and gas laws, radiation processes, thermodynamics, clouds and precipitation, atmospheric circulations, mid-latitude and tropical systems, forecasting, weather applications, climate. Pre: PHYS 152L or PHYS 170 (or concurrent). **DP**

MET 302 Atmospheric Physics (3) Energy and thermodynamics, statics and stability, physical processes of cloud formation, radiation and Earth-atmosphere heat balance, kinetic theory, optical effects. Pre: MATH 242 and PHYS 272, or consent. **DP**

MET 303 Introduction to Atmospheric Dynamics (3) Scalar and vector development of basic laws of hydrodynamics, equations of motion, kinematics, divergence and vorticity, viscosity and turbulence, introduction to numerical weather prediction, general circulation. Pre: 302 and MATH 244, or consent. **DP**

MET 305 Meteorological Instruments and Observations (3) (2 Lec, 1 3-hr Lab) First- and second-order measurement systems. Response of wind, temperature, and recording instruments. Discussion of advance system including radar. Planning of field programs. Pre: PHYS 152 and PHYS 152L, or PHYS 272 and PHYS 272L; or consent. **DP**

MET 310 Global Environmental Change (3) Global environmental change problems such as carbon dioxide and the greenhouse effect, acid

rain, chlorofluorocarbons and the ozone layer, global deforestation and the effect on climate, etc. Pre: one environmentally oriented science course. (Cross-listed as OEST 310 and OCN 310) **DP**

MET 310L Global Environmental Change Laboratory (2) (3-hr Lab) Laboratory course to supplement MET 310. Quantitative aspects of global environmental change will be addressed through problem solving and computer modeling. A–F only. Pre: MATH 241, MATH 242, PHYS 170, PHYS 170L, CHEM 161, and CHEM 161L; or consent. Co-requisite: 310 or consent. Fall only. (Cross-listed as OEST 310L and OCN 310L) **DY**

MET 402 Applied Atmospheric Dynamics (3) Advanced concepts in dynamics: vorticity, cyclogenesis, jet streams, fronts, mesoscale circulations. Pre: 303 or consent. **DP**

MET 405 Satellite Meteorology (3) (2 Lec, 1 3-hr Lab) Orbital elements, ephemerides, viewing geometry; radiation, satellite sensors; interpreting satellite data; applications to synoptic meteorology and forecasting. Pre: 302 or consent. **DP**

MET 406 Tropical Meteorology (3) History; tropical clouds and hydrometeors; typhoons; monsoons; local and diurnal effects. Pre: 303 or consent. **DP**

MET 412 Meteorological Analysis Lab (3) (2 3-hr Lab) Techniques of portraying and analyzing atmospheric structure and weather systems in middle and high latitudes; modern methods of forecasting extratropical systems. Pre: 303 (or concurrent) or consent. (Alt. years)

MET 416 Tropical Analysis Lab (3) (2 3-hr Lab) Techniques of portraying and analyzing atmospheric structure and weather systems in tropical and equatorial regions; forecasting tropical systems. Pre: 303 (or concurrent) or consent.

MET 600 Atmospheric Dynamics I (3) Governing equations for moist atmospheric motions, approximations, basic theoretical models, boundary layer dynamics, atmospheric waves, quasi-geostrophic theory for mid-latitudes. Pre: 303 and MATH 402 or MATH 405; or consent.

MET 601 Atmospheric Dynamics II (3) Overview of dynamic meteorology, numerical weather prediction, geophysical fluid instabilities, approximate dynamical systems, atmospheric general circulation, stratospheric dynamics. Pre: 600 or consent.

MET 606 Cumulus Dynamics (3) Dynamics of convective systems: tornadoes, waterspouts, squall lines. Interactions with synoptic scale. Pre: 620 or consent. (Alt. years)

MET 607 Mesoscale Meteorology (3) Scale analysis. Observational and theoretical aspects of mesoscale circulation systems. Pre: 600 or consent. (Alt. years)

MET 610 Tropical Climate and Weather (3) Climate and general circulation of the tropics; El Niño and Southern Oscillation; intraseasonal oscillation; trade winds; tropical weather systems; energy balance; typhoons. Pre: 303 or consent.

MET 614 Tropical Cyclones (3) Lecture class covering fundamentals of tropical cyclone structure, motion, and impacts on society. Observations from satellites, aircraft, ships and buoys, and numerical simulations focusing on storm structure and track. Some forecasting exercises. Repeatable one time. Pre: 600 and 610; or consent.

MET 616 Monsoon Meteorology (3) Synoptic components of monsoons, regional and temporal variability, numerical models, research exercises. Pre: 610 or consent. (Alt. years)

MET 620 Physical Meteorology (3) Molecular kinetics, atmospheric thermodynamics, cloud physics, precipitation processes, atmospheric electricity, scattering and absorption of solar radiation, absorption and emission of infrared radiation, radiative transfer. Pre: 302 or consent.

MET 621 Cloud Physics (3) Physical processes attending formation and subsequent history of clouds and cloud particles. Pre: 620 or consent. (Alt. years)

MET 631 Statistical Meteorology (3) Probability; frequency distributions of atmospheric variables; linear models; time series analysis (frequency and time domain); principal component analysis; statistical weather forecasting and verification. Pre: MATH 371. (Alt. years)

MET 636 Air Pollution Meteorology (3) (2 Lec, 1 3-hr Lab) Advanced treatment of theoretical diffusion expression (K-theory, Taylor's statistical hypothesis, similarity theory) and empirical diffusion expressions (Gaussian model with modification and sensitivity analysis, box models). Pre: consent. (Alt. years)

MET 665 Small-Scale Air-Sea Interaction (3) Observations and theory of small-scale processes which couple the atmosphere and ocean boundary layers, including introduction to turbulence theory and parameterization of turbulent fluxes. Pre: MATH 402 and MATH 403 (or their equivalents) and either OCN 620 or MET 600; or consent. (Cross-listed as OCN 665)

MET 666 Large-Scale Ocean-Atmosphere Interactions (3) This lecture/seminar course introduces physical oceanography and meteorology students to the state-of-the-art theories and observations of large-scale ocean-atmosphere interaction, as well as conveying the fundamental understanding that has been developed during the past 30 years. Emphasis will be on phenomena such as El Niño/Southern Oscillation, the North Atlantic Oscillation, the Pacific Decadal Oscillation, and global climate change. Repeatable one time. Pre: 600 or OCN 620; or consent. (Cross-listed as OCN 666)

MET 699 Directed Research (V) Pre: consent.

MET 700 Thesis Research (V)

MET 702 Numerical Weather Prediction (3) Fundamental methods and techniques in numerical weather prediction: time differencing, spatial finite differencing, spectral methods, numerical stability, explicit and implicit methods. Modern operational and research forecast models. Hands-on laboratory includes simple to complex dynamic models, with a term project. Repeatable one time. Pre: 600 or OCN 620; MATH 407 or 408; or consent.

MET 704 Climate and Climate Variability (3) Physical basis of climate, numerical climate models, paleoclimatic indicators, modern instrumental climate records, assessment of human impact on climate, predictions of future climate. Repeatable one time. Pre: 600 or OCN 620 or consent.

MET 745 Mid-latitude Dynamic Meteorology (4) (3 Lec, 1 3-hr Lab) Scale analysis of equations of motion; quasi-geostrophic system of forecasting; initial value problem; general circulation; programming exercise to compute energy interaction terms. Pre: 601 and consent. (Alt. years)

MET 746 Tropical Dynamic Meteorology (4) (3 Lec, 1 3-hr Lab) Instability theory; numerical integration procedures; special problems in numerical analysis in tropics; programming exercises of numerical integration. Pre: 601 and consent. (Alt. years)

MET 752 Special Topics in Meteorology (3) Concentrated studies on selected atmospheric problems. Repeatable. Pre: 600 or consent.

MET 765 (Alpha) Seminar in Meteorology (1) Participation in departmental seminars and presentation of a seminar on: (B) literature review of a specific topic; (C) research results. Repeatable. Pre: consent.

MET 800 Dissertation Research (V)

Microbiology (MICR)

College of Natural Sciences

MICR 130 General Microbiology (3) Role of microorganisms; how they affect people, property, and the environment. A basic survey course covering broad aspects of biochemistry, genetics, molecular biology, and physiology; host-parasite relationships, public health, bacterial, mycotic and viral diseases; epidemiology; ecology of soils and water; environmental pollution; food microbiology; industrial applications at an introductory level. Discussion groups optional. Not open to those with credit in 351 or equivalent. **DB**

MICR 140 Microbiology Laboratory (2) (2-hr Lab) Primarily for students in nursing and dental hygiene. Pre: 130 (or concurrent). **DY**

MICR 301 Microbiology Seminar (1) Seminars by the department faculty on current topics. Repeatable once. Pre: 130 or 351 (or concurrent); or consent.

MICR 351 Biology of Microorganisms (3) Anatomy, chemistry, physiology, genetics, development, and environmental interactions of microorganisms. Pre: BIOL 171 or equivalent, CHEM 272, and CHEM 272L; or consent. Co-requisite: 351L. Recommended: BIOL 275/275L. **DB**

MICR 351L Biology of Microorganisms Lab (2) (2 3-hr Lab) Laboratory exercises to accompany 351. Pre: CHEM 272, CHEM 272L, and BIOL 171, or equivalent. **DY**

MICR 394 Marine Biotechnology (4) A lecture and laboratory course on both the theory and practice of developing commercial products from marine microorganisms. The course will cover all stages of product development including marine environments likely to contain

microorganisms that can make products of interest, screening microbes for desired products, optimization of product production and large-scale production systems. Open to students from microbiology, ocean engineering and other ocean sciences. Pre: consent. (Cross-listed as ORE 394) **DB**

MICR 431 Microbial Physiology (3) Fundamental physiological and metabolic processes of bacteria; emphasis on growth, functions of cell structures, varieties of energy metabolism, metabolic regulation, and differentiation at the prokaryote level. Pre: 351 and BIOC 441, or consent. **DB**

MICR 431L Microbial Physiology Lab (2) (2 3-hr Lab) Components and metabolism of the bacterial cell; emphasis on techniques of analysis of metabolism and molecular structure. Co-requisite: 431. **DY**

MICR 451 Biology of Bacteria (3) Detailed study of physiology, structure, and taxonomy of major groups of bacteria; their growth in nature, laboratory, and industry. Pre: 351. **DB**

MICR 451L Biology of Bacteria Lab (2) (2 3-hr Lab) Selected experiments in cultivation, physiology, and taxonomy of major groups. Pre: 351 and 451 (or concurrent). **DY**

MICR 461 Immunology (3) Structure and biological actions of antigens and antibodies; fundamentals of antibody synthesis; the relation of immunology to biology and medical sciences. Pre: 351 or BIOL 172; or consent. Recommended: BIOL 275/275L. **DB**

MICR 461L Immunology Lab (2) (2 3-hr Lab) Basic exercises and experiments in immunology, immunochemistry, immunobiology to illustrate principles of 461. Co-requisite: 461 or consent. **DY**

MICR 463 Microbiology of Pathogens (3) Host-parasite relationships in microbial diseases of humans and animals with emphasis on bacterial pathogens. Pre: 351, 461, and 461L; or consent. Co-requisite: 463L or consent. **DB**

MICR 463L Microbiology of Pathogens Lab (2) (2 3-hr Lab) Characterization of bacterial pathogens. Isolation, identification, and diagnosis. Co-requisite: 463 or consent. **DY**

MICR 470 Microbial Pathogenesis: Molecular Aspects (3) Fundamental mechanisms of infectious diseases at the molecular level. Emphasis on the role of genetics in host-pathogen interactions. Pre: 351/351L or consent. (Alt. years) **DB**

MICR 475 Bacterial Genetics (3) Genetic analysis and molecular basis of transmission replication, mutation, and expression of heritable characteristics in prokaryotes. Pre: 351. **DB**

MICR 475L Bacterial Genetics Lab (2) (2 3-hr Lab) Techniques for study of transfer and expression of prokaryotic genes: transformation, conjugation, transposon mutagenesis, preparation and analysis of plasmid and chromosomal DNA. Pre: 475 (or concurrent). **DY**

MICR 485 Microbes and Their Environment (3) Distribution, diversity, and roles of microorganisms in terrestrial, freshwater, and marine ecosystems. Importance of bacteria in pesticide degradation, bioremediation of oil

spills, sewage treatment, biocontrol, food fermentation. Pre: BIOL 172 and CHEM 272; or consent. **DB**

MICR 485L Microbes and Their Environment Lab (2) (2 3-hr Lab) Techniques for study of interaction of microorganisms with and within their natural habitats; symbiosis between microorganisms and plants and animals; role of microorganisms in element cycling; food fermentation by bacteria. Pre: 351 and 485 (or concurrent); or consent. **DY**

MICR 490 Animal Virology (3) Fundamental concepts; comparison of physical, chemical, and biological properties of representative animal viruses and host-virus relationships at cellular and whole animal level. Pre: 351, 461, BIOC 441, and consent. Co-requisite: 490L. **DB**

MICR 490L Animal Virology Lab (2) (2 3-hr Lab) Basic experimental techniques; emphasis on use of animal cell culture systems. Pre: 351, 461, BIOC 441, and consent. Co-requisite: 490. **DY**

MICR 499 Microbiological Problems (V) Directed reading and research. Limited to senior majors with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in microbiology, or consent.

MICR 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

MICR 625 Advanced Immunology (3) Detailed reports and discussions on selected advanced topics and current research literature. Pre: 461, BIOC 601, and BIOP 601; or consent. (Alt. years: spring only)

MICR 631 Rhizobium-Legume Symbiosis (1) Rhizobium infection process, nodule formation, genes involved in nodulation and nitrogen fixation and recent advances in rhizobium-legume symbiosis will be discussed as both lectures and student seminars. Pre: 351, 431, 475, or 485. (Spring only)

MICR 632 Advanced Microbial Physiology (3) Selected topics. Pre: 431 or consent. (Alt. years: spring only)

MICR 641 Ultrastructure of Cells (3) Cellular structures, common and specialized, of eukaryotes and prokaryotes; correlating macromolecular structure with cell functions. Pre: BIOL 406 and either BIOC 441 or BIOC 601.

MICR 642 Antibiotics (3) History and applications of antibiotics; antibiotic resistance mechanisms; discovery and approval of new antibiotics; sources of antibiotics; role in nature. Pre: 431, 451, or 463; or consent.

MICR 646 Plant-Bacterial Interactions (3) Diagnosis, molecular biology, genetics, and infection mechanisms of bacterial plant pathogens and symbionts. Pre: one of 351, 475, or BIOC 481; or consent. (Cross-listed as PEPS 646)

MICR 653 Methods in Microbiology Oceanography (3)

MICR 655 Advanced Virology (3) Detailed reports and discussions on selected advanced topics and current research literature. Pre: 463, 490, either BIOC 441 or BIOC 601, and consent. (Alt. years: fall only)

MICR 661 Regulations of Gene Expressions in Microorganisms (3) Critical discussions of research literature on regulation of gene expression and metabolism in bacterial and fungal systems. Pre: 475, 632, 671, BIOC 601, BIOC 602, and consent. (Alt. years: fall only)

MICR 671 Advanced Microbial Genetics (3) Directed study and discussion of research literature on bacterial and bacterial virus mutation, genetic recombination, evolution and control mechanisms. Pre: 475, BIOC 601, and consent. (Alt. years: spring only)

MICR 680 Advances in Microbial Ecology (3) Highlights in microbial ecology; interaction of microorganisms with abiotic and biotic components of their environments. Modern techniques for study of autecology and synecology of microorganisms. Pre: 485 or consent. (Alt. years: spring only)

MICR 681 Host-Parasite Relationships (3) Mechanisms of pathogenicity of microorganisms and defense mechanisms of human and animal hosts. Review of contemporary literature. Pre: 463 or consent. (Alt. years: fall only)

MICR 685 Molecular and Cellular Bacterial Pathogenesis (3) Detailed examination of the molecular and cellular mechanisms of bacterial pathogenesis. Overview of key literature, synthesis of scientific problems into research proposals. Pre: 431, 463, or 470; or consent. (Alt. years: spring only)

MICR 690 Seminar (1) Required of graduate students. Repeatable.

MICR 699 Directed Research (V) Selected problems in microbiology. Pre: consent.

MICR 700 Thesis Research (V)

MICR 795 Special Topics in Microbiology (V) Selected topics in any aspect of microbiology. Repeatable.

MICR 800 Dissertation Research (V)

Military Science (MSCI)

ROTC Programs

A weekly one-hour leadership laboratory is required for courses numbered 200 and above. This laboratory is optional for the 100-level courses. The laboratory includes practical application of leadership skills, drills and ceremonies, basic soldiering skills, and Army Physical Fitness Training (APFT).

MSCI 101 Military Physical Training (1) Conditioning exercises and activities to develop and maintain a physical fitness level; requires presenting physical training instruction and meeting, or exceeding, army physical fitness test (APFT) requirements.

MSCI 105 Introduction to Military Science I (2) Provides an initial glimpse of the military and the role that it plays in society. Develops the student's comprehension of the American defense system as it evolved as the result of changes in the American society. Typical subjects include ethics, leadership, effective goal setting, managing time and effort, and the tradition of a citizens' army.

MSCI 105L Introduction to Military Science I Lab (1) Practical application in adventure training, one-rope bridges, rifle marksmanship, land navigation, drill and ceremonies, physical training. Pre: 105 (or concurrent).

MSCI 106 Introduction to Military Science II (2) Continuation of 105. Provides instruction in military-related subjects of general student interest, i.e., confidence-building field trips, supervising an individual exercise program, development of individual soldiering skills, and leadership and professional ethics for the military. Introduction to armed forces evolutions, overview of the Department of Defense, application of force in international relations.

MSCI 106L Introduction to Military Science II Lab (1) Practical application in adventure training, one-rope bridges, rifle marksmanship, land navigation, drill and ceremonies, physical training. Pre: 106 (or concurrent).

MSCI 205 Intermediate Military Science I (3) Basic concepts of military leadership. Familiarization with the concept of leadership, the five types of leadership power, the decision-making process, and the styles of leadership. Involves military skills and related adventure-type training and basic individual survival skills. Leadership laboratory required 1.5 hours per week, consisting of practical application of leadership skills, drill and ceremonies, land navigation, first aid, and army physical fitness training.

MSCI 206 Intermediate Military Science II (3) Individual and small-unit military skills. Practical applications include combat first aid; basic wilderness survival skills; land navigation; and a knowledge of key military jobs, duties, and responsibilities. Involves field training to provide hands-on experience. Leadership laboratory required 1.5 hours per week, consisting of practical application of leadership skills, drill and ceremonies, land navigation, first aid, and army physical fitness training.

MSCI 207 ROTC Basic Camp (6) Six-week summer course conducted at Ft. Knox, Kentucky. Substitutes for ROTC basic course (105, 106, 205, and 206) and fulfills course requirement for admission to ROTC advanced courses. Credit will be given for 207 or basic courses, but not both. Pre: consent.

MSCI 305 Leading Small Organizations I (4) (2.5 Lec, 1.5-hr Lab) Series of practical opportunities to lead small groups and receive personal assessments and encouragement. Uses small unit defensive tactics and opportunities to plan/conduct training. Includes field training sessions, student taught classes, and presentations/briefings. Co-requisite: 101. Pre: 105, 106, 205, and 206; or consent.

MSCI 306 Leading Small Organizations II (4) (2.5 Lec, 1.5-hr Lab) Analyze tasks and prepare written or oral guidance for team members to accomplish tasks. Delegate tasks and supervise. Examine and apply lessons from leadership case studies. Examine importance of ethical decision-making. Includes field training sessions, student taught classes and presentations/briefings. Co-requisite: 101. Pre: 105, 106, 205, 206, and 305; or 305 and consent.

MSCI 307 ROTC Advanced Camp (6) Six-week summer field training exercise conducted at Fort Lewis, Washington. Arduous and intensified leadership training is conducted throughout the six-week period. Required for U.S. Army commissioning. Pre: 305, 306, and consent.

MSCI 399 Directed Reading and Research (V) Limited to military science students who have had at least one previous military science course for which a grade of B or higher was earned and a cumulative GPA of 2.0 or better. Pre: consent.

MSCI 405 Leadership Challenges and Goal Setting (4) (2.5 Lec, 1.5-hr Lab) Plan, conduct and evaluate activities of the ROTC cadet organization. Assess organizational cohesion and develop strategies to improve it. Develop confidence in skills to lead people and manage resources. Includes field training sessions, student taught classes and presentations/briefings. Co-requisite: 101. Pre: 105, 106, 205, 206, 305, and 306; or 305, 306, and consent.

MSCI 406 Transition to Lieutenant (4) (2.5 Lec, 1.5-hr Lab) Continues the methodology from 405. Identify and resolve ethical dilemmas. Refine counseling and motivating techniques. Examine aspects of tradition and law as related to leading as an officer in the Army. Prepare for a future as a successful Army officer. Includes field training sessions, student taught classes and presentations/briefings. Co-requisite: 101. Pre: 105, 106, 205, 206, 305, 306, and 405; or 305, 306, 405, and consent.

Molecular Biosciences and Biosystems Engineering (MBBE)

College of Tropical Agriculture and Human Resources

MBBE 201 The Biotechnology Age: Issues and Impacts (3) Introduction to the basic concepts, goals and practical impacts of biotechnology. Real-life case studies are used to explore socio-ethical, economic, and environmental issues raised by cloning, DNA testing, gene therapy and genetically engineered food, medicines, and vaccines using microbes, plants and animals. Pre: BIOL 101 or consent. (Cross-listed as BIOL 201) **DB**

MBBE 401 Molecular Biotechnology (3) General principles, applications, and recent advances of the rapidly growing science of biotechnology. Topics include impact of biotechnology on medicine, animal sciences, environment, agriculture, forensics, and economic and socio-ethical issues. Pre: BIOL 275 or consent. (Cross-listed as BIOL 401) **DB**

MBBE 402 Principles of Biochemistry (4) Molecular basis of living processes in bacteria, plants, and animals; emphasis on metabolism of carbohydrates, lipids, proteins, and nucleic acids. Pre: BIOL 275, BIOL 275L, CHEM 272, and CHEM 273; or consent. (Cross-listed as BIOL 402 and PEPS 402)

MBBE 402L Principles of Biochemistry Lab (2) (1 Lec, 1 3-hr Lab) Principle techniques of biochemical laboratory. A-F only. Pre: 402 (or concurrent), BIOL 402 (or concurrent), PEPS 402 (or concurrent). (Cross-listed as PEPS 402L)

MBBE 403 Molecular Biosensors (3) (Lec-Lab) Molecular methods for detection of pathogenic bacteria and potentially hazardous chemicals in air, water, soil and plant materials. Impacts of invasive microbial species on human health and welfare. Repeatable one time. A-F only. Pre: MICR 351 or consent. Recommended: PEPS 350. Fall only. (Cross-listed as PEPS 403)

MBBE 412 Environmental Biochemistry (3) Biochemical and chemical principles of occurrence, distribution, biotic and abiotic conversion, fate, and impact of synthetic and natural molecules in the environment. Important pollutants will be used as case studies to illustrate the principles. A-F only. Pre: CHEM 152 or CHEM 272 and CHEM 162 or 171; or consent. Spring only. (Cross-listed as PEPS 412) **DB**

MBBE 499 Directed Research (V) Limited to undergraduate students qualified to carry on research problems in plant physiology, biochemistry, and molecular biology. A-F only.

MBBE 607 Advanced Food Science I (3) Advanced topics in chemical and physical characteristics of foods as well as their role in human nutrition. Repeatable one time. A-F only. Pre: graduate student status with undergraduate courses in organic chemistry, microbiology, additional biological science, physics, and biochemistry. Basic knowledge of food science is expected; or consent. Fall only. (Cross-listed as FSHN 607 and TPSS 607)

MBBE 608 Advanced Food Science II (3) Advances in sensory quality and evaluation, deterioration of foods and food safety, as well as food processing technology. Repeatable one time. A-F only. Pre: graduate student status with undergraduate courses in organic chemistry, microbiology, additional biological sciences, physics, and biochemistry. Basic knowledge of food science is expected; or consent. Spring only. (Cross-listed as FSHN 608 and TPSS 608)

MBBE 609 Advanced Food Safety (3) Real and perceived food hazards, their ethical issues and implications, advanced emerging topics in food safety, and controls, including laws and regulations of food safety issues and public perception of food safety will be discussed. Repeatable one time. A-F only. Pre: graduate student status with undergraduate courses in biochemistry, microbiology, food processing, physics and organic chemistry. Basic food science knowledge is required; or consent. Spring only. (Cross-listed as FSHN 609 and TPSS 609)

MBBE 610 Molecular Biosciences Seminar (1) Study and discussion of significant topics and problems in plant physiology, biochemistry, and molecular biology. A-F only.

MBBE 620 Plant Biochemistry (3) Comprehensive study of chemical constituents and biochemical processes unique to the plant kingdom with emphasis on selected aspects of current interest. A-F only. Pre: 402 or consent.

MBBE 670 Plant Cell Physiology (3) Comprehensive study of unique structural and functional features of plant cells. Structure and function of cell walls, membranes, and organelles; stimulus perception and propagation. A-F only. Pre: BOT 470 and either MBBE 402 or BIOC 441; or consent.

MBBE 673 Organization and Expression of the Plant Genome (3) Organization and expression of nuclear and plastid genomes of higher plants. Transcriptional regulation and structure of plant genes. Gene regulation during development. A-F only. Pre: BIOL 375 and either BIOC 441 or MBBE 402; or consent.

MBBE 680 Methods in Plant Molecular Biology (3) (1 Lec, 2 3-hr Lab) Advanced methodology and research strategies. Hands-on laboratory training in basic and current molecular procedures for plant research. Pre: one of 673, BIOC 481, BIOC 620, or BIOC 626.

MBBE 687 Advanced Lab Techniques (1) (1 Lec, 2 3-hr Lab) Advanced laboratory techniques used in food science and human nutrition research. Pre: 402 and 402L, or BIOC 441 and BIOC 441L, or FSHN 477; or consent. (Cross-listed as ANSC 687 and FSHN 687)

MBBE 699 Directed Research (V)

MBBE 700 Thesis Research (V) CR/NC only.

MBBE 701 Topics in Food Science (1) Advanced topics in food science and technology, from basic to applied research, including current issues in food science and technology and critical analysis of current research literature. Repeatable one time. A-F only. Pre: graduate standing or consent. Spring only. (Cross-listed as FSHN 701 and TPSS 701)

MBBE 800 Dissertation Research (V) CR/NC only.

Music (MUS)

College of Arts and Humanities

Applied music courses appear at the end of this section.

MUS 106 Introduction to Music Literature (3) Elements, styles, and forms of music, from listener's standpoint. **DH**

MUS 107 Music in World Cultures (3) Folk, popular, and art music from major regions of the world, with emphasis upon Asia and the Pacific; representative styles and regional characteristics. **FG**

MUS 108 Fundamentals of Western Music (3) Fundamental concepts in organization of music as expressive medium in Western culture. Roles of composer, performer, and listener. Notation as mode of communication. Discovery and verification of ideas through laboratory experience. **DA**

MUS 114 University Chorus (1) Performance of choral literature from Renaissance to present. Previous choral experience not required. Repeatable. **DA**

MUS 121 (Alpha) Class Instruction I (1) Basic principles of performance; relevant problems in literature. (B) voice; (C) piano; (D) guitar; (E) guitar: pop/folk. Repeatable in different sections. Cannot be audited. **DA**

- MUS 122 (Alpha) Class Instruction II (1)** Basic principles of performance; relevant problems in literature. (B) voice; (C) piano; (D) guitar; (E) guitar: pop/folk. Repeatable in different sections. Cannot be audited. Pre: 121 or consent. **DA**
- MUS 123 (Alpha) Pacific Music Performance Class (1)** Basic principles of performance of Pacific music. Relevant problems at elementary level. (B) slack key guitar. Repeatable one time. Pre: 121D or 121E or consent. **DA**
- MUS 125 First-Level Secondary Piano (1)** Piano as secondary performance field; application of theory to problems in improvising, harmonizing, creating accompaniments, transposing, and sight-reading at keyboard. For music majors. Pre: consent. Co-requisite: 281 or consent.
- MUS 126 First-Level Secondary Piano (1)** Piano as secondary performance field; application of theory to problems in improvising, harmonizing, creating accompaniments, transposing, and sight-reading at keyboard. Continuation of 125. For music majors. Pre: 125 or consent.
- MUS 127 (Alpha) Asian Music Performance Class (1)** Basic principles of performance of Asian music. Relevant problems in literature at elementary level. (B) koto; (C) shamisen; (D) South Indian singing; (E) shakuhachi. Cannot be audited. Pre: consent. **DA**
- MUS 128 (Alpha) Asian Music Performance Class (1)** Basic principles of performance of Asian music. Relevant problems in literature at elementary level. (B) koto; (C) shamisen; (D) South Indian singing; (E) shakuhachi. Cannot be audited. Pre: consent. **DA**
- MUS 151 String Techniques and Methods (2)** For students preparing to teach instrumental music. Performance techniques, materials, and pedagogy for string instruments. A-F only.
- MUS 152 Instructional Techniques and Methods: Lower Strings (2)** Continuation of 151. Pre: 150 or consent.
- MUS 153 Woodwind Techniques and Methods (2)** Similar to 151 and 152 using upper woodwind instruments. A-F only.
- MUS 154 Woodwind Techniques and Methods II (2)** Continuation of 153. A-F only.
- MUS 155 Percussion Techniques and Methods (2)** Similar to 151 using percussion instruments. A-F only.
- MUS 156 Brass Techniques and Methods (2)** Similar to 151 using brass instruments. A-F only.
- MUS 180 Basic Theory and Aural Skills (3)** Fundamentals of music theory, notation, sight-singing, and dictation. **DA**
- MUS 199 Recital Attendance (0)** Attendance at approved departmental concerts. Required of all music majors (BMus, six semesters; BA and BEd, four semesters). Repeatable. CR/NC only.
- MUS 225 Second-Level Secondary Piano (1)** Continuation of 125–126; increased emphasis on piano literature up to intermediate level. Pre: 126 or consent.
- MUS 226 Second-Level Secondary Piano (1)** Continuation of 225. Pre: 225 or consent.
- MUS 251 Diction for Singers (2)** Diction and phonetics of English, Italian, and liturgical Latin for singers and choral conductors. Pre: 232B or consent.
- MUS 252 Diction for Singers (2)** Diction and phonetics of French and German for singers and choral conductors. Pre: 232B or consent.
- MUS 253 Basic Experiences of Music (3)** (3 Lec, 1 1-hr Lab) Music fundamentals: time, pitch, media, musical expression, form. Use of rhythm instruments, recorder, ukulele, bells, autoharp, keyboard, etc.; listening; movement; notation; analysis of music. **DA**
- MUS 261 Music Research Techniques (1)** Introduction to library sources and research in music.
- MUS 265 History of Western Music to 1750 (3)** Development of Western music from its origins to 1750. Styles, schools, composers. Pre: 282 or consent. **DH**
- MUS 266 History of Western Music After 1750 (3)** Development of Western music from 1750 to the present. Styles, schools, composers. Pre: 282 or consent. **DH**
- MUS 281 Theory I (2)** Materials and organization of music; analysis, writing, and keyboard application. Pre: 180 or consent. Co-requisite: 283 or consent.
- MUS 282 Theory II (2)** Continuation of 281. Pre: 281 or consent. Co-requisite: 284 or consent.
- MUS 283 Aural Training I (1)** Problems in perception, identification, and notation of musical sounds. Emphasizes sight-singing. Cannot be audited. Pre: 180 and ability to sing diatonic melodies at sight, or consent. Co-requisite: 281 or consent.
- MUS 284 Aural Training II (1)** Continuation of 283. Pre: 283 or consent. Co-requisite: 282 or consent.
- MUS 285 Theory III (2)** Detailed study of theory: writing, analysis, keyboard application. Pre: 282. Co-requisite: 287.
- MUS 286 Theory IV (2)** Continuation of 285. Pre: 285. Co-requisite: 288.
- MUS 287 Aural Training III (1)** Advanced problems in perception, identification, and notation of musical sounds. Sight-singing. Pre: 284. Co-requisite: 285.
- MUS 288 Aural Training IV (1)** Advanced problems in perception, identification, and notation of musical sounds. Sight-singing. Pre: 287. Co-requisite: 286.
- MUS 289 Introductory Practicum in Music Composition (2)** Original composition; specific approaches to creative writing. Repeatable. Pre: 282 or consent.
- MUS 311 (Alpha) Ethnic Music Ensembles I (1)** Performance of literature for groups of various sizes and kinds at introductory level (B) Hawaiian; (C) Japanese; (D) Chinese; (E) Korean; (F) Okinawan; (G) Philippine; (H) gamelan; (I) gagaku; (J) Tahitian; (K) Oceanic; (M) other. Repeatable. Pre: upper division standing or consent. **DA**
- MUS 312 Hula/Chant Ensemble I (2)** Ancient style. Pre: upper division standing or consent. **DA**
- MUS 325 Conducting (1)** Problems in directing instrumental and choral ensembles. Score reading, rehearsal techniques, and basic interpretive problems. Pre: 282.
- MUS 326 Conducting (2)** Continuation of 325.
- MUS 353 Music in the Elementary School (2)** Music concepts and literature appropriate for elementary schools. Basic materials and procedures. Not for majors in elementary school music (vocal/general). Pre: 108 and EDCI 312 (or concurrent).
- MUS 354 Music Education: Elementary (3)** Required for K-12 music specialists. Scope and nature of music in children's lives; planning, teaching, learning, and evaluating music in elementary curriculum. A-F only. Pre: 286 or consent.
- MUS 355 Music: Secondary Instrumental (3)** Objectives, materials, procedures of instrumental music in secondary schools. A-F only. Pre: 286 and 326 (or concurrent); or consent.
- MUS 356 Music: Secondary Vocal (3)** Objectives, materials, procedures of choral music in secondary schools. A-F only. Pre: 286 or consent.
- MUS 358 Piano Pedagogy (2)** Concepts, materials, and procedures for class and individual instruction in piano. Pre: 282 or two semesters of 232C.
- MUS 359 Piano Pedagogy (2)** Continuation of 358.
- MUS 370 Music in Modern America (3)** Varieties of music, including jazz and other popular forms; relevant antecedents. Pre: sophomore standing; freshmen with consent only. **DH**
- MUS 381 Counterpoint (3)** Form, texture, and style in music literature from Renaissance to present. Formal analysis and writing. Contrapuntal textures and forms. Pre: 265, 266, and 286.
- MUS 382 Form and Analysis (3)** Form, texture, and style in music literature from Renaissance to present. Formal analysis and writing. Larger forms with various textures; recent contemporary approaches to continuity. Pre: 265, 266, and 286.
- MUS 383 Orchestration (3)** Basic principles of scoring for orchestra and band; instrumental ranges, timbres, transpositions; transcribing or composing for band, orchestra, and chorus. Pre: 286 or consent.
- MUS 385 Electronic Music (2)** Basic techniques of electronic sound synthesis. Pre: 286 and 288; or consent.
- MUS 386 Theory and Practice of Jazz Improvisation (2)** Development of an improvising technique through analysis and performance practice. For instrumentalists only. Pre: 285 and 287.

MUS 387 Contemporary Techniques (2)

Theoretical techniques in music of the 20th and 21st centuries; emphasis on writing as the synthesis of concepts. Investigation of important stylistic movements. Pre: 286 and 288; or consent.

MUS 399 Directed Study (V) Limited to majors with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in music. Pre: consent.

MUS 400 Topics in Music (V) Topics in history, literature, theory, applied music, music education, and ethnomusicology; for music majors. Consult department for topics and specific dates. Pre: 281 and appropriate lower division music courses; or consent.

MUS 407 Music Cultures of the World (3) Folk, popular, and art music from major regions of the world, with emphasis upon Asia and the Pacific, representative styles and regional characteristics. Pre: junior standing or consent. **DH**

MUS 410 (Alpha) Ensembles (1) Performance of literature for ensembles and performing groups of various sizes and kinds; (B) Hawaiian chorus; (C) University Chamber Singers; (D) piano-vocal collaboration; (E) piano duo; (F) chamber music; (G) guitar; (K) jazz; (M) contemporary music; (N) theater music; (O) percussion; (P) flute. Repeatable. Pre: audition or consent. **DA**

MUS 411 (Alpha) Ethnic Music Ensembles II

(1) Performance of literature for ensembles and performing groups of various sizes and kinds, (B) Hawaiian; (C) Japanese; (D) Chinese; (E) Korean; (F) Okinawan; (G) Philippine; (I) Asian. Repeatable. Pre: 311 in same section or consent. **DA**

MUS 412 Hula/Chant Ensemble II (2) Ancient style. Pre: 312 or consent.

MUS 413 Hula/Chant Ensemble III (2) Ancient style; hālau protocol. Repeatable. Pre: 412.

MUS 414 University Concert Choir (1)

Performance of a cappella literature and major choral works. Repeatable. Pre: choral experience and consent. **DA**

MUS 415 Opera Workshop (V) Opera in performance. Styles and characterizations. Performance of scenes and one complete work. Repeatable. Pre: upper division standing or consent. **DA**

MUS 416 (Alpha) University Symphony Orchestra (1) Performance of orchestra literature, including major works for chorus and orchestra, opera and dance; (B) symphony; (C) chamber orchestra. Repeatable. Pre: audition or consent. **DA**

MUS 417 University Javanese Gamelan (1) Performance of jogja and solo gamelan traditions; *Ujon-Ujon, Wajang Kulit, Wajang Wong*. Repeatable. Pre: 311H or consent. **DA**

MUS 418 Collegium Musicum (1) Performance of medieval, Renaissance, and Baroque literature for ensembles and performing groups of various kinds and sizes. Repeatable. Pre: audition or consent. **DA**

MUS 419 (Alpha) University Band (1) Performance of literature, including works by contemporary composers. (B) symphonic wind ensemble; (C) symphonic band; (D) concert band; (E) marching band; (F) marching band percussion. Repeatable. Pre: audition or consent. **DA**

MUS 420 (Alpha) Music Literature Lab (2)

Problems of style and interpretation and their implications in performance. Inquiry with laboratory performance. (B) solo voice; (C) piano. Repeatable. Pre: two semesters of 232 in appropriate area or consent.

MUS 421 Acting V: Musical Comedy (3)

Essential training in skills required to perform in musicals. Students present scenes from musical comedies for criticism and review. Repeatable twice. Pre: 231B, THEA 321 and THEA 322, audition, or consent. (Cross-listed as THEA 421) **DA**

MUS 440 Music, Industry, and Society (3)

History of U.S. music and recording industry. How industry relates to economy as a whole, and how it reflects broad patterns and trends in American culture and society. Pre: Upper division standing and/or consent. (Cross-listed as HIST 471)

MUS 450 Music Technology for Teachers (3)

Studio course designed for music education majors or musicians interested in discovering and utilizing technology resources to enhance the music teaching or learning process. A-F only. Pre: 286 or consent.

MUS 454 Music in Special Education (3)

Designed for music educators, elementary and special education majors or musicians interested in understanding and preparing to use music with special education students. A-F only. Pre: 253 or EDEP 311 or consent.

MUS 455 Freshman Seminar Leader (6) Peer teaching of introductory music courses through the freshman seminar program. Pre: upper division standing or consent.

MUS 457 Asian and Pacific Music in Education

(2) Musical concepts in songs, dances, and instrumental music of Asia, Hawai'i, and other Pacific Islands, appropriate for K–12. Pre: 353, 354, or 355 and 356. (Cross-listed as TECS 457) **DA**

MUS 458 Vocal Techniques for Solo and Ensemble Singing (2)

Scientific studies of vocal mechanism; application to techniques of singing. Pre: 232B and 282.

MUS 459 Vocal Pedagogy (2) Pedagogical methods for individual voice instruction; participation in applied music teaching. Pre: 458.

MUS 461 (Alpha) Eras of Western Music

History (3) Changing styles and forms in periods of European art music from 500 A.D. to the present. (B) medieval; (C) Renaissance; (D) Baroque; (E) Classic; (F) Romantic; (G) 20th century. Pre: 265 and 266, or consent.

MUS 462 (Alpha) Studies in Western Music

History (3) (B) music of the United States. Pre: 265 and 266, or consent.

MUS 463 (Alpha) Topics in Music Literature

(3) (B) symphonic music; (C) concerto; (D) chamber music; (E) choral music; (F) solo song; (G) wind band literature; (H) guitar literature. Pre: 265 and 266, or consent.

MUS 464 Opera (3) Historical study from Monteverdi to present. Pre: 265 and 266, or consent.

MUS 465 Keyboard Music (3) Study of literature for harpsichord, piano, and organ from Renaissance to present; development of historical styles. Pre: 265 and 266, or consent.

MUS 472 Sound Systems of World Musics (3)

Music-theoretical study of sound organization as defined by various cultures and development of aural analysis in world musics. Pre: junior standing or consent.

MUS 477 History of Rock and Roll (3) An examination of rock and roll from various perspectives including economics, regionalism, freedom of expression. Pre: upper division standing or consent. **DA**

MUS 478 (Alpha) Musical Cultures (3)

The study of a musical culture area. (B) Hawai'i; (C) China; (D) Japan; (E) Korea; (F) Indonesia; (G) Philippines; (H) India; (I) Polynesia; (P) Africa; (Q) other. Pre: junior standing or consent.

MUS 479 Topics in Ethnomusicology (3)

Problem-oriented cross-cultural investigation of music and music organization. Pre: junior standing or consent. **DA**

MUS 485 Intermediate Practicum in Music

Composition (V) Creative writing beginning with smaller forms. Repeatable. Pre: 286 or consent.

MUS 487 Advanced Practicum in Music

Composition (3) Creative writing in larger forms. Composition majors only. Repeatable. Pre: 485 or consent.

MUS 495 Senior Project (1) Capstone project designed by student, who must find and work with faculty adviser before enrolling. Also subject to advance approval by departmental committee. Repeatable one time. A-F only. Pre: senior standing and consent.

MUS 500 Master's Plan B/C Studies (1)

Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

MUS 600 (Alpha) Seminar (3)

Selected problems in (B) composition; (C) ethnomusicology; (D) music literature; (E) performance repertory; (F) music education; (H) theory. Repeatable. Pre: graduate standing or consent; also 661 for (D) and (E).

MUS 601 Advanced Topics in Music (V)

Advanced topics in history, literature, theory, applied music, music education, and ethnomusicology; some in intensive modular format. Repeatable. Pre: appropriate lower division music courses or consent and graduate standing.

MUS 610 Advanced Ensemble (1) Projects in study and performance. Repeatable. Pre: 432.

MUS 625 Advanced Conducting (2) Conducting instrumental and choral groups. Pre: 326.

MUS 626 Advanced Conducting (2) Continuation of 625.

MUS 640 Philosophy and Aesthetics of Music

(3) Exploration of major Western ideas in philosophy and aesthetics, and examination of Eastern and African traditions where they intersect or have relevance. Pre: consent.

MUS 651 Foundations of Music Education (3)

Music and music education in their philosophic, aesthetic, social, historical, and psychological dimensions. Pre: graduate standing and consent.

MUS 653 Music Curriculum Theory and Design (3) Procedures for planning, teaching, evaluating, and administering music programs in elementary, secondary, and higher education. Evaluation of current programs; procedures for change. Pre: graduate standing and consent.

MUS 655 Music in Childhood Education (3) Principles and programs in teaching music to children in early childhood settings and elementary school. Curriculum development, analysis of research, and current approaches. Pre: 353 or 354, teaching experience, and graduate standing. (Cross-listed as EDCI 655)

MUS 657 World Musics in Undergraduate Education (2) Concepts and materials at junior college and undergraduate levels. Preparation for structuring and teaching courses in non-Western musics. Pre: graduate status in music and undergraduate ethnomusicology course (or concurrent).

MUS 659 Seminar in College Music Teaching (3) Examines components of good teaching, adult learning theories, course organization, methodologies, evaluation, and other music issues. For students planning a college teaching career in music. Pre: consent.

MUS 660 (Alpha) Studies in Music Literature (3) Detailed study by chronological period. (B) medieval; (C) Renaissance; (D) Baroque; (E) Classic; (F) Romantic; (G) 20th century. Repeatable. Pre: 661 or consent.

MUS 661 Bibliography and Library Resources in Music (3) Basic materials and techniques; includes retrieval techniques from online computer catalog. Pre: graduate standing or consent.

MUS 670 (Alpha) Regional Music (3) Musical content and historicosocial context of principal musical traditions. (B) Asia; (C) Oceania. Repeatable. Pre: consent.

MUS 678 (Alpha) Advanced Problems in Ethnomusicology (3) (B) transcription of music performance; (C) movement analysis; (D) other. Pre: consent.

MUS 680 (Alpha) Studies in Music Theory (3) (B) stylistic counterpoint to 1700; (C) stylistic counterpoint from 1700; (D) advanced analysis; (E) comparative theory; (F) history of theory; (G) contemporary techniques and resources; (H) atonal analysis and set theory; (I) Schenkerian analysis. Pre: 286 and graduate standing.

MUS 699 Directed Work (V) Reading and research in ethnomusicology, musicology, music education; reading and practice in theory, composition, or performance. Pre: consent of chair and department chair.

MUS 700 Thesis Research (V)

MUS 701 (Alpha) Topics in Music (3) Advanced topics in musicology; theory, ethnomusicology, and music education. (B) psychology of music; (C) research in music education; (D) research methods in musicology; (E) advanced diction for singers. Repeatable. Pre: appropriate to topic or consent.

MUS 702 Seminar for Doctoral Students (V) Selected topics centering on areas pertinent to the student's degree needs and research interests. Pre: admission to PhD program in music or consent.

MUS 750 (Alpha) Seminar in Music Education (3) Selected problems in music education. (B) childhood; (C) adolescence/adults; (D) major issues. Pre: graduate standing and consent.

MUS 800 Dissertation Research (V) Pre: candidacy for PhD degree and consent of dissertation chair.

APPLIED MUSIC

For information on sections, requirements, and costs, consult the music department.

Instruction is given in 14 individual lessons per semester, either one half-hour lesson per week (1 credit hour) or one full-hour lesson per week (2 or more credit hours). Lessons are not made up unless instructor is notified a reasonable time in advance of the excused absence.

Registration for lessons and choice of teachers must be approved by the department chair.

Assignment and admission to these courses are based on tests and auditions given by the department during the advising and registration period. Applied music courses cannot be audited or taken CR/NC.

MUS 230 (Alpha) Elementary Applied Music, Ethnic (V) Instruction in instrumental performance at elementary level. Study of works representative of literature. (B) koto; (C) shamisen; (D) South Indian singing; (E) Hawaiian chant; (F) shakuhachi; (I) other; (J) gottuvadyam vina. Repeatable for four semesters. Pre: audition or consent.

MUS 231 (Alpha) Applied Music, Western (V) For nonmajors or music majors in secondary performance fields. Individual instruction in solo vocal or instrumental performance at elementary level. Representative works. (B) voice; (C) piano; (D) organ; (F) recorder; (G) classical guitar; (H) violin; (I) viola; (J) cello; (K) double bass; (M) flute; (N) oboe; (O) clarinet; (P) bassoon; (Q) saxophone; (R) trumpet; (S) French horn; (T) trombone; (U) tuba; (X) euphonium; (Y) percussion; (Z) other. Repeatable for four semesters. Pre: audition or consent.

MUS 232 (Alpha) Applied Music, Western (V) For music majors or intended majors. Individual instruction in solo or instrumental performance at first performance level. Representative works. Weekly repertoire laboratory required. (B) voice; (C) piano; (D) organ; (G) classical guitar; (H) violin; (I) viola; (J) cello; (K) double bass; (M) flute; (N) oboe; (O) clarinet; (P) bassoon; (Q) saxophone; (R) trumpet; (S) French horn; (T) trombone; (U) tuba; (X) euphonium; (Y) percussion; (Z) other. Repeatable for six semesters. Pre: audition.

MUS 330 (Alpha) Advanced Applied Music, Ethnic (V) Individual instruction in instrumental and dance performance at advanced level. See 230 for list of sections. Repeatable for six semesters. Pre: advancement from 230 or consent.

MUS 331 (Alpha) Applied Music, Western (V) For nonmajors or for music majors in secondary performance fields. Individual instruction in solo vocal or instrumental performance at an advanced level. See 231 for list of sections. Repeatable for six semesters. Pre: advancement from 231 or consent.

MUS 332 (Alpha) Applied Music, Western (V) For music majors. Individual instruction in solo vocal or instrumental performance at the junior level. Representative works. Weekly repertoire laboratory required. Half recital required to complete junior level. See 232 for list of sections. Repeatable for three semesters. Pre: four semesters of 232 and promotion by board examination.

MUS 432 (Alpha) Applied Music, Western (V) For music majors. Individual instruction in solo vocal or instrumental performance at the senior level. Representative works. Weekly repertoire laboratory required. Full recital required for completion of this performance level. See 232 for list of sections. Repeatable for three semesters. Pre: two semesters of 332 and advancement by board examination.

MUS 635 (Alpha) Graduate-Level Applied Music (3) For students accepted for MMus in performance. Individual instruction in solo vocal or instrumental performance at graduate performance level. Representative works. (B) voice; (C) piano; (H) violin; (I) viola; (J) cello; (K) double bass; (M) flute; (N) oboe; (O) clarinet; (P) bassoon; (Q) saxophone; (R) trumpet; (S) French horn; (T) trombone; (U) tuba; (X) euphonium; (Y) percussion; (Z) other. Repeatable.

MUS 636 Graduate Recital (V) For students accepted for MMus in performance. Individual instruction in solo vocal or instrumental performance at graduate level; full recital required. (B) voice; (C) piano; (H) violin; (I) viola; (J) cello; (K) bass; (M) flute; (N) oboe; (O) clarinet; (P) bassoon; (Q) saxophone; (R) trumpet; (S) French horn; (T) trombone; (U) tuba; (X) euphonium; (Y) percussion.

Natural Resources and Environmental Management (NREM)

College of Tropical Agriculture and Human Resources

NREM 203 Applied Calculus for Management, Life Sciences, and Human Resources (3) Applications of mathematics/quantitative methods, equations, graphs, limits, continuity, derivatives, partials, integrals. Pre: consent. (Cross-listed as AREC 210)

NREM 210 Environmental Resources: Issues and Options (3) Analysis of our environment with emphasis on understanding relationships and interactions of physical, biological, technological, and political components using scientific methods of inquiry. Food supply and safety, water quality, pollution control, biodiversity, environmental policy. Open to nonmajors. (Cross-listed as PEPS 210) DB

NREM 220 Agricultural and Resource Economics (3) Introduction to economics of agricultural production, marketing, prices, income, policy. Includes government policy and programs related to agriculture, land use, farm tenancy, socio-economic problems of farmers in the United States and the world. A-F only. (Cross-listed as AREC 220) DS

NREM 301 Natural Resources Management (3) Biological and physical science aspects of natural resource management at global, national, local levels. Management of specific resources including soil, water, forests, grasslands, fisheries, wildlife.

Multi-resource management issues such as watershed protection, ecosystems, sustainable development. A-F only. Pre: 210, one biological science course, and one chemistry course; or consent. Co-requisite: 301L. Fall only. **DB**

NREM 301L Natural Resources Management Lab (1) Natural resource management lab and field methodologies including map and aerial photograph interpretation, geographic information systems, water quality, geomorphology, soil and water conservation planning, range assessment, forestry assessment, native Hawaiian ecosystems. A-F only. Pre: 210, one biological science course, and one chemistry course; or consent. Co-requisite: 301. Fall only. **DY**

NREM 302 Natural Resource and Environmental Policy (3) Introduction to American government policy in natural resources and environmental protection at federal, Hawaii state and county levels. Policy principles, legal structure, governmental agencies, major statutes and programs, analytical techniques, program assessments. A-F only. Pre: 210 and either 220 or ECON 120 or ECON 130; or consent. Spring only. **DS**

NREM 304 Fundamentals of Soil Science (4) (3 Lec, 1 3-hr Lab) Origin, development, properties, management of tropical soils; classification of Hawaiian soils. Pre: CHEM 151 or CHEM 171. (Cross-listed as TPSS 304) **DP**

NREM 310 Statistics in Agriculture and Human Resources (3) Principles/applications of statistical methods. Descriptive and inferential statistics, analysis of variance, regression, non-parametric statistics. A-F only. (Cross-listed as AREC 310)

NREM 351 Enterprise Management (3) Overview of financial tools essential for developing new enterprises, analyzing business performance, obtaining bank financing, improving profitability, and reducing risk. Other topics: personnel management, taxation, and business plans. Students will become proficient with Excel. Pre: upper division or graduate status or consent. (Cross-listed as TPSS 351) **DS**

NREM 399 Directed Study (V) Limited to exceptional undergraduate students qualified to carry on advanced study. Pre: consent.

NREM 432 Natural Resource Economics (3) Introduction to the economic theory of optimal management of natural resources and the environment. Property rights, externalities and welfare economics, non-renewable and renewable resource management and regulation, pollution control in theory and practice. Pre: ECON 301 or consent. **DS**

NREM 458 Project Evaluation and Resource Management (3) Fundamentals of benefit-cost analysis with extensions to environmental impacts and projects; case studies. Pre: ECON 301 or consent. (Cross-listed as ECON 458) **DS**

NREM 461 Soil, Erosion, and Conservation (3) Processes and factors which influence erodibility and determine erosion; principles of erosion control; soil conservation as an element of resource stability and sustainable agriculture. Pre: 304 and consent. **DP**

NREM 480 Tropical Forestry/Agroforestry (3) (2 Lec, 1 3-hr Lab) Distribution, species, productivity, nutrient cycling, hydrology,

sustainability, modeling, design, and future of tree-based land-use systems. Pre: consent. **DB**

NREM 491 Topics in Natural Resources and Environmental Management (V) Study and discussion of significant topics and problems. Offered by visiting faculty and/or for extension programs. Repeatable. A-F only. Pre: consent.

NREM 492 Internship (4) Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/employer. Pre: consent. (Cross-listed as TPSS 492)

NREM 499 Directed Study (V) Repeatable. Pre: senior standing and consent.

NREM 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

NREM 610 Soil Formation and Classification (4) (3 Lec, 1 3-hr Lab) Weathering and alteration of rocks, formation of soils, comprehensive review of effects of climate, vegetation, drainage, topography, and time on formation of soils; classification of soils with emphasis on soil taxonomy. Emphasis on tropical soils. Pre: 304 and 430, or consent.

NREM 611 Soil and Clay Mineralogy (3) (2 Lec, 1 3-hr Lab) Instrumental analysis of soil minerals with emphasis on clay size material. Pre: 304 and TPSS 430.

NREM 630 Agriculture and the Environment (2) Land use issues, principles, and strategies for environmentally sound agriculture. Degradative and aggradative impacts of alternative management on natural, land, and water resources and environmental quality. Pre: graduate standing or advanced undergraduate standing, and consent.

NREM 631 Sustainable Agriculture Seminar (2) Critical evaluation of existing and alternative cropping systems from a long-term perspective. Value conflicts and resolution. Pre: graduate standing or advanced undergraduate standing, and consent.

NREM 637 Resource Economics (3) Analysis of problems of development and management of natural resources with emphasis on resources in agriculture and role in economic development. Pre: 432, AREC 634, and ECON 608; or consent. (Cross-listed as ECON 637)

NREM 660 Hydrologic Processes in Soils (3) (2 Lec, 1 3-hr Lab) Hydrologic properties of soils and the processes involved in water infiltration, drainage, and solute transport. Emphasis on measurement of key parameters required for modeling. Pre: either GG 455 or TPSS 460, and MATH 243; or consent.

NREM 670 Agrarian Systems Analysis (3) Comparative analysis of philosophy and process of interdisciplinary and participatory approaches to sustainable development and rural resource management including farming systems research and extension (FSRandE), agroecosystem analysis (AEA), participatory action research (PAR), and rapid rural appraisal (RRA). Repeatable. Pre: consent. (Cross-listed as TPSS 670)

NREM 671 International Agricultural Systems (2) Analysis of trends and strategies in international agricultural research and development. International agricultural research centers (IARC),

Food and Agriculture Organization (FAO), university networks and consortia, and private voluntary organizations (PVOs). Pre: graduate standing or advanced undergraduate standing, and consent.

NREM 680 Forest/Agroforest Ecosystem Analysis (3) Quantitative analysis of ecosystem processes in tropical forests and agroforestry systems. Productivity, nutrient cycling, hydrology, and interactions of processes will be examined using recent literature and computer models. Pre: consent.

NREM 691 Advanced Topics in Natural Resources and Environmental Management (V) Study and discussion of significant topics and problems at an advanced level. Offered by visiting or existing faculty as a special course. Repeatable. Pre: graduate standing or consent.

NREM 699 Directed Research (V) Repeatable. Pre: graduate standing.

NREM 700 Thesis Research (V)

NREM 701 Research Seminar (1) Presentation and discussion of student thesis, dissertation, other current research activities. Pre: consent. (Cross-listed as AREC 705)

NREM 800 Dissertation Research (V)

Natural Sciences (NSCI)

College of Natural Sciences

NSCI 501 Seminar for Science Teachers (1) Seminar and discussions of current and significant topics and problems in science where teachers can exchange new and innovative teaching ideas and strategies. Repeatable. Pre: in-service teachers or consent.

NSCI 502 Chemistry Workshop for Teachers (V) Combined lecture, laboratory and discussion course. Principles of chemistry taught in a conceptual hands-on manner appropriate for science teachers. Repeatable one time. Pre: CHEM 151 or CHEM 161 or CHEM 171; or consent.

NSCI 503 Computers in Classroom (V) Combined lecture, laboratory and discussion course on the use of computers as a teaching tool in the classroom. To be taught in a hands-on manner appropriate for the science teachers. Restricted to in-service teachers or consent. Repeatable one time.

NSCI 504 Mathematics Workshop for Teachers (V) An in-depth study of topics from intermediate and high school mathematics. Restricted to in-service teachers or consent. Repeatable one time. A-F only.

NSCI 505 Physics Workshop for Teachers (V) Major concepts of physics taught by means of hands-on conceptual activities for elementary and secondary teachers. Restricted to in-service teachers, or consent. Repeatable one time. (Cross-listed as PHYS 505)

NSCI 619 Seminar on Science Teaching (1) Effective teaching methods; organization of courses, lectures, laboratory exercises; development and evaluation of examinations; computers and audio-visual aids. Open to graduate students in various science disciplines. Repeatable one time. (Cross-listed as ZOOL 619)

NSCI 620 Seminar on Preparing Future Faculty (1) Role and responsibilities of college teaching, academic expectations, policies and procedures in different types of institutions of higher learning, developing the requisite skills for obtaining teaching positions and skills necessary for a successful career in college teaching. Open to graduate students advanced to candidacy for Master or PhD degrees. A–F only. Repeatable nine times. Pre: consent.

See also the biology professional development course, BIOL 501, under the Biology (BIOL) course listing in this section of the Catalog.

Nursing (NURS)

School of Nursing and Dental Hygiene

NURS 200 Consumer Health Online (3) Explores and evaluates consumer health and medical information, support groups, and self-help communities on the internet. The focus is on informed decision-making and active participation in personal health and medical care. Pre: e-mail address, internet access, and computer availability; or consent. Open to non-nursing majors with consent.

NURS 201 Healing and Wellness (3) Course is built upon the dimensions that comprise healing and wellness and is based upon the mind-body-spirit model of the human energy system. Theoretical/research concepts and experiential interventions and strategies will be explored to enhance health and wellness with self and others. Pre: Introductory English or consent. Open to non-nursing majors with consent.

NURS 203 Statistical Concepts for Health Professionals (3) Descriptive methods; graphic methods; central tendency; variability; normal curve; sampling theory; correlation and regression; reliability and significance; inferential methods as applied to health care research. A–F only.

NURS 301 Nursing: The Next Generation (3) Survey of nursing theories, conceptual frameworks, and decision-making, emphasizing the role of the professional nurse. Examination of professional nursing practice and roles in diverse community settings. Restricted to majors. A–F only. Pre: admission to the School of Nursing and Dental Hygiene or consent.

NURS 305 Women and Health (3) Explores current issues in the conceptualization and delivery of health care for women. Pre: one of POLS 110, SOC 100, WS 151, or 202. (Cross-listed as WS 305) DS

NURS 310 Psychosocial Concepts in Health Care (3) Examination of psychosocial concepts in relationship to therapeutic use of self within nursing practice. Focuses on concepts of communication, interpersonal relationships, and culture. Pre: admission to the School of Nursing and Dental Hygiene or consent. Co-requisite: 330.

NURS 311 Pathophysiologic Nursing Concepts (3) Pathophysiologic basis of altered health as a foundation for planning nursing care. Application of concepts from microbiology, chemistry, anatomy, physiology, and psychology. Restricted to majors. Pre: 330 or consent. DB

NURS 330 Professional Nursing I (2) Concepts/theories of health assessment; data collection and analysis used to distinguish between health and deviations in health. Attention to principles of communication and interviewing. Introduction to professional nursing. Pre: admission to the School of Nursing and Dental Hygiene or consent. Co-requisite: 310, 330L. DB

NURS 330L Professional Nursing I Lab (3) Application of assessment skills in dry lab and clinical settings; communication skills, interviewing techniques, and physical examination skills. A–F only. Pre: admission to the School of Nursing and Dental Hygiene or consent. Co-requisite: 310, 330. DY

NURS 331 Professional Nursing II (2) Introduction to nursing as a practice profession and the use of the nursing process and nursing interventions to meet basic human needs. Pre: 310, 330, 330L. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisite: 311, 331L.

NURS 331L Professional Nursing II Lab (3) Application of the nursing process and the use of nursing interventions to meet basic human needs. Introduction to nursing as a practice profession. Pre: 310, 330, 330L. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisite: 311, 331.

NURS 340 Ethical Legal Aspect Health-care (3) Ethical dilemmas and legal issues in health care; focus on decision-making in professional activity and social policy formation. Pre: open to non-nursing majors with consent.

NURS 341 Alternative Nursing Interventions (3) Alternative nursing interventions in providing care for individuals, families, and groups. Pre: open to non-nursing majors with consent.

NURS 342 Health-care/Nursing in Japan in Comparison with the United States (3) Comparison of Japanese health-care system and professional nursing practice with that of the United States. Field trip to Japan includes interactions with Japanese nursing students. Pre: Open to non-nursing majors with consent.

NURS 343 Gerontology: Its Nursing Implications (3) Explores attitudes toward the aged, biological and psychological aspects, ethnicity, sexuality, nutritional problems, community resources, other related topics. Pre: open to non-nursing majors with consent.

NURS 344 Nursing in the Multicultural Milieu (3) Relates values, beliefs, attitudes, family organization, lifestyles, and health practices in different ethnic groups to health-care and nursing practice. Pre: open to non-nursing majors with consent.

NURS 345 The Brain (3) Introduction to neuroanatomy, neurochemistry, and neurophysiology for undergraduate students interested in any health profession. Pre: open to non-nursing majors with consent. DB

NURS 346 The Reflective Clinician (2) Examines the effect of the arts on the subjective human experience. Approaches and knowledge

from the humanities are used to explore and enhance the therapeutic effectiveness of the nurse. Pre: open to non-nursing majors with consent.

NURS 347 Pharmacobehavioral Aspects of Substance Use/Abuse (3) Survey of physiobehavioral effects of major categories of used/abused substances including opiates, sedative/hypnotics, common “recreational” drugs, and abused foods. Pre: open to non-nursing majors with consent. DB

NURS 348 Nursing Care of HIV Infected Client (2) Discussion of selected aspects of HIV disease, manifestations, systems affected, and nursing considerations. Legal and social implications affecting nursing care of HIV positive clients are explored. Pre: open to non-nursing majors with consent.

NURS 349 Introduction to Pain Management (2) A fundamental course on pain, using cancer-related pain as the model. Discussion of effective assessment, treatment, management, and evaluation of pain. Pre: open to non-nursing majors with consent.

NURS 350 Chronic Illness in Children and Adolescents (V) Explores the impact of chronic illness on children, adolescents, families, and communities. A variety of specific chronic conditions will be examined. Pre: open to non-nursing majors with consent.

NURS 361 Health Education and Promotion (2) Provides an overview of the concepts and application of health education and health promotion theories and principles as applies to individuals, groups, and the larger public. Pre: open to non-nursing majors with consent. (Cross-listed as DH 361) Spring only.

NURS 370 Adult Health Nursing I (2) Examination of human responses to commonly occurring adult health problems across acute and community settings. Pre: 311, 331, and 331L; or consent. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisite: 370L. DB

NURS 370L Adult Health Nursing I Lab (3) Application of the nursing process in the care of clients with commonly occurring adult health problems across acute and community settings. Pre: 311, 331/331L. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisite: 370.

NURS 371 Psychiatric–Mental Health Nursing (3) Examination of human responses to psychiatric and mental illness in relation to physiologic, psychologic, social, cultural and environmental concepts. Emphasis on self-awareness, therapeutic communication and health-related outcomes. Pre: 331 and 331L; or consent. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisite: 370, 370L, and 371L.

NURS 371L Psychiatric–Mental Health Nursing Lab (2) Application of the nursing process involving human responses to psychiatric and mental illness. Emphasizes self-awareness, therapeutic communication and health-related

outcomes. Pre: 331 and 331L; or consent. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisite: 370, 370L, and 371.

NURS 372 Maternal Newborn Nursing (2)
Examination of human responses to childbearing and the nursing practice for that experience. Focuses on health promotion and the maintenance of the childbearing family. Pre: 371, 371L. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisite: 372L.

NURS 372L Maternal Newborn Nursing Lab (3)
Application of clinical knowledge to the care of the childbearing client and family across acute and community settings. Emphasis on health promotion and maintenance of the childbearing family. Pre: 371/371L. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisite: 372.

NURS 373 Child Health Nursing (2)
Emphasis on concepts related to the delivery of holistic, therapeutic nursing care to culturally diverse children and families across community and acute settings. Pre: 371 and 371L; or consent. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisite: 373L.

NURS 373L Child Health Nursing Lab (3)
Application of concepts related to the delivery of holistic, therapeutic nursing care to culturally diverse children and families across community and acute settings. Pre: 371/371L. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisite: 373.

NURS 399 Directed Reading/Research I, II (V)
Limited to juniors and seniors in nursing.

NURS 410 Case Management in Managed Care (2)
Case Management as a delivery system, impact on health-care outcomes, relationship to health-care economics, knowledge and skills necessary for case managers. Includes lecture, discussion, and field trips. Pre: 331 or consent; open to non-nursing majors with consent.

NURS 411 NCLEX Review (2)
Overview of the NCLEX-RN licensure examination and regular, systematic practice in taking multiple choice examinations. Pre: open to non-nursing majors with consent.

NURS 412 Fund of Occupational Health Hazards (2)
Introduction to occupational health and four major types of health and safety hazards in the workplace. Review of OSHA regulations related to health care industry. Pre: open to non-nursing majors with consent.

NURS 416 Fundamentals of Ergonomics (3)
Introduction to ergonomics principles and their application in understanding and prevention of Muscular Skeletal Disorders encountered in the

working environment including introduction to legal aspects of ergonomics. Pre: KLS 263 or consent; open to non-nursing majors with consent. (Cross-listed as KLS 416)

NURS 420 Cooperative Education in Nursing (V)
A two-semester course with seminar in professional role development in addition to paid work experience in nursing at a local agency. CR/NC only. Repeatable. Pre: 370.

NURS 430 Hazardous Materials (3)
Introduction to state and federal environmental regulations relative to hazardous substances. Analysis of specific health and environmental impacts of hazardous waste. Pre: CHEM 152 (or concurrent) or consent. (Cross-listed as ENBI 420 and GEOG 420)

NURS 437 Rural Health Teams (3)
Introduction to concepts and skills of interdisciplinary practice and capacity building focused on the improvement of health in a rural community. A-F only. Pre: consent.

NURS 439 Management for Health Professionals (3)
Explores basic management concepts. Emphasizes problem solving methods as a means of determining situationally appropriate actions in institutional and community settings. Pre: completion of junior year or consent.

NURS 441 Introduction to Nursing Research (3)
Introduction to the research process and an understanding of the applicability of the scientific approach to nursing. Pre: college-level statistics course and completion of junior year; or consent.

NURS 470 Adult Health Nursing II (2)
Ongoing examination of human responses to complex adult health problems in acute care and the community. Concepts of ethics and continuity of care are included. Pre: 373 and 373L. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisite: 470L. DB

NURS 470L Adult Health Nursing II Lab (3)
Application of the nursing process, concepts of ethics, and continuity of care in the care of multiple clients and families with complex adult health problems in acute care and the community. Pre: 373 and 373L. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisite: 470.

NURS 471 Community Health Nursing (2)
Introduction to community health nursing concepts necessary for managing and/or delivering care in homes and various community sites to populations at risk of or in compromised health. Pre: 373 and 373L; or consent. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisite: 471L.

NURS 471L Community Health Nursing Lab (3)
Application of community health nursing concepts in managing and/or delivering care in homes and various community sites to populations at risk of or in compromised health. A-F only. Pre: 373, 373L. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with

credit before progressing to the following semester. Co-requisite: 471.

NURS 472 Introduction to Critical Care Concepts (2)
Introduction to nursing concepts, theory, and research utilized in a critical care setting. Pre: 470 or consent. Open to non-nursing majors with consent. DB

NURS 475 Complex Nursing Practice (2)
Examination of comprehensive care of clients with complex needs within the health care system. Emphasis on quality management, continuity of care, culture, and ethics. Pre: 441, 471, and 471L; or consent. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisites: 439, 475L.

NURS 475L Complex Nursing Practice Lab (5)
Delivery of comprehensive nursing care to clients with complex needs in community and/or acute care settings. Emphasis on quality management, continuity of care, culture, and ethics. A-F only. Pre: 441, 471, 471L. All required courses scheduled within the full-time or decelerated curriculum plan for a given semester must be successfully completed with credit before progressing to the following semester. Co-requisite: 439 and 475.

NURS 486 Professional Issues and Trends (2)
Opportunity to study issues in nursing within context of health-care system and changing society. Aspects of nursing history; professionalism; credentialing; legal and ethics issues. Pre: completion of junior year or consent.

NURS 491 Seminar in Perioperative Nursing I (3)
Development of a knowledge base for the professional and technical practice of perioperative nursing. Repeatable once. Pre: 470 or RN license or consent. Co-requisite: 491L

NURS 491L Perioperative Nursing Clinical I (3)
Application of clinical knowledge to the care of the surgical client. Development of skills for professional and technical perioperative nursing practice. Repeatable once. Pre: 470 or RN license or consent. Co-requisite: 491.

NURS 492 Seminar in Perioperative Nursing II (3)
Further expands the perioperative nursing knowledge base by focusing on nursing care in specialty surgical services. Repeatable once. Pre: 491 and 491L, or consent. Co-requisite: 492L.

NURS 492L Perioperative Nursing Clinical II (3)
Integration of basic surgical concepts in the care of the client receiving specialty surgical services. Continued development of skills for professional and technical perioperative nursing practice. Repeatable once. Pre: 491 and 491L, or consent. Co-requisite: 492.

NURS 500 Master's Plan B/C Studies (1)

NURS 601 Medical Care Systems (3)
Organization of medical care services; interpretation of need and demand; types, numbers, nature, relationships of medical institutions and manpower; financing medical care; national plans for medical care.

NURS 602 Fundamentals of Health Administration (V)
Fundamental concepts and methods of modern management in health care settings. (Cross-listed as PH 602)

NURS 603 Legal Basis for Health Services (3) Basis for regulation of public health; aspects of administrative law—including disclosure, confidentiality, consent, interference with person and property, permits, licenses, search and inspection, abatement, seizure, liability, legislative process and politics—influencing public policy development.

NURS 604 Leadership and Organizational Behavior in Health Services (3) Personnel supervision, leadership modes in health-care systems; organizational and work group behavior, development of effective organizational performance. Application of behavioral sciences in health administration. Pre: 602 or consent.

NURS 605 Health Promotion and Disease Prevention (2) Teaching and learning concepts and the role of advanced practice nurses are applied to health promotion and prevention of common health and illness conditions with culturally diverse individuals, groups, families, and communities. Repeatable one time.

NURS 606 Principles of Fiscal Management for Health Services (3) Budget-making and the budgetary process in public and private health services; capital development and planning; procedures of fiscal management as administrative controls. Pre: 602 or consent.

NURS 609 Introduction to Health Policy (3) Review of contemporary national health policy issues and concerns. International comparison of policy evolution. Pre: 601.

NURS 610 Telehealth: Analysis and Applications (3) Analysis and application of telecommunications and information technology for improving patient care and community health. Using a proposal development and technology assessment framework, participants will develop a new application related to their professional interests.

NURS 611 Psychiatric-Mental Health Assessment and Diagnosis (3) Identification and synthesis of pertinent biopsychosocial and cultural data to complete advanced psychiatric-mental health assessments and diagnoses.

NURS 612 Advanced Assessment and Clinical Reasoning (2) (2-Lec, 1-Lab) Provides a framework for the development of skills for systematic and comprehensive data collection, organization, precise recording, accurate assessment and communication of data reflecting the biopsychophysical status of individuals across the life span. Pre: 639 or consent. Co-requisite: 675.

NURS 613 Pathophysiology for Advanced Practice (3) Provides the advanced practice nurse with an increased knowledge of selected complex topics in physiology. Application of advanced concepts to the determination of clinical manifestations and selection of assessment and management protocols.

NURS 615 Mental Health Nursing I (3) Focus on mind-body relationship in illnesses and culturally specific interventions for health promotion and prevention of common and acute mental health concerns in individuals, groups, families, and communities. Pre: 611 and 632 (or concurrent).

NURS 616 Psychophysiology of Human Behavior (V) Survey of the neurophysiology of selected human behaviors and related psychiatric-mental health conditions. Strongly recommended

as a prerequisite for psychopharmacology (623). May substitute for PSY 634 with instructor's permission. Pre: consent.

NURS 618 Biobehavioral Concepts (1) Critical analysis of biobehavioral concepts and relevant measurement instruments for advanced nursing practice in multicultural settings.

NURS 620 Methods and Measurement in Nursing Research (3) Examination of the research process for critical analysis of nursing research relevant to practice. Focus on measurement concepts and methods relevant to patient care outcomes. Pre: 639 (or concurrent) or consent.

NURS 621 Acute and Episodic Care Management (3) Diagnosis and management of health and illness with emphasis on clients with common acute/episodic conditions seen in context of family and community. Advanced practice nurse-client relationship, practice roles, and culturally relevant care are included. A-F only. Pre: 612, 620, 630, and 639; or consent. Co-requisite: 675 and 733.

NURS 622 Psychiatric-Mental Health Issues and Roles (3) Exploration of major issues and roles in advanced practice psychiatric-mental health nursing.

NURS 623 Psychopharmacology (3) Survey of biopsychological bases of and biotherapies for major mental disorders, including the schizophrenias, affective and personality disorders, pediatric and geriatric problems, and neurological dysfunctions with appropriate applications to health care. Pre: graduate standing or consent.

NURS 624 Clinical Management Issues in Psychopharmacology (2) Review of the neurobiological concepts underlying the pharmacotherapies utilized in the major mental disorders (neurobiological disorders). Emphasis is placed upon the clinical management of the pharmacotherapies in prescriptive practice. Pre: consent.

NURS 627 Child/Family Health Assessment (4) (2 Sem, 8-hr Lab) Opportunity to develop specialized clinical competence in assessment of children as a basis for the development of clinical specialization. Development of the individual's potential toward health maintenance functioning.

NURS 629 Pharmacology for Nurses in Advanced Practice (V) Prepares nurses in advanced practice to monitor, review, renew, and prescribe medications by applying principles of pharmacokinetics, pharmacodynamics, and pharmacotherapeutics of specific drugs used in the care of common disorders. Repeatable. Pre: consent.

NURS 630 Information Systems in Healthcare (3) Introduction to information systems in health care as pertaining to nursing and health care. Demonstrate competency in the use of nursing and health information systems in clinical practice.

NURS 631 Advanced Practice Clinical I (4) Supervised clinical practicum for community-based Advanced Practice Nursing I. Pre: 612. Co-requisite: 621.

NURS 632 Therapeutic Modalities (3) Therapeutic modalities used in advanced practice psychiatric-mental health nursing with individuals, families, and groups representing culturally diverse populations.

NURS 633 Child Health: Promotion and Maintenance (3) Presents normal developmental, physiological, and social needs of children within the context of family; then focuses on the management of common acute and chronic illnesses of children. Pre: admission to advanced practice nursing - PC option or consent of instructor, and 605, 612, 613, 620, 630, 639; or consent.

NURS 634 Child Health: Special Problems (5) (2 Sem, 12-hr Lab) Focuses on assessment and intervention with infants, children, and adolescents with ambulatory acute or chronic health problems or potential for compromised growth and development. Emphasizes critical analysis of research in pediatric health-care problems. Pre: 633.

NURS 635 Women's Health: Promotion and Maintenance (3) Provides a foundation of concepts necessary to maintain and promote women's health, including developmental, physiological, and social needs of women of all ages and the management of common health problems and concerns specific to women. Co-requisite: 639 and one of 631, 644, or 734.

NURS 636 Women's Health: Special Problems (5) (2 Sem, 12-hr Lab) Focuses upon assessment and intervention of at-risk and high-risk women during pregnancy, interconception, and the menopausal years. Emphasizes critical analysis of research in pregnancy, family planning, and common gynecological problems. Pre: 635 or consent.

NURS 637 Nursing Care in a Rural Community (V) Supervised clinical community-based practicum for advanced practice nurses in rural health care. Pre: 621 and 631.

NURS 638 Child and Adolescent Psychiatric-Mental Health (3) Theory and research in advanced practice psychiatric-mental health nursing of children and adolescents representing culturally diverse populations. Emphasis on growth and development, assessment and diagnosis, and therapeutic modalities. A-F only. Pre: 620 (or concurrent).

NURS 639 Disciplinary Knowledge I (3) Exploration of a variety of philosophies of science and examination of factors influencing the development of nursing theory and the emergence of nursing as a discipline.

NURS 641 Community Partnership and Health Policy I (2) Multidisciplinary health professional course analyzes influences of healthcare delivery systems, leadership, health education and team building. Involves policy formation strategies, resource management, and teaching portfolios. Pre: consent.

NURS 642 Community Partnership and Health Policy II (2) Multidisciplinary health professional course utilizes education and research to address impact of health education. Students lead educational sessions about the influence of health policies. Pre: 641 or consent.

NURS 643 Advanced Practice Nursing II (3) Management of health/illness status with emphasis on acute conditions commonly seen in primary care. APN-client relationship, role in practice, culturally relevant care, diagnosis, client appropriate treatment, education, family centered are also discussed. Pre: 621 and 631, or consent. Co-requisite: 644.

NURS 644 Advanced Practice Clinical II (4)

Application in clinical settings of the concepts and principles of assessment, diagnosis, evaluation, management and professionalism as covered in NURS 643. Pre: 621 and 631; or consent. Co-requisite: 643.

NURS 645 Advanced Practice Mental Health Practicum I (V)

Supervised application of theories, research findings, skills and interventions for advanced practice nursing in primary, acute and chronic care with individuals, groups, families, or communities with socioeconomically and/or culturally diverse populations. Repeatable one time. Co-requisite: 611, 615, 622, or 632.

NURS 646 Advanced Psychiatric-Mental Health Practicum (V)

Supervised application of theories, research, and skills for advanced practice psychiatric-mental health nursing with individuals, families, and groups representing culturally diverse populations. Includes the program's capstone experience. Repeatable three times. Co-requisite: 611 or 632.

NURS 648 Graduate Cooperative Education in Nursing I (2)

First semester of a two-semester course with a seminar on advanced practice role development and practice in addition to paid work experiences. CR/NC only. Repeatable once. Pre: 621 and 631, or concurrent; or 611 or 632, or concurrent.

NURS 649 Graduate Cooperative Education in Nursing II (1)

Second semester of a two-semester course with a seminar on advanced practice role development and practice in addition to paid work experience. CR/NC only. Repeatable once. Pre: 648.

NURS 650 Complementary and Traditional Care (3)

A review of theoretical systems and approaches to complementary and traditional care in culturally diverse populations with a focus on wellness. Appropriate for all health-care professionals.

NURS 651 Pain: Its Pathophysiology, Assessment, and Management (3) In-depth study of the theoretical concepts of pain. Theories are evaluated for their potential use in the delivery of health care, emphasizing the assessment and management of pain.

NURS 660 (Alpha) Selected Topics in Nursing (3)

Advanced study, exploration of special topics in clinical nursing. (D) developmentally disabled children and their families; (I) current issues in professional nursing.

NURS 662 Management and Leadership of Clinical Systems (3) Study of theoretical and conceptual basis of leadership and management applied to changing clinical systems.

NURS 663 Clinical Systems Management I (3)

Analysis of various clinical management concepts and health-care delivery systems influencing outcomes, process, and costs in the delivery of care. Pre: 662 (or concurrent) or consent.

NURS 664 Clinical Systems Practicum (3)

Supervised experience in clinical systems management for the nursing administrator. Pre: 663 (or concurrent) or consent.

NURS 665 Clinical Economics and Finance (3)

Economic and financial concepts and tools for developing and managing patient care processes.

NURS 675 Advanced Practice Clinical (V)

Application of concepts and principles of assessment, diagnosis, management, and evaluation of clients in supervised clinical practicum for advanced practice nursing. A-F only. Pre: 612.

NURS 681 Environmental Determinants of Health (2)

Environmental factors in personal and community health; implications for public health practice. Consideration of major issues from local, U.S., and international perspectives. (Cross-listed as PH 681)

NURS 683 Occupational Health I (2)

Historical development of occupational health; occupational diseases and accidents; control of hazards in occupational environment; study of selected occupations and specific problems. Pre: consent.

NURS 685 Ergonomics (2)

The technology of work design, including consideration of the biology of work, the psychology of work, and methods of studying work. Pre: 683 or consent.

NURS 687 Environmental Toxicology (3)

Biochemical basis for toxic effects. Emphasis on environmental toxicants. Pre: upper division course including lab in biochemistry or physiology, or consent.

NURS 688 Environmental Health for Developing Countries (3)

Appropriate technologies for environmental health interventions; emphasis on water and sanitation for rural developing countries. Pre: consent.

NURS 691 Occupational Safety (2)

Hazard recognition, analysis, and control. Accident causation and investigation. Measurement/evaluation of safety program elements. Ergonomics of work. Pre: consent. Recommended: 683.

NURS 694 Hazardous Materials Management (2)

Introduction to the fundamental concepts of hazardous materials management. Emphasis on laws, ordinances, regulations, and control strategies. Pre: consent.

NURS 695 Successful Aging: Physiologic (3)

Advanced study of the functional, cultural, psychological, and socioeconomic phenomena that impact the physiology of normal and abnormal aging. Emphasis is on promoting successful aging among elder residents of the Pacific Basin and applications to primary health care. Pre: consent.

NURS 699 Directed Study or Research (V)

Directed study of problems related to nursing theory and practice. Pre: consent.

NURS 700 Thesis Research (V) Research for master's thesis.

NURS 705 Management of Ambulatory Care Services (2)

Structure and organization of group medical practices, community health centers, ambulatory surgical facilities, other forms of ambulatory medical care. Management, governance, ownerships, capital development, special problems. Pre: 606.

NURS 710 Designing and Conducting Clinical Trials (3)

Small group sections will guide students as they produce their own clinical trial protocol. Topics like ethics and statistical power will be addressed briefly. Repeatable one time. Pre: any graduate level statistics course.

NURS 720 Politics of Health/Policy Process (3)

Constitutional, legal, governmental framework of health. Policy process, analytic techniques,

assessing alternatives, adoption, implementation, evaluating effectiveness. Impact of constraints on policy analysis strategy. Pre: PH 608 or consent. (Cross-listed as PH 710)

NURS 733 Care of Populations (3)

Focuses on the concept of venerable population-based primary health care. Exemplars of selected populations in community settings are examined with an emphasis on building community competence to address unmet needs. Pre: 605 and 612; or consent.

NURS 734 Advanced Practice Clinical III (4)

Third clinical practicum for advanced practice nursing. Emphasis is on integration of knowledge, skills, and outcomes evaluation. Pre: 643 and 644, or consent. Co-requisite: 733.

NURS 739 Advanced Nursing Science (3)

Provides opportunities to know and practice the process of theory development in nursing and to test concepts, relationships, and models about health behavior in culturally diverse populations. Pre: 639 (or concurrent) or consent.

NURS 741 Quantitative Methods and Measures (3)

Critical analysis of quantitative research methods used to analyze problems of interest to nursing in culturally diverse populations. Pre: 620 or consent.

NURS 742 Qualitative Methods and Measures (3)

Application of qualitative research methods in the development of clinical nursing disciplinary knowledge related to culturally diverse populations. Pre: 620 or consent.

NURS 744 Seminar on Women and Health (3)

Women's health and the role of women health professionals. Current literature and research regarding attitudes, roles, rights, and health care. Pre: graduate standing or consent. (Cross-listed as SW 776)

NURS 745 Creative Learning Strategies for Adults (3)

Analysis of forces that affect adult learners. Concept of lifelong learning vis-à-vis development of creative strategies that assist maturing, self-directed persons to develop their potentialities. (Cross-listed as EDEA 745 and EDEP 745)

NURS 747 Curriculum Development (3)

Current theories, issues, and trends of curriculum development in nursing. Application and critiques of related research.

NURS 748 Supervised Practicum in Teaching (2)

Supervised experience in instructional planning and teaching. Pre: 747 (or concurrent) or consent.

NURS 751 Evidence-Based Practice I (3)

First course offering in-depth analysis of specific concepts and theoretical formulations of nursing and other disciplines pertinent to the student's area of research interest. Addresses human responses to health in culturally diverse populations. Pre: 739.

NURS 761 Evidence-Based Practice II (3)

Second course in analysis of specific concepts and theoretical formulations of nursing and other disciplines. Continuation of 751. Pre: 751 or consent.

NURS 774 Clinical Systems Management II (3)

Examination of quality of health care, the process of managing health-care outcomes and costs in the delivery of care through the interdisciplinary process. Pre: 664 (or concurrent) and 665 (or concurrent).

NURS 775 Capstone Field Study (3) Supervised experience in advanced clinical systems management for the nursing administrator. Pre: 664 and 774 (or concurrent), or consent.

NURS 777 Nursing Research Practicum I (3) Directed research experience providing opportunity to gain mastery of faculty research. Repeatable once. Pre: 741 and 742.

NURS 778 Nursing Research Practicum II (2) Examination of federal regulations, institutional procedures, legal, and ethical correlates for the protection of human research subjects in culturally diverse populations. Pre: 777 or consent.

NURS 797 (Alpha) Exploration in Public Health (V) Investigation of emergent fields of inquiry in public health. (B) biostatistics; (C) health planning; (D) environmental health; (E) epidemiology; (G) gerontology; (H) health services administration; (I) international health; (J) maternal and child health; (M) population and family planning; (O) health education; (R) public health nutrition; (S) community health development; (T) public health science; (U) public health. Pre: consent. (Cross-listed as PH 797)

NURS 800 Dissertation Research (V) Research for doctoral dissertation. Repeatable. Pre: consent.

Obstetrics and Gynecology (OBGN)

School of Medicine

OBGN 531 7-Week OB/GYN Clerkship (10) Unit VI—7-week basic obstetric/gynecology clerkship. Repeatable once. CR/NC only. Pre: BIOM 555.

OBGN 532 Obstetrics and Gynecology Longitudinal Clerkship (5) Year-long clerkship in outpatient setting, covering assessment, diagnosis, treatment, and/or management of common gynecologic problems and normal and complicated pregnancies. Emphasis on prevention and health maintenance. Repeatable twice. CR/NC only. Pre: third-year standing, and concurrent registration in 532 courses and SURG 535.

OBGN 545 (Alpha) Unit VII Electives in OB/GYN (V) Opportunities for advanced study of selected topics. (B) labor and delivery; (C) outpatient clinic at Queen's; (D) OB—2 wks/GYN—2 wks; (E) high-risk OB; (F) endocrinology; (G) oncology; (H) topics with individual preceptor; (I) extramural electives. Repeatable twice for each alpha. CR/NC only. Pre: 531, 532, or 533.

OBGN 599 Directed Reading/Research (3) Pre: consent.

Ocean and Earth Science and Technology (OEST)

School of Ocean and Earth Science and Technology

The following courses are not part of a specified department's curriculum. These courses are highly interdisciplinary in nature, drawing on faculty expertise from throughout SOEST and the Mānoa campus. They are not based in any of the departments but are administered and coordinated by the associate dean's office.

OEST 735 is a key element of the graduate ocean policy certificate program

OEST 100 Marine Option Program Seminar (1) Statewide overview of ocean issues and the organizations involved with marine activities, management, education, research and business. Exploration of opportunities for internships, research projects, study and careers. Proposal writing, project implementation, and report preparation guidelines. Portions on HITS with participation of students and faculty from throughout UH system. Orientation to the Marine Option Program.

OEST 101 Natural Hazards (3) Science of natural hazards: impact on human civilization of events in the lithosphere, atmosphere, biosphere, and hydrosphere (e.g., earthquakes, hurricanes, red tides, and floods), and impact of humans on their exposure to and mitigation of the hazards. **DP**

OEST 261 People, Ocean, and the Environment (3) People's impact on quality of coastal and ocean environments, especially Hawaiian; scientific, legal, socioeconomic aspects. Ocean pollution; ocean technology. Pre: OCN 201 or ZOO 200. **DS**

OEST 300 Ocean Internships and Research (V) With faculty guidance, students design and carry out marine-related internships, practica, research projects, or field experience on or off campus. Repeatable once. Pre: a minimum cumulative GPA of 2.5, junior or senior standing in any field of study, and OEST 100 or consent.

OEST 310 Global Environmental Change (3) Global environmental change problems, such as carbon dioxide and the greenhouse effect, acid rain, chlorofluorocarbons and the ozone layer, global deforestation and effect on climate, etc. Pre: one environmentally oriented science course. (Cross-listed as OCN 310 and MET 310) **DP**

OEST 310L Global Environmental Change Laboratory (2) (3-hr Lab) Laboratory course to supplement OEST 310. Quantitative aspects of global environmental change will be addressed through problem solving and computer modeling. A–F only. Pre: MATH 241, MATH 242, PHYS 170, PHYS 170L, CHEM 161, and CHEM 161L; or consent. Co-requisite: 310 or consent. Fall only. (Cross-listed as MET 310L and OCN 310L) **DY**

OEST 480 Sea Systems I (3) (1 Lec, 2 Discussion) The development of society is traced as it has occurred about water systems: lakes, rivers, seas, and oceans, from earliest beginnings until the 19th century. Cross-disciplinary perspectives integrate art, natural sciences, social sciences, literature, engineering, and technology. Lectures, discussions, and the Socratic method are employed. Pre: upper division standing or consent. **DS**

OEST 481 Sea Systems II (3) (1 Lec, 2 Discussion) The development of society about water systems is examined for the current century, and projections are made for the next. Cross-disciplinary perspectives integrate art, natural sciences, literature, engineering and technology, and history. Pre: upper division standing or consent. **DS**

OEST 489 World Maritime History (3) A survey of world maritime history from earliest times to the present, with emphasis on the evolution of nautical technology, motives for maritime enterprises, and

the impact of cross-cultural encounters between oceanic peoples. Pre: HIST 151 and HIST 152 (or concurrent), or consent. (Cross-listed as HIST 489)

OEST 668 Maritime Archaeology Techniques (6) (5 7-hr Lab) Laboratory and field training in the principles and practice of methods of maritime archaeology—coastal habitations, shipwrecks, waterlogged artifacts; survey, mapping, excavation, conservation. Summer only, full-time. Repeatable. Pre: ANTH 210 or consent. (Cross-listed as ANTH 668)

OEST 680 The Sea and Society to 1900 (3) Evolution of societies as affected by marine technology, culture, law, policy, and the geophysical relationship between land and water masses. Pre: graduate standing or consent.

OEST 681 Sea and Society: 20th–21st Century (3) In-depth examination of society's modern evolution and projected development into the next century, focusing on the marine aspects of technology, science, law, military, commerce, population distribution, and environmental management. Pre: graduate standing or consent.

OEST 699 Directed Reading/Research (V) Selected interdisciplinary ocean/earth-related topics involving science, technology, engineering, and/or policy. Pre: consent.

OEST 735 Ocean Policy Seminar (2) Interdisciplinary approach to problems relating to humans and their interactions with the world's oceans and coasts. Theme changes each semester. Repeatable.

OEST 740 Marine Biofilms: Ecology and Impact (3) Intensive description of biofilms, their growth and their impact upon engineered processes in the marine environment. Basic principles of bioadhesion, corrosion, attachment and metamorphosis of larvae (i.e. biofouling), antifouling techniques and modeling of biofilms reactors will be presented. Focus on how biofilms impact research thesis topics will also be emphasized. A–F only. Pre: good standing in any science or engineering graduate program or consent. Fall only.

Ocean and Resources Engineering (ORE)

School of Ocean and Earth Science and Technology

ORE 202 Ocean Technology—Man in the Sea (3) Survey of human activities in the ocean, from the most traditional to the most innovative technical and engineering accomplishments. **DP**

ORE 394 Marine Biotechnology (4) A lecture and laboratory course on both the theory and practice of developing commercial products from marine microorganisms. The course will cover all stages of product development including marine environments likely to contain microorganisms that can make products of interest, screening microbes for desired products, optimization of product production and large-scale production systems. Open to students from microbiology, ocean engineering and other ocean sciences. Pre: consent. (Cross-listed as MICR 394) **DB**

ORE 411 Buoyancy and Stability (3) Ship nomenclature and geometry, hydrostatic principles of surface ships and underwater vehicles in free-

floating, partially waterborne, and damaged conditions. Subdivision of ships. Launching. Pre: CEE 270 or equivalent. **DP**

ORE 500 Master's Plan B/C Studies (1)

Enrollment for degree completion. Pre: master's Plan B candidate and consent.

ORE 601 (Alpha) Ocean and Resources

Engineering Laboratory (3) Design, construction, and evaluation of an engineering system. Field experience and data analysis supplemented with appropriate theory. (B) ocean engineering; (C) marine bioproducts engineering. A-F only. Pre: 603 and 607 for (B); 620, 621, and 622 for (C).

ORE 603 Oceanography for Ocean Engineers

(3) Physical, chemical, biological, and geological ocean environments for ocean engineers. Introduction to ocean dynamical processes and general circulation. Ocean measurement techniques, theory of underwater acoustics. Sonar, swath bathymetry, and tomography applications. A-F only. Pre: consent.

ORE 607 Water Wave Mechanics (3)

Governing equations in free surface flow, deterministic and probabilistic wave theories, wave transformation, wave-induced coastal currents, tides, ocean engineering operational sea state, and design wave criteria. A-F only. Pre: consent.

ORE 608 Probability and Statistics for Ocean

Engineers (3) Probability and statistical analysis including distributions, multiple regression and correlation, autocovariance, cross-spectra, and practical applications in ocean engineering. A-F only. Pre: 607 or consent.

ORE 609 Hydrodynamics of Fluid-Body

Interaction (3) Hydrodynamics of ships, coastal and offshore structures. Wave forces by potential theory and by Morison's equation. Method of source distribution for potential flow problems. Flows with prescribed body motion, fixed and freely floating bodies. Pre: 607. Co-requisite: 608.

ORE 612 Dynamics of Ocean Structures (3)

Response of floating platforms and vessels to wave action, spectral analysis in sea keeping. Frequency and time domain analyses of rigid body motions in six degrees of freedom. Pre: 411 or consent. Co-requisite: 609 or consent.

ORE 620 Marine Bioprocess Engineering (3)

Mass and energy balances in marine bioproducts processing, primary and secondary metabolism products of marine organisms, biokinetics, stoichiometry and energetics in cell growth, metabolism engineering and yield improvement, properties and markets of marine bioproducts. A-F only. Pre: consent.

ORE 621 Bioreactor Design (3)

Application of hydrodynamics, thermodynamics, gas exchange rates, physics of light, and microbial kinetics to the design of bioreactors. Emphasis placed on marine bioproducts and integration with product separation and processing systems. A-F only. Pre: consent. Co-requisite: 620.

ORE 630 Design of Ocean Structures and

Vessels (3) Owner's requirements, design criteria, and characteristics of ships and offshore structures. Conceptual and preliminary design procedures, hull strength, computer-aided design. A-F only. Pre: consent.

ORE 631 Structural Design of Ships (3)

Design of ocean structures to withstand hydrostatic and hydrodynamic loading of the sea. Considerations include material type, safety factors, stress

concentrations, and fatigue. Applications made to submersibles, cargo ships, and/or offshore platforms. Pre: 630 or consent.

ORE 641 Environmental Fluid Dynamics (3)

Fluid dynamics for coastal and estuarine environments. Turbulent mixing processes in homogeneous and stratified fluids. Buoyancy driven flows, internal hydraulics, topographic effects and estuarine circulation. Spill and pollutant dispersal. A-F only. Pre: 603 or equivalent; or consent.

ORE 642 Marine Environmental Remediation

(3) Thermodynamics, chemistry and measurements of marine pollutants, biodegradation and biotransformation of pollutants, symbiosis and mass transfer in biofilms, bioremediation of oil spills, hazardous sediments, algae control, regulations on marine environment. A-F only. Pre: consent.

ORE 661 Coastal and Harbor Engineering (3)

Planning and design of seawalls, groins, jetties, breakwaters, and layout of ports. Design requirements for harbor entrances and channels. Littoral drift and sedimentation problems. Navigation and mooring requirements. A-F only. Pre: 607 or consent.

ORE 664 Nearshore Processes (3)

Sediment transport by waves and currents in coastal areas and its effect on morphological processes. Effect of man-made structures on littoral drift and shoreline. A-F only. Pre: 607 or consent.

ORE 677 OTEC Systems (3)

Ocean thermal energy conversion (OTEC) systems, thermodynamics, alternative processes, co-products, and environmental context. Pre: ME 311 or equivalent.

ORE 678 Marine Mining Systems Technology

(3) Activities in marine minerals development are examined in a multidisciplinary systems approach involving engineering, Earth and environmental sciences and economics. Pre: OCN 631 or consent.

ORE 699 Directed Reading or Research (V)

Pre: graduate standing and consent.

ORE 700 Thesis Research (V)

Pre: candidacy for MS in ocean engineering.

ORE 707 Nonlinear Water Wave Theories (3)

Higher-order theories. Forced oscillations. Stoke's theory. Nonlinear shallow-water wave equations and hydraulic jumps; effects of rotation. Internal waves. Analytical techniques necessary will be developed as course progresses. Pre: consent.

ORE 766 Numerical Analysis of Hydrodynamic

Problems (3) Numerical methods for solving potential flow problems encountered in coastal and offshore engineering. Boundary element, finite difference, and finite element methods are used for the solution of initial-boundary-value problems. Pre: consent.

ORE 783 (Alpha) Capstone Design Project (3)

Major design experience based on knowledge and skills acquired in earlier coursework and incorporating realistic constraints that include economic, environmental, ethical, social, and liability considerations. Emphasis is placed on teamwork and consultant-client relationship. (B) coastal engineering; (C) offshore engineering; (D) ocean resources engineering; (E) marine bioproducts engineering. Repeatable one time. A-F only.

ORE 791 Special Topics in Ocean Engineering

(V) Course content will reflect special interests of visiting and permanent faculty. Pre: consent.

ORE 792 Seminar in Ocean Engineering (1)

Attendance at 15 approved seminars is required along with submission of notes. Topics to be selected by students.

ORE 800 Dissertation Research (V)

Pre: candidacy for PhD in ocean engineering.

Oceanography (OCN)

School of Ocean and Earth Science and Technology

OCN 201 Science of the Sea (3) Structure, formation, and features of ocean basins; seawater properties and distributions; currents; waves; tides; characteristics of marine organisms; marine ecological principles; man and the sea. Field trip required. **DP**

OCN 201L Science of the Sea Laboratory (1)

Experiments, computer exercises and field trips demonstrating the geological, physical, chemical and biological principles of earth and ocean sciences. A-F only. Co-requisite: 201. **DY**

OCN 310 Global Environmental Change (3)

Global environmental change problems such as carbon dioxide and the greenhouse effect, acid rain, chlorofluorocarbons and the ozone layer, global deforestation and the effect on climate, etc. Pre: one environmentally oriented science course. (Cross-listed as OEST 310 and MET 310) **DP**

OCN 310L Global Environmental Change

Laboratory (2) (3-hr Lab) Laboratory course to supplement OCN 310. Quantitative aspects of global environmental change will be addressed through problem-solving and computer modeling. A-F only. Pre: MATH 241, MATH 242, PHYS 170, PHYS 170L, CHEM 161, and CHEM 161L; or consent. Co-requisite: 310 or consent. Fall only. (Cross-listed as MET 310L and OEST 310L) **DY**

OCN 312 Geomathematics (3)

Mathematical methods of geologic and geophysical science. Emphasis on application to earth-science problems using linear algebra, vector calculus, partial differential equations, and numerical solutions. Pre: MATH 242 or consent. (Cross-listed as GG 312)

OCN 315 Modeling Natural Systems (3)

Introduction to philosophy of science for those with some background in the natural sciences. Special emphasis on issues arising from the construction and use of models. Pre: consent. (Cross-listed as PHIL 315)

OCN 320 Aquatic Pollution (3)

Pollution of freshwater and marine systems by human activities. Causes, consequences, and correctives. Pre: 201 or consent. **DP**

OCN 330 Mineral and Energy Resources of the

Sea (3) Hard mineral and petroleum origins, exploration, and exploitation. Renewable and non-renewable resources distribution. Political and scientific constraints. Pre: 201. **DP**

OCN 331 Living Resources of the Sea (3)

Marine fisheries, aquaculture, and law of the sea. Principles of management of renewable resources. Political and scientific constraints and limitations. Pre: 201. **DB**

OCN 363 Earth System Science Databases (3) Combined lecture, discussion, and laboratory course on global Earth system databases and satellite instrumentation, including computer laboratory. A–F only. Pre: 310, 310L, and MATH 244; or consent. **DP**

OCN 401 Biogeochemical Systems (3) Relationship of biogeochemical cycles in the atmosphere, lithosphere, and biosphere to global chemical cycles and planetary climatic conditions. GES degree foundation and capstone course. A–F only. Pre: 201, BIOL 171/171L, BIOL 172/172L, CHEM 161/161L, CHEM 162/162L, GG 101/101L, MATH 205, MATH 206/206L, MATH 231 (or GG 312), MATH 323 (or ECON 321), MET 200, OEST 310/310L, PHYS 170/170L, and PHYS 272/272L; or consent. Fall only. **DP**

OCN 402 Solar Nebula to the Human Brain (3) Changes in the chemical composition from solar nebula to meteorites, bulk earth, earth's mantle and crust, sedimentary rocks, hydrosphere, biosphere and human body and underlying principles. Pre: CHEM 161 and 162; or consent. **DP**

OCN 423 Marine Geology (3) Sediments, structure, geophysics, geochemistry, history of ocean basins and margins. Pre: GG 302 and GG 308; or consent. (Cross-listed as GG 423) **DP**

OCN 444 Plate Tectonics (3) (2 Lec, 1 3-hr Lab) Quantitative geometrical analysis techniques of plate tectonics theory; instantaneous and finite rotation poles; triple-junction analysis; plate boundary stresses. Pre: GG 200 or consent. (Alt. years)

OCN 450 Aquaculture Production (3) Theory and practice of aquaculture: reproduction, yield trials, management, economics, and business case studies of fish, crustaceans, and molluscs. Field classes held at commercial farm and hatchery. Repeatable. Pre: ANSC 200 (or concurrent) and ANSC 201 (or concurrent) or BIOL 172 (or concurrent). (Cross-listed as ANSC 450) **DB**

OCN 499 Undergraduate Thesis (3) Directed research course in which the student carries out a scientific project of small to moderate scope with one or more chosen advisers. The student must complete a document in the style of a scientific journal article. Repeatable once. Pre: consent.

OCN 620 Physical Oceanography (4) Introduction to properties of seawater, oceanographic instruments and methods, heat budget, general ocean circulation, regional oceanography, waves, tides, sea level. Repeatable. Pre: MATH 242 (or concurrent), or consent.

OCN 621 Biological Oceanography (3) Factors governing productivity, population dynamics, distribution of organisms in major ecosystems of the ocean, emphasis on ecology of pelagic zone. Pre: 620 or consent.

OCN 622 Geological Oceanography (3) Marine geological processes, ocean basin structure and tectonics, sedimentation. Pre: GG 101.

OCN 623 Chemical Oceanography (3) Chemical processes occurring in marine waters; why they occur and how they affect oceanic environment. Pre: CHEM 171 or equivalent.

OCN 626 Marine Microplankton Ecology (4) (3 Lec, 1 3-hr Lab) Distribution, abundance, and ecology of marine microplankton, including

bacteria, algae, and protozoans, with an emphasis on metabolic rates and processes. Pre: consent. Spring only.

OCN 627 Ecology of Pelagic Marine Animals (4) (3 Lec, 1 3-hr Lab) Ecology of pelagic animals including feeding, energetics, predation, and anti-predation tactics. Life-history strategies, vertical flux of materials, population dynamics, fisheries. Pre: consent. Spring only.

OCN 628 Benthic Biological Oceanography (4) (3 Lec, 1 3-hr Lab) Processes controlling the structure and function of benthic communities, including organism-sediment-flow interactions, sediment geochemistry, feeding strategies, recruitment, succession, and population interactions. Pre: consent. Spring only.

OCN 630 Physical Oceanography Lab (1) (1 3-hr Lab) Techniques and methods of analysis. Pre: MATH 244 and consent.

OCN 631 Ocean Minerals (3) Distribution, origin, processes of formation. Sulfides, oxides, and placer minerals. Comparative studies of continental ore bodies. Submarine rift, subduction, and abduction. Pre: one of 622, 623, GG 407, GG 430, or GG 603.

OCN 633 Chemical Oceanography Lab Methods (2) (1 Lec, 1 2-hr Lab) Lab and field analytical techniques. Pre: consent.

OCN 635 Isotopic Marine Geochemistry (3) Application of stable and unstable isotope tracers in studying geochemical processes and their rates in the sea. Pre: CHEM 161, CHEM 162, and MATH 241.

OCN 635L Radiochemical Techniques (1) (1 3-hr Lab) Radiation detection and measurement, separation and manipulation of radionuclides, experimental design and use of tracers. Student projects based on individual interests. Pre: 635 (or concurrent) and consent.

OCN 638 Earth System Science and Global Change (3) Global view of the planet and how it functions as an integrated unit. Biogeochemical processes, dynamics, and cycles, and analysis of natural and human-induced environmental change. Chemical history of ocean-atmosphere-sediment system and co-evolution of the biota. Repeatable once. Pre: BS in environmentally related science or one year of chemistry, physics, and calculus. (Cross-listed as GG 638)

OCN 640 Advanced Physical Oceanography (3) Ocean structure and circulation, interaction between ocean and atmosphere, interpretation of oceanographic data, comparison of theories and observations. Pre: 620.

OCN 641 Origin of Sedimentary Rocks (3) (2 Lec, 1 3-hr Lab) Environment of deposition and subsequent diagenesis of modern and ancient sediments. Petrogenesis of siliciclastic, carbonate and orthochemical rocks. Sedimentology, sedimentary petrography and geochemistry. Repeatable. Pre: consent. (Cross-listed as GG 641)

OCN 642 Elemental Composition Changes (3) Changes in the chemical composition of meteorites, bulk Earth, Earth's mantle and crust, sedimentary rocks, hydrosphere and biosphere, and underlying principles. Pre: 623 or GG 325; or consent. (Cross-listed as GG 642)

OCN 643 Topics in Marine Geochemistry (3) Seminar on a broad topic; discussion and critique of research papers. Repeatable once. Pre: 623 or consent.

OCN 644 Sedimentary Geochemistry (3) Geochemical thermodynamics and kinetics and their use in interpreting the origin of sediments, sedimentary rocks, and natural waters over a range of pressure-temperature conditions. Pre: CHEM 171, MATH 242, PHYS 152, and consent. (Cross-listed as GG 644)

OCN 645 Marine Organic Geochemistry (3) Processes responsible for cycling of organic material in marine waters and sediments. Pre: 622, 623, and CHEM 272; or consent.

OCN 650 Math Techniques for Oceanographers (5) (3 Lec, 2 3-hr Lab) Introduction to numerical methods, data analysis, error propagation, box models, linear and nonlinear least squares, perturbation theory, numerical integration. Pre: MATH 244.

OCN 653 Methods in Microbiology Oceanography (3) (1 8-hr Lab) Modern methods for sampling microbial populations from the sea and for quantifying biomass and in situ rates of metabolism. Integrated field projects, theme varies. Pre: 621 or 623, and 626; or consent.

OCN 660 Ocean Waves I (3) Governing hydrodynamic equations, perturbation techniques, gravity and capillary waves, wave energy, group velocity, refraction, wave spectra, wave generation. Pre: MATH 432 or consent.

OCN 661 Ocean Waves II (3) Baroclinic gravity waves, inertial waves, mid-latitude Rossby waves, topographic waves, equatorial waves. Pre: 660 or consent.

OCN 662 Marine Hydrodynamics (3) Introduction to classical hydrodynamics and continuum mechanics. Techniques for solution of Navier Stokes equations on various scales of oceanic motion; potential theory, dynamic modeling, and viscous and rotational processes. Pre: MATH 403 and MATH 404.

OCN 663 Satellite Oceanography (3) Techniques of satellite observations of the ocean, including temperature, pigment concentration, currents, and winds; analysis of a satellite data set as term project. Pre 620 or consent.

OCN 664 Oceanographic Instrumentation and Technology (3) Measurement techniques in physical oceanography, including pressure, temperature, salinity, oxygen, optical sensors, current meters, navigation systems, ocean acoustics, and mooring structures. Includes a laboratory research project. Pre: 620 or consent.

OCN 665 Small-Scale Air-Sea Interaction (3) Observations and theory of small-scale processes which couple the atmosphere and ocean boundary layers, including introduction to turbulence theory and parameterization of turbulent fluxes. Pre: MATH 402 and MATH 403 (or their equivalents) and either OCN 620 or MET 600; or consent. (Cross-listed as MET 665)

OCN 666 Large-Scale Ocean-Atmosphere Interactions (3) This lecture/seminar course introduces physical oceanography and meteorology students to the state-of-the-art theories and

observations of large-scale ocean-atmosphere interaction, as well as conveying the fundamental understanding that has been developed during the past 30 years. Emphasis will be on phenomena such as El Niño/Southern Oscillation, the North Atlantic Oscillation, the Pacific Decadal Oscillation, and global climate change. Repeatable one time. Pre: 620 or MET 600; or consent. (Cross-listed as MET 666)

OCN 667 Advanced Geophysical Fluid

Dynamics I (3) Basic concepts and equations to describe large-scale ocean circulation; numerical models; boundary layers; models of wind-driven circulation of a homogeneous ocean. Pre: 620 and 662, or consent.

OCN 668 Advanced Geophysical Fluid

Dynamics II (3) Thermodynamics of stratified fluids; convection; mixing; models of the thermohaline circulation; the role of eddies in the large-scale ocean circulation. Pre: 667 or consent.

OCN 672 Seminar in Tectonics (3) Evolution of ocean basins, margins, foldbelts, and platforms, from plate tectonics and regional synthesis of structure, petrology, geophysics, and stratigraphy. Repeatable once. Pre: consent. (Cross-listed as GG 672)

OCN 674 Paleoceanography (V) Study of the paleoceanographic and paleoclimate evolution of the Earth's oceans, atmosphere, and biosphere. Repeatable. Pre: consent. (Cross-listed as GG 674)

OCN 699 Directed Research (V) Pre: consent.

OCN 700 Thesis Research (V) Research for master's thesis.

OCN 735 Seminar in Oceanography (2)

OCN 750 Topics in Biological Oceanography (V) Seminar. Literature and concepts in one of several active fields considered in detail. Repeatable. Pre: consent.

OCN 760 Topics in Physical Oceanography (V) Near-shore processes, advanced mathematical techniques, recent developments, etc. Typically given by visiting professors in their specialties, or in response to student interest.

OCN 770 Seminar in Chemical Oceanography (1)

OCN 780 Seminar (1) Oceanographic topics of current interest.

OCN 791 Proposal Development (2) Introduction to the organization and functioning of oceanography funding agencies, the peer-review process, and the design and development of a research proposal. Repeatable. CR/NC only. Pre: two of the following: 621, 626, 627 (or concurrent), or 628 (or concurrent); or consent.

OCN 800 Dissertation Research (V) Research for doctoral dissertation.

OEST

See *Ocean and Earth Science and Technology*

Pacific Islands Studies (PACS)

School of Hawaiian, Asian and Pacific Studies

PACS 371 Literature of the Pacific (3) Basic concepts and representative texts for the study of the literature of the Pacific, including Pacific voyagers and contemporary writings in English by Pacific Islanders. Pre: any two of the following: 250, 251, 252, 253, 254, 255, 256, 257; second may be taken concurrently; or consent. (Cross-listed as ENG 371) **DL**

PACS 399 Directed Research (V)

PACS 462 Drama and Theatre of Oceania (3) Survey of the contemporary drama and theatre of Oceania that combines island and Western traditions. Includes Papua New Guinea, Hawai'i, Fiji, Samoa, Australia, New Zealand. Pre: ANTH 350 or THEA 101, or consent. (Cross-listed as THEA 462) **DL**

PACS 491 The Contemporary Pacific (3) Examination of critical issues in the contemporary Pacific. **DS**

PACS 492 Topics in Pacific Islands Studies (3) Repeatable two times. Pre: 491. **DS**

PACS 495 Encountering Tourism in Asian-Pacific Societies (3) A critical examination of a wide spectrum of issues relating to the evolution and current impact of tourism on contemporary Asian and Pacific Islands societies. Topics include colonial antecedents, social impacts, cultural and environmental concerns, case studies (including Hawai'i). Pre: ASAN 201 or ASAN 202, or consent. (Cross-listed as ASAN 495) **DS**

PACS 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

PACS 690 Graduate Seminar: Change in the Pacific (3) Interrelationship of change in selected Pacific Islands regions, institutions, and processes. Pre: consent.

PACS 691 Approaches to Pacific Islands Studies (3) Introduction to Pacific Islands studies as an interdisciplinary field of research and scholarship.

PACS 692 Research Materials and Design (3) Research materials and methods in Pacific Islands studies. Pre: 691 or consent.

PACS 693 Cultural Identities (3) (2.5-hr Seminar) Comparative study of cultural identities in the United States and Pacific Islands. Pre: 480 or ENG 480, or consent.

PACS 699 Directed Reading and Research (V)

PACS 700 Thesis Research (V)

Pali (PALI)

College of Languages, Linguistics and Literature

PALI 381 Elementary Pali (3) Reading simple texts from Pali canon. Grammar taught as needed for the reading. Pre: SNSK 182 or equivalent.

PALI 382 Elementary Pali (3) Continuation of 381.

PALI 481 Intermediate Pali (3) Continuation of 382. Reading various Hinayāna texts. Pre: 382.

PALI 482 Intermediate Pali (3) Continuation of 481.

For key to symbols and abbreviations, see the first page of this section.

Pathology (PATH)

School of Medicine

PATH 470 Immunopathology Seminar (1) Autoimmune diseases and transplantation immunity. Pre: MICR 361 and consent.

PATH 499 Directed Research (V) Pathology of aging, nutrition, alcoholism, and immunology. Open to selected undergraduate students. Pre: consent.

PATH 512 Unit II Concurrent Elective (1) Elective course for first-year medical students. CR/NC only. Pre: BIOM 551 and consent.

PATH 515 Unit V Concurrent Elective (1) Elective course for second-year medical students. CR/NC only. Pre: BIOM 551 and consent.

PATH 525 Unit V Block Elective (V) Required elective for second-year medical students, objectives to be determined by contract. One option is a review of USMLE Part I. CR/NC only. Pre: BIOM 551.

PATH 541 Pathology Practicum (V) Required autopsy experience involving dissection and microscopic examination of tissues and detailed evaluation of disease process. CR/NC only. Pre: third- or fourth-year standing.

PATH 545 (Alpha) Unit VII Electives in Pathology (V) Individualized instruction in laboratory medicine for the practicing physician, clinical and anatomic pathology: (B) advanced topics in clinical immunology; (C) anatomic pathology; (D) clinical pathology; (E) pathologic aspects of aging, nutrition, and/or alcoholism; (F) extramural elective in pathology. CR/NC only. Pre: BIOM 555.

PATH 599 Electives in Pathology (V) Individualized instruction in clinical and/or anatomic pathology. Third-year elective. Pre: consent.

PATH 670 Immunopathology Seminar (1) Autoimmune disease and transplantation immunity. Pre: MICR 625 and consent.

PATH 699 Directed Research (V) In-depth study of pathology of aging, nutrition, alcoholism, and immunology. Open to medical students and selected graduate students. Pre: consent.

PATH 701 Research in Pathology Residency Program (V) Selected topics. Pre: MD degree and residency in pathology in affiliated hospitals.

Peace Studies (PACE)

College of Social Sciences

PACE 210 Survey Peace and Conflict Studies (3) Survey of basic concepts, relationships, methods, and debates in modern peace research and conflict resolution studies. Pre: any social science 100- or 200-level course or consent. **DS**

PACE 247 Survey of Conflict Management (3) Survey of contemporary conflict management and resolution: negotiation, mediation, conciliation, ombuds, fact-finding, facilitation techniques, arbitration, and litigation. Pre: any social science 100- or 200-level course or consent. **DH**

PACE 315 Personal Peace: Stories of Hope (3) Interviewing, writing, and publishing stories of those who have overcome great difficulties to find personal peace. Pre: grade of B or better in ENG 100 or ENG 109, or consent. **DH**

PACE 340 Negotiation (3) Negotiation theory, negotiation skills and application of negotiation in conflict prevention, conflict management and conflict resolution. Pre: any Social Science 100 or 200 level course or consent. **DH**

PACE 345 Aggression, War, and Peace (3) Biocultural, evolutionary, and cross-cultural perspectives on the conditions, patterns, and processes of violence, war, nonviolence, and peace. Pre: ANTH 200 or consent. (Cross-listed as ANTH 345) **DS**

PACE 373 Nonviolent Political Alternatives (3) Exploration of scientific and cultural resources for nonviolent alternatives in politics. Pre: Any 100- or 200-level POLS course; or consent. (Cross-listed as POLS 396) **DS**

PACE 397 Nonviolent Alternatives (3) Seminar in which students examine the roots of nonviolence in human experience and explore alternatives to problems ranging from domestic violence to international war. **DS**

PACE 399 Directed Reading (V) Directed reading in peace and conflict resolution. Repeatable three times. Pre: Consent.

PACE 410 History of Peace Movements (3) Examination of two centuries of United States, European, Australian, and Hawaiian peace, thought, and action. Also surveys early Christian and secular attitudes to war. Open to nonmajors. Pre: 210 (or concurrent) or consent. **DH**

PACE 412 Gandhi, King and Nonviolence (3) Life and thought of Mahatma Gandhi and Martin Luther King, Jr. Pre: any Social Science 100 or 200 level course or consent. **DH**

PACE 447 Mediation Skills: U.H. Basic (3) Basic mediation skills training course. Completion of course requirements qualifies student to be listed as a mediator for university disputes, as co-mediator or on mediation panel. Pre: any Social Science 100 or 200 level course, or consent.

PACE 477 Culture and Conflict Resolution (3) Conflict resolution techniques for major world culture. Emphasis on cultures of the Pacific Basin, Pacific Islands, and Asia. Pre: 210 or concurrent. **DS**

PACE 478 International Law and Disputes (3) Management, prevention, resolution of international disputes and the role of international law. Pre: any Social Science 100 or 200 level course or consent. **DS**

PACE 485 Topics in Peace and Conflict Resolution (3) Recent issues, practices in peace and conflict resolution. Repeatable one time. Pre: 210 or consent. **DS**

PACE 495 Practicum and Internship (3) The Practicum and Internship in Peace and Conflict Resolution provides an opportunity for students to apply the skills and concepts learned in earlier courses. Pre: 210 and two other PACE courses and consent.

Pediatrics (PED)

School of Medicine

PED 531 7-Week Pediatric Clerkship (10) Unit VI—7-week basic pediatric clerkship. CR/NC only. Pre: BIOM 555.

PED 532 Pediatrics Longitudinal Clerkship (5) Year-long clerkship in ambulatory setting, covering evaluation, diagnosis, and treatment of childhood diseases. Emphasis on primary prevention, normal growth and development of the neonate to adolescent, and arrangement of pediatric care, including outpatient, inpatient, and emergency room experiences. Repeatable twice. Pre: third-year standing and concurrent registration in 532 courses and SURG 535.

PED 545 (Alpha) Unit VII Electives in Pediatrics (V) Fourth-year elective course in pediatric sub-specialty areas in which medical students may receive clinical experiences and an in-depth study of selected sub-specialty areas within the field of pediatrics. (B) adolescent medicine; (C) ambulatory pediatric care; (E) clinical genetics; (F) neonatology; (G) pediatric cardiology; (H) pediatric emergency medicine; (I) pediatric hematology/oncology; (J) pediatric infectious diseases; (K) sub-internship in pediatrics—general ward in pediatrics; (M) extramural electives in pediatrics; (N) pediatric rheumatology; (P) pediatrics in school and early intervention program. CR/NC only. Repeatable twice per alpha. Pre: 531 or 532.

PED 599 Directed Reading/Research (V) CR/NC only. Pre: consent.

PH

See Public Health

Pharmacology (PHRM)

School of Medicine

PHRM 201 Introduction to General Pharmacology (2) Drugs discussed with emphasis on sites and mechanism of action, toxicity, fate, and uses of major therapeutic agents. Pre: mammalian physiology and dental hygiene major. **DB**

PHRM 203 General Pharmacology (3) Similar to 201 but wider in scope of drugs discussed. Intended for undergraduates in the health sciences and related fields. Pre: mammalian physiology. **DB**

PHRM 499 Directed Reading and Research (V) Directed reading and research in experimental pharmacology. Pre: consent.

PHRM 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

PHRM 512 (Alpha) Unit II Concurrent Elective (1) Elective course for first-year medical students. CR/NC only. (B) cardiovascular pharmacology; (C) topics in pharmacology. Pre: BIOM 551 and consent. Spring only.

PHRM 513 Unit III Topics in Pharmacology (1) Elective for first-year medical students. CR/NC only. Pre: BIOM 551 and consent. Spring only.

PHRM 514 Unit IV Topics in Pharmacology (1) Elective for second-year medical students. CR/NC only. Pre: BIOM 551 and consent. Fall only.

PHRM 515 Unit V Topics in Pharmacology (1) Elective for second-year medical students. CR/NC only. Pre: BIOM 551 and consent. Spring only.

PHRM 525 Review of Pharmacology (1) Elective for second-year medical students, objective to be determined by contract. One option is a review for USMLE Step 1. CR/NC only. Pre: BIOM 551. Spring only.

PHRM 600 Pharmacology: Actions and Uses of Drugs (9) Systematic consideration of history, chemistry, actions, dangers, fates, uses of major classes of drugs in medicine. Pre: consent.

PHRM 613 Seminar in Pharmacology (1) Reporting and discussion of current research in pharmacology.

PHRM 614 Seminar in Pharmacology (1) Continuation of 613.

PHRM 635 Experimental Chemotherapy (2) Use of anticancer, antiviral, and immunosuppressive drugs at clinical and investigative levels evaluated from the experimental bases of chemoprophylaxis and chemotherapy. Pre: consent. (Alt. years)

PHRM 637 Advanced Autonomic and Autacoid Pharmacology (2) Selected topics on autacoid agents and drugs affecting the autonomic nervous system. Repeatable. Pre: consent. (Alt. years)

PHRM 639 Advanced Cardiovascular Pharmacology (2) Selected topics on drug effects on cardiac and vascular smooth muscle. Repeatable. Pre: consent. (Alt. years)

PHRM 640 Neuropharmacology (2) Physiology and pharmacology of peripheral and central nervous systems with particular emphasis on chemistry of synapses and on modes of synaptic transmission. Pre: consent. (Alt. years)

PHRM 641 Pharmacological Techniques (V) Program in which new students rotate through labs of faculty members to become familiar with ongoing research projects and techniques. Pre: consent.

PHRM 699 Directed Research (V)

PHRM 700 Thesis Research (V)

PHRM 800 Dissertation Research (V)

Philosophy (PHIL)

College of Arts and Humanities

PHIL 100 Introduction to Philosophy: Survey of Problems (3) Great philosophical issues, theories, and controversies. **DH**

PHIL 101 Introduction to Philosophy: Morals and Society (3) Social and individual values, obligations, rights, responsibilities. **DH**

PHIL 102 Asian Traditions (3) Universal themes and problems from Asian perspective. **DH**

PHIL 103 Introduction to Philosophy: Environmental Philosophy (3) A critical examination of environmental issues; analyzing the nature of the human being, the nature of nature, and the relationship of the human being to nature. **DH**

PHIL 110 Introduction to Logic (3) Principles of modern deductive logic. **FS**

PHIL 211 Ancient Philosophy (3) An introduction to the history of philosophy based on translations of texts originally written in classical Greek or Latin. **DH**

PHIL 212 From Ancient to Modern Philosophy (3) Introduction to the history of philosophy based on translations of texts originally written in post-classical Latin or Arabic. **DH**

PHIL 213 Modern Philosophy (3) Introduction to the history of philosophy based on texts or translations of “modern” works, that is works originally written in a modern European language. **DH**

PHIL 300 Business Ethics (3) Case studies and critical analyses of ethical issues in business. Readings from business, philosophy, law, etc. Pre: one of 100, 101, 102, 103, 211, 212, 213, MGT 301; or consent. **DH**

PHIL 301 Ethical Theory (3) Problems and methods in theory of moral conduct and decision. Pre: 101. **DH**

PHIL 302 Political Philosophy (3) Problems and methods in modern theories of the state. Comparison of anarchism, liberalism, and Marxism. Pre: 101. **DH**

PHIL 303 Social Philosophy (3) Problems and methods in examination of contemporary American life, values, and institutions in light of traditional philosophical problems of freedom, justice, authority, equality. Pre: 101 or consent. **DH**

PHIL 304 Metaphysics (3) Problems and methods arising from attempts to understand rationally what is, what appears to be, and what is not. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 305 Philosophy of Religion (3) Problems and methods. Nature of religious experience, alternatives to theism, existence of god, relation between faith and reason, nature of religious language. Pre: one 100- or 200-level PHIL or REL course. **DH**

PHIL 306 Philosophy of Art (3) Problems and methods in aesthetic valuation and in appreciation, creation, and criticism of artworks. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 307 Theory of Knowledge (3) Problems and methods in epistemology. Nature of knowledge, its varieties, possibilities, and limitations. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 308 Philosophy of Science (3) Problems and methods. Domains of inquiry, methods of validation, and attendant moral concerns. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 310 Ethics in Health Care (3) Ethical issues in application and organization of biomedical resources; professional responsibility, confidentiality, euthanasia, experimentation on human subjects, etc. Pre: 101 or consent. **DH**

PHIL 315 Modeling Natural Systems (3) Introduction to philosophy of science for those with some background in the natural sciences. Special emphasis on issues arising from the construction and use of models. Pre: consent. (Cross-listed as OCN 315)

PHIL 316 Science, Technology, and Society (3) Investigation of some of the complex interconnections between science, technology, and society. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 317 Critical Thinking: Pre-Law (3) Introduction to concepts and techniques for evaluating arguments with special emphasis on their application both to questions of law and to issues in jurisprudence. Pre: one of 100, 101, 102, 103, 110, 211, 212, or 213; or consent. **DH**

PHIL 318 Philosophy of Law (3) Historical and contemporary issues in law and legal theory. Law and morality; legal responsibility, justice, rights, punishment, judicial reasoning. Pre: 101 or consent. **DH**

PHIL 320 American Philosophy (3) Survey of major philosophers and schools in development of American thought up to modern times. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 330 Islamic Philosophy (3) Survey of major philosophers and schools: Kindi, Razi, Avicenna, Ghazali, Ibn Tufayl, Averroes, etc. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 340 Africana Philosophy (3) Survey of important thinkers and schools in Africana thought. Repeatable one time. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent.

PHIL 350 Indian Philosophy (3) Survey of major orthodox and heterodox systems: Vedas, Upanishads, Bhagavadgita, Vedanta, Jainism, Buddhism. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 360 Buddhist Philosophy (3) Survey of central thinkers and schools. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 370 Chinese Philosophy (3) Survey of important schools and thinkers in classical Chinese traditions: Confucianism, Taoism, Mohism, Legalism. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 380 Japanese Philosophy (3) Survey of central thinkers and schools from ancient to modern. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 399 Directed Research (V) Repeatable up to a maximum of 6 credits. Pre: consent.

PHIL 400 Introduction to Analytical Philosophy (3) Major themes in logical atomism, logical positivism, and linguistic analysis. Readings from G. E. Moore to present. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 401 Introduction to Existential Philosophy (3) Major themes from contemporary investigations into meaning of human existence. Readings from Kierkegaard to Sartre. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 402 Introduction to Phenomenology (3) Methods of analyzing the structures of experience, as developed by Husserl, Heidegger, Merleau-Ponty, Sartre, etc. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 406 Introduction to Zen (Ch’an) Buddhist Philosophy (3) Development and philosophical significance of basic precepts, explored through translations of Chinese and Japanese sources. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 414 (Alpha) Western Movements and Periods (3) (B) Greek; (C) late antiquity; (D) medieval; (E) continental rationalism; (F) British

empiricism; (G) German idealism; (H) 19th century; (I) 20th century. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 415 Philosophy of History (3) Introduction to theories of history. Continuity and change; cyclical and linear views, “meaning” in history; social, political, and religious perspectives. Pre: one of 100, 101, 102, 103, 211, 212, 213, HIST 151, HIST 152; or consent. **DH**

PHIL 417 Philosophy in Literature (3) Philosophical themes in the literary mode in world literature. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 418 Feminist Issues in Philosophy (3) Examination of a number of basic feminist issues in philosophy within the areas of ethics, philosophy of religion, and epistemology/methodology. Pre: one of 100, 101, 102, 103, 211, 212, 213, any WS course; or consent. (Cross-listed as WS 419) **DH**

PHIL 422 Philosophical Psychology (3) Classical and modern theories of mind and action; various analyses of motivation, intention, rationality, self-deception. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 436 Philosophy of Language (3) Contemporary theories in semantics and syntax; problems of meaning, reference, speech acts, etc. Pre: one of 100, 101, 102, 103, 110, 211, 212, 213; or consent. **DH**

PHIL 438 Gender and Environmental Philosophy (3) Interdisciplinary approach to women’s perspectives and roles on ecological and environmental issues; critical analysis of eco-feminism as a social and political movement; cross-cultural comparison of women’s roles in human ecology. Pre: any one of ANTH 150, BIOL 310, PHIL 100, PHIL 101, PHIL 102, PHIL 103, PHIL 316, WS 151, WS 362, or instructor’s consent. (Cross-listed as WS 438) **DH**

PHIL 445 Symbolic Logic (3) Intermediate-level course on techniques; propositional calculus and first-order predicate calculus. Pre: 110 or any MATH course or consent. **DH**

PHIL 448 (Alpha) Individual Philosophers (3) Examination of work of a major Eastern or Western philosopher. Repeatable three times with consent. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 449 Philosophical Topics (3) Concentration on a topic of current philosophic concern. Repeatable once with consent. Pre: one of 100, 101, 102, 103, 211, 212, 213; or consent. **DH**

PHIL 491 Teaching Philosophy (6) For philosophy majors who lead, under supervision, a freshman seminar section of philosophy. Pre: consent.

PHIL 492 Philosophy with Children (3) Enhancing critical thinking and oral communications skills through consideration of how to teach philosophy to elementary school children (grades K–6). Pre: 100, 101, 102, 103, 211, 212, 213; or consent.

PHIL 500 Master’s Plan B/C Studies (1) Enrollment for degree completion. Pre: master’s Plan B or C candidate and consent.

PHIL 501 Metaphilosophy: Philosophy in Schools (V) Theory and practice, content and methodology of doing philosophy with children, grades K-8. Repeatable one time.

- PHIL 609 Advanced Symbolic Logic (3)** Basic course in theory of logistic systems covering the sentential and first-order functional calculus. Pre: 445, graduate standing, or consent.
- PHIL 610 Studies in Social Philosophy (3)** Key issues in social philosophy, including the nature of community, the family, and other social institutions. Repeatable once with consent. Pre: graduate standing or consent; 303 recommended.
- PHIL 611 Studies in Ethics (3)** Key issues in ethical and metaethical theory. Repeatable once with consent. Pre: graduate standing or consent. Recommended: 301.
- PHIL 612 Studies in Political Philosophy (3)** Key issues in political philosophy including the nature and justification of political authority. Repeatable once with consent. Pre: graduate standing or consent. Recommended: 302.
- PHIL 613 Studies in Philosophy of Law (3)** Key issues in legal theory and reasoning. Repeatable once with consent. Pre: graduate standing or consent. Recommended: 318.
- PHIL 614 Studies in Metaphysics (3)** Key issues in ontological and cosmological theory. Problems of materialism, idealism, phenomenalism, etc. Repeatable once with consent. Pre: graduate standing or consent. Recommended: 304.
- PHIL 615 Studies in Philosophy of Religion (3)** Key issues in theory of religious experience, language, reasoning. Pre: graduate standing or consent. Recommended: 305.
- PHIL 616 Studies in Aesthetics (3)** Key issues in contemporary aesthetics, against background of traditional Western and Eastern theories. Repeatable once with consent. Pre: graduate standing or consent. Recommended: 306.
- PHIL 617 Studies in Epistemology (3)** Key issues in theory of knowledge. Nature of truth. *A priori* knowledge, problems of induction, perception, and knowledge of material world. Repeatable once with consent. Pre: graduate standing or consent. Recommended: 307.
- PHIL 619 Studies in Philosophy of Language (3)** Key issues in theory of meaning, truth, reference, predication, etc. Pre: graduate standing or consent. Recommended: 445.
- PHIL 620 Studies in Philosophy of Mathematics (3)** Key issues in foundations of mathematics: mathematical truths, axioms, proofs, etc. Pre: graduate standing or consent. Recommended: 400 or 445.
- PHIL 621 Studies in Philosophy of Science (3)** Key issues in the theory of scientific truth and knowledge. Repeatable once with consent. Pre: one of 308, 316, graduate standing; or consent.
- PHIL 622 Studies in Hermeneutics (3)** Important debates concerning the methodology of textual interpretation. Pre: graduate standing or consent.
- PHIL 625 Philosophical Movements and Schools (3)** Study of a collection of texts by different authors who constitute a recognized movement or philosophical school. Repeatable three times with consent. Pre: graduate standing or consent.
- PHIL 630 History and Theory of Science (3)** An exploration of problems at the intersection of historical studies of science as a process and philosophical analysis of basic concepts of the sciences. Pre: one of 308, 316, graduate standing; or consent.
- PHIL 665 Zen (Ch'an) Buddhist Philosophy (3)** Analysis of epistemological, metaphysical, and ethical theories. Pre: graduate standing or consent. Recommended: 406.
- PHIL 670 Confucianism (3)** Ethical, social, institutional problems in classical theory. Repeatable once with consent. Pre: graduate standing or consent. Recommended: 370.
- PHIL 671 Neo-Confucianism (3)** Logic, epistemology, metaphysics, and ethics of major Chinese Neo-Confucian philosophers, 11th–16th century. Repeatable once with consent. Pre: graduate standing or consent. Recommended: 370.
- PHIL 672 Taoism (3)** Critical examination and evaluation of major philosophical ideas in Lao Tzu, Chuang Tzu, and the Neo-Taoists. Repeatable once with consent. Pre: graduate standing or consent. Recommended: 370.
- PHIL 699 Directed Research (V)** Repeatable. Pre: graduate standing and consent.
- PHIL 700 Thesis Research (V)** Repeatable up to 6 credits. Pre: Master's Plan A candidate and consent.
- PHIL 711 Seminar on Nagarjuna (3)** Close examination of the most significant of Nagarjuna's philosophical writings. Pre: graduate standing or consent.
- PHIL 712 Seminar on Aristotle (3)** Close examination of the most significant of Aristotle's philosophic writings. Pre: graduate standing or consent.
- PHIL 713 Seminar on Kant (3)** Close examination of the most significant of Kant's philosophical writings. Repeatable once with consent. Pre: graduate standing or consent.
- PHIL 714 Seminar on Plato (3)** Close examination of the most significant of Plato's philosophical writings. Pre: graduate standing or consent.
- PHIL 715 Seminar on Nietzsche (3)** Close examination of the most significant of Nietzsche's philosophical writings. Pre: graduate standing or consent.
- PHIL 716 Seminar on Spinoza (3)** Close examination of the most significant of Spinoza's philosophical writings. Pre: graduate standing or consent.
- PHIL 717 Seminar on Whitehead (3)** Whitehead's revolutionary process philosophy and process theology through his major texts. Pre: graduate standing or consent.
- PHIL 720 Seminar on Individual Philosophers (3)** The most significant texts of an important philosopher. A different philosopher will be chosen each semester. Consult department for further information. Repeatable three times with consent. Pre: graduate standing or consent.
- PHIL 725 Seminar in Philosophical Topics (3)** Close study of a topic of important philosophical controversy such as "killing and dying" or "deconstruction." Repeatable two times with consent. Pre: graduate standing or consent.
- PHIL 735 Seminar on Philosophical Periods (3)** Close study of a period of significant and connected philosophical activity within a philosophic tradition. Repeatable two times with consent. Pre: graduate standing or consent.
- PHIL 740 Seminar in Philosophical Texts (3)** Reading, analysis, and critical discussion of one (or of several closely related) philosophical text in its original language (sometimes in conjunction with established translation). Repeatable two times with consent. Pre: graduate standing or consent.
- PHIL 745 Seminar in African Philosophy (3)** Major philosophical problems in Africana thought, including problems in African American philosophy, African philosophy, and post-colonial African philosophy. Pre: graduate standing or consent.
- PHIL 750 Seminar in Indian Philosophy (3)** Major philosophical problems in the development of Indian thought during its formative period. Repeatable once with consent. Pre: graduate standing or consent. Recommended: 350.
- PHIL 760 Seminar in Buddhist Philosophy (3)** Major philosophical problems in the development of Buddhist thought during its formative period. Repeatable once with consent. Pre: graduate standing or consent. Recommended: 360.
- PHIL 770 Seminar in Chinese Philosophy (3)** Fundamental issues, problems, movements, and schools of Chinese philosophy, such as classical Confucianism, Daoism, Legalism, Chinese logic, and Neo-Confucianism. Repeatable once with consent. Pre: graduate standing or consent. Recommended: 370.
- PHIL 771 Seminar in I-Ching (3)** Metaphysical, epistemological, ethical, and axiological views of I-Ching and its claim as foundational work for classical Confucianism, Taoism, and Neo-Confucianism. Pre: graduate standing or consent.
- PHIL 780 Seminar in Japanese Philosophy (3)** Various periods, movements, and thinkers in Japanese philosophy. Topic changes each semester. Consult department for more information. Repeatable once with consent. Pre: graduate standing or consent. Recommended: 380.
- PHIL 790 Seminar in Comparative Philosophy (3)** Comparison of widely differing philosophical traditions. Specific topic changes each semester. Consult department for more information. Repeatable two times with consent. Pre: graduate standing or consent.
- PHIL 792 Seminar in Comparative Philosophy: On the Self (3)** Philosophical theories of the self with reference to psychological and social theories and/or non-Western tradition of thought. Pre: graduate standing or consent.
- PHIL 800 Dissertation Research (V)**

PHRM

See *Pharmacology*

Physics (PHYS)*College of Natural Sciences*

Credit toward the degree given for either 151/151L or 170/170L; and similarly for either 152/152L or 272/272L. However, the courses may come from different sequences.

PHYS 100 Survey of Physics (3) Mechanics, electricity and magnetism, waves, optics, atomic and nuclear physics. Only algebra and geometry used. For non-science majors. **DP**

PHYS 100L Survey of Physics Lab (1) (1 3-hr lab) Hooke's law, falling bodies, collisions, Boyle's law, electric and magnetic fields, induction, waves, optics. Pre: 100 (or concurrent). **DY**

PHYS 122 Introduction to Science: Physical (3) Characteristics of science, historical development of scientific concepts, and interactions with society illustrated by topics from physical sciences. **DP**

PHYS 122L Introduction to Physical Lab (1) (1 3-hr Lab) Lab experiments illustrating topics and methods in the physical sciences. Pre: 122 (or concurrent). **DY**

PHYS 151 College Physics (3) Non-calculus physics. Mechanics, wave motion, heat. Pre: MATH 140 or knowledge of trigonometry. **DP**

PHYS 151L College Physics Lab (1) (1 3-hr Lab) Introduction to experimental analysis, physical observation and measurement, experiments on conservation laws, fluid friction, oscillations. Pre: 151 (or concurrent). **DY**

PHYS 152 College Physics II (3) Electricity, magnetism, optics, modern physics. Pre: 151. **DP**

PHYS 152L College Physics Lab II (1) (1 3-hr Lab) Optics, electric and magnetic fields, DC and AC circuitry. Pre: 151L or 170L, and 152 (or concurrent). **DY**

PHYS 170 General Physics I (4) Mechanics of particles and rigid bodies, wave motion, thermodynamics and kinetic theory. Pre: MATH 242 or MATH 252 (or concurrent). MATH 216 may be substituted with consent. **DP**

PHYS 170L General Physics I Lab (1) (1 3-hr Lab) Similar to 151L but at 170 level. Pre: 170 (or concurrent). **DY**

PHYS 272 General Physics II (3) Electricity and magnetism. Pre: 151/151L or 170/170L and MATH 242 or MATH 252. MATH 216 may be substituted with consent. **DP**

PHYS 272A General Physics II (3) Electricity and magnetism. A-F only. Pre: 151/151L or 170/170L and MATH 242 or MATH 252. MATH 216 may be substituted with consent. Co-requisite: 272L.

PHYS 272L General Physics II Lab (1) (1 3-hr Lab) Similar to 152L but at 272 level. Pre: 272 (or concurrent), and 151L or 170L. **DY**

PHYS 274 General Physics III (3) Relativity, introduction to quantum mechanics, atomic and nuclear physics, geometrical and physical optics. Pre: 272/272L or 152/152L, and MATH 243 or MATH 253 (or concurrent); or consent. **DP**

PHYS 274L General Physics III Lab (1) (1 3-hr Lab) Experiments illustrating concepts of 274,

including speed of light, photoelectric effect, neutron activation of silver, Michelson interferometer. Pre: 152L or 272L, and 274 (or concurrent). **DY**

PHYS 305 Computational Physics (3) Computer basics, numerical methods, and the solution of physics problems using computers. Pre: 152 or 272, and MATH 244 or MATH 253 (or concurrent); or consent. **DP**

PHYS 310 Theoretical Mechanics I (3) Particle dynamics, rigid-body dynamics, planetary motion. Pre: 151 or 170, and MATH 244 or MATH 253 (or concurrent); or consent. **DP**

PHYS 311 Theoretical Mechanics II (3) Rigid-body mechanics continued, fluid dynamics, wave motion, theory of relativity. Pre: 310. **DP**

PHYS 350 Electricity and Magnetism (3) Electrostatic and magnetostatic fields in vacuum and in matter; induction; Maxwell's equations; AC circuits. Pre: 152 or 272; and MATH 244 or MATH 253 (or concurrent); or consent. **DP**

PHYS 399 Individual Work in Advanced Physics (V) Limited to students with a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in physics.

PHYS 400 Applications of Mathematics in Physical Sciences (3) Mathematical methods, techniques; applications to problems in physical sciences. Pre: MATH 244 or MATH 253 and MATH 311, or consent. Recommended: upper division mathematics course. **DP**

PHYS 430 Thermodynamics and Statistical Mechanics (3) Laws of thermodynamics, heat transfer, kinetic theory, statistical mechanics. Pre: 274 and MATH 244. **DP**

PHYS 440 Solid-State Physics I (3) Crystal structure: lattice vibrations; phonon effects; electronic processes in solids (metals, semiconductors, and superconductors). Pre: 274 and 350 (or concurrent). **DP**

PHYS 441 Solid-State Physics II (3) Energy-band calculations, optical processes, Josephson effect, theories of dielectrics and magnetism, physics of color centers, order-disorder transformation. Pre: 440. **DP**

PHYS 450 Electromagnetic Waves (3) Field equations, plane, spherical and guided waves. Pre: 350. **DP**

PHYS 460 Physical Optics (3) Polarization, coherence, Fraunhofer and Fresnel diffraction, optics of solids, laser optics. Pre: 274. **DP**

PHYS 475 Electronics for Physicists (3) AC/DC circuits, transistors, analog/digital integrated circuits, simple computer interfacing. Interfacing electronics to laboratory experiments is stressed. Pre: junior standing, and 152L or 272L. **DP**

PHYS 480 Quantum Mechanics I (3) Wave mechanics, Schrodinger equation, angular momenta, potential problems. Pre: 274, 310, 350, and MATH 244 or MATH 253, and MATH 311; or consent. Co-requisite: 400. **DP**

PHYS 480L Advanced Physics Lab (2) Advanced experiments in gamma spectroscopy, x-rays, light scattering, Mössbauer effect, spin resonance, Zeeman effect, solid-state devices. Pre: 274L and 480 (or concurrent), or consent. **DY**

PHYS 481 Quantum Mechanics II (3) Continuation of 480; atomic physics, scattering, perturbation theory. Pre: 480. **DP**

PHYS 481L Advanced Physics Lab (2) Advanced experiments in gamma spectroscopy, x-rays, light scattering, Mössbauer effect, spin resonance, Zeeman effect, solid-state devices. Pre: 274L and 480 (or concurrent), or consent. **DY**

PHYS 490 Modern Physics (3) Introduction to nuclear and elementary-particle physics. Pre: 480 (or concurrent). **DP**

PHYS 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

PHYS 505 Physics Workshop for Teachers (V) Major concepts of physics taught by means of hands-on conceptual activities for elementary and secondary teachers. Restricted to in-service teachers, or consent. Repeatable one time. (Cross-listed as NSCI 505)

PHYS 600 Methods of Theoretical Physics (3) Mathematical tools of theoretical physics. Continuation of 400 but with an independent selection of topics. Pre: 400 or consent. (Alt. years)

PHYS 610 Analytical Mechanics I (3) Dynamics of particles, particle systems; rigid bodies; Lagrangian and Hamiltonian equations; special relativity. Pre: 400 (or concurrent), 600 (or concurrent); or MATH 402. (Alt. years)

PHYS 650 Electrodynamics I (3) Potential theory, Maxwell's equations, electromagnetic waves, boundary value problems. Pre: 450; and 400 (or concurrent), 600 (or concurrent), or MATH 402. (Alt. years)

PHYS 651 Electrodynamics II (3) Relativistic electrodynamics, radiation by charged particles. Pre: 650. (Alt. years)

PHYS 660 Advanced Optics (3) Wave motion, interference, diffraction, fundamentals of spectroscopy, optics from the point of view of electromagnetic theory, lasers. Pre: 460.

PHYS 670 Quantum Mechanics (3) Physical basis and formulation of quantum theory. Exact solutions of Schrodinger equation and their applications. Approximation methods. Applications to atomic, nuclear, and molecular physics. Pre: 481 and MATH 402, or equivalent.

PHYS 671 Quantum Mechanics (3) Physical basis and formulation of quantum theory. Exact solutions of Schrodinger equation and their applications. Approximation methods. Applications to atomic, nuclear, and molecular physics. Pre: 670.

PHYS 690 Seminar (V) Discussions and reports on physical theory and recent developments. CR/NC only. Pre: graduate standing or consent.

PHYS 694 Condensed Matter Seminar (1) Results and discussions of current topics in condensed matter physics. Repeatable with consent.

PHYS 695 Seminar on Atomic and Solid-State Physics (1) Reports and discussion on recent developments in atomic, surface, and solid-state physics. Repeatable with consent.

PHYS 696 Seminar on Elementary Particle Physics (1) Reports and discussion on recent developments in elementary particle physics. Repeatable four times. Pre: consent.

PHYS 699 Directed Research (V) Pre: consent.

PHYS 700 Thesis Research (V) Research for master's thesis.

PHYS 711 Topics in Particles and Fields (3) Topics in current theoretical research; e.g., unified field theories, general relativity, gravitation, and cosmology. Repeatable. Pre: consent.

PHYS 712 Special Topics: Experimental Physics (3) Topics in current experimental research in low-energy physics, high-energy physics, cross-disciplinary physics. Repeatable in different topics. Pre: consent.

PHYS 713 Advanced Topics in Condensed Matter Theory (3) Topics in condensed matter theory, e.g., group theory, many-body techniques, renormalization group, density functional theory, other topics of current interest. Repeatable. Pre: 670 and consent.

PHYS 730 Statistical Physics I (3) Equilibrium thermodynamics; Gibbs ensembles; quantum statistics; ideal and non-ideal Fermi; Bose and Boltzmann gases; phase transitions; and critical phenomena. Pre: 670. (Alt. years)

PHYS 731 Statistical Physics II (3) Nonequilibrium thermodynamics, transport theory, fluctuation dissipation theorem, many-body Green's function methods, normal Fermi and Bose liquids, superfluidity, superconductivity. Pre: 670 and 730. (Alt. years)

PHYS 772 Quantum Field Theory I (3) Relativistic wave equations and their solutions. Dirac's theory of the electron, propagator techniques. Applications to quantum electrodynamics. Pre: 671. (Alt. years)

PHYS 773 Quantum Field Theory II (3) Local gauge invariance, Yang-Mills theory: quantum chromodynamics, spontaneous symmetry breaking and Goldstone bosons; the standard electroweak theory; grand unified theories. Pre: 772. (Alt. years)

PHYS 777 Nuclear and Particle Physics (3) Nuclear physics; electrodynamics; hadron structure and partons. Techniques of particle physics. Pre: 481 and 671. (Alt. years)

PHYS 778 Nuclear and Particle Physics II (3) Quantum chromodynamics; electroweak interactions; the standard model. Techniques of particle physics. Pre: 777 and 772, or consent. (Alt. years)

PHYS 785 Solid-State Theory (3) Crystal symmetry, electronic excitations in solids, transport theory, optical properties, cohesive energy, lattice vibrations, electron-phonon interaction, electron-electron interaction, magnetism, superconductivity. Pre: 670. (Alt. years)

PHYS 786 Solid-State Theory (3) Crystal symmetry, electronic excitations in solids, transport theory, optical properties, cohesive energy, lattice vibrations, electron-phonon interaction, magnetism, superconductivity. Pre: 785. (Alt. years)

PHYS 800 Dissertation Research (V) Research for doctoral dissertation.

Physiology (PHYL)

School of Medicine

PHYL 103 Human Physiology and Anatomy (5) Introduction to human physiology and anatomy designed to serve the needs of dental hygiene students and others interested in pursuing health-related careers. **DB**

PHYL 103L Physiology and Anatomy Lab (1) Laboratory course to complement 103. Co-requisite: 103. **DY**

PHYL 141 Human Anatomy and Physiology (3) Anatomy, histology, physiology, biochemistry, genetics of human organ systems presented in integrated anatomy-physiology format. Priority to students in nursing. Pre: high school chemistry. **DB**

PHYL 141L Human Anatomy and Physiology Lab (1) Anatomy, histology, physiology, biochemistry, genetics of human organ systems presented in integrated anatomy-physiology format. Priority to students in nursing. Pre: 141 or consent. **DY**

PHYL 142 Human Anatomy and Physiology (3) Continuation of 141. Pre: 141. **DB**

PHYL 142L Human Anatomy and Physiology Lab (1) Anatomy, histology, physiology, biochemistry, genetics of human organ systems presented in integrated anatomy-physiology format. Priority to students in nursing. Pre: 142 or consent. **DY**

PHYL 301 Human Anatomy and Physiology (4) Integrated presentation of human anatomy and physiology. An optional laboratory course (PHYL 301L) is available separately. Pre: CHEM 151 and one of 103, BIOL 171, or ZOO 101. **DB**

PHYL 301L Human Anatomy and Physiology Lab (1) Laboratory study of human anatomy and physiology by means of models, histology slides, experiments, and demonstrations. Co-requisite: 301. **DY**

PHYL 302 Human Anatomy and Physiology (4) Continuation of 301. Pre: 301, ANAT 301, or consent. **DB**

PHYL 302L Human Anatomy and Physiology Lab (1) Continuation of 301L. Pre: 301, 301L, or consent. Co-requisite: 302. **DY**

PHYL 401 Human Physiology: Organ Systems (4) Basic function of the major organ systems in man. Covers cardiovascular, respiratory, renal, acid-base, and gastrointestinal physiology. Pre: 301 and 302 or equivalent with consent. **DB**

PHYL 402 Human Physiology: Integrative Systems (4) Senior-level course in integrative systems (central nervous system and endocrinology). Complements 401. Pre: 401 and either BIOC 341 or CHEM 152, or consent. **DB**

PHYL 403 Environmental Physiology (3) Animal (including human) responses to environmental challenges such as heat, cold, altitude, diving, physical work, etc. Human adaptation in a comparative context. Pre: 301 and 302, or 401, or ZOO 430; or consent. **DB**

PHYL 403L Environmental Physiology Lab (1) Laboratory experiences in measuring human physiological responses to environmental stress. Complements 403. **DY**

PHYL 405 Applied Muscle Physiology (3) Science and technology of strength training. Anatomy, kinesiology, physics, and physiology applied to development of muscular strength and mass. Pre: 301 and 302, or KLS 253 and KLS 254; or consent. **DB**

PHYL 450 Physiological Anthropology (3) Study of ecological factors in human variation. Human population and its biological and cultural responses to the environment. Pre: ANTH 215 or consent. (Cross-listed as ANTH 450) **DB**

PHYL 451 Human Biology (4) Introduces upper division students in the social or non-biological sciences to the basic concepts of physiology, anatomy, and biochemistry. Pre: upper division standing. **DB**

PHYL 499 Directed Research (V) Pre: junior or senior undergraduate status.

PHYL 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

PHYL 512 (Alpha) Unit II Electives in Physiology (1) (2 Lec, 1 1-hr Discussion) Concurrent electives in physiology. (B) case specific patho-physiology; (C) cardiovascular physiology. CR/NC only. Pre: BIOM 551. Co-requisite: BIOM 552. Spring only.

PHYL 514 Physiology of the Nervous System (1) (2 Lec, 1 1-hr Discussion) Restricted to majors. Repeatable. Co-requisite: BIOM 554. Fall only.

PHYL 545 Topics in Medical and Applied Physiology (V) Fourth-year elective for medical students; in-depth study of selected topics in physiological basis of medical practice.

PHYL 601 Physiology of Exercise (4) Physiological bases of modern physical training methods and sports science. Lectures, laboratory, and field experience. Pre: 301 and 302, or 401, or KLS 253 and KLS 254. (Cross-listed as KLS 601)

PHYL 602 Human Endocrinology (3) Comprehensive survey of physiology of human endocrine system. Pre: 401 or 603, or consent.

PHYL 603 Medical Physiology (6) Basic human physiology for pre-medical, medical, and graduate students. Covers membrane, nerve, muscle, cardiovascular, respiratory, renal, gastro-intestinal, energy-balance, thermo-regulatory, central nervous system, and endocrine physiology. Pre: consent.

PHYL 604 Clinical Exercise Testing (4) Instruction and fieldwork in conducting exercise tests in symptomatic persons to equip students to pass ACSM exercise test technician certification. Pre: 301 and 302, or KLS 253 and KLS 254; and consent.

PHYL 606 Human Neurophysiology (2) Physiology of human nervous system with emphasis on special senses and control and coordination of movement. Repeatable. Pre: 302 or 603; or consent.

PHYL 607 Membrane Physiology (3) Properties and functions of cell membranes and their relation to membrane structure at molecular level. Biophysical techniques used to study cell membranes. Pre: 603 or 606, or consent.

PHYL 608 Water and Electrolyte Balance (3) Effects of various environments (e.g., high altitude, deep sea, cold, heat, and exercise) on water and electrolyte endocrinology. Pre: 603 or consent.

PHYL 609 Cardiovascular Physiology (3)

Selected topics in cardiovascular physiology. Emphasis on dynamic aspects of the heart and circulation. Pre: 603 or consent.

PHYL 610 Experimental Physiology (2)

Biophysical approach to selected techniques of quantitative experimental physiology. Pre: 603 or consent.

PHYL 611 Advanced Pulmonary Physiology (3)

Topics in pulmonary physiology including classical physiology (e.g., ventilation, perfusion) and neoclassical physiology (cell biology and toxicity). Term paper required. Pre: 603 and consent.

PHYL 612 Experimental Endocrinology (2)

Principles and experimental techniques of endocrinology. Pre: 602 or consent.

PHYL 613 Seminar in Physiology (1) Discussion of current research in physiology.

PHYL 614 Seminar in Physiology (1) Continuation of 613.

PHYL 616 Physiology of Thermoregulation (3)

Physiological and behavioral mechanisms by which animals and man regulate body temperature, heat production, and heat loss to environment. Basic principles of heat transfer. Pre: 603 or consent.

PHYL 642 Cellular Neurophysiology (3)

Biophysical and membrane mechanisms of conduction, synaptic transmission, other electrical responses to nerve cells. Pre: one upper division biological science course, 5 credit hours of chemistry, and MATH 241; or consent. (Cross-listed as ZOOL 642)

PHYL 699 Directed Research (V) Research experience in physiology.

PHYL 700 Thesis Research (V)

PHYL 701 Undersea and Hyperbaric Physiology (3) Physiological responses of man and diving mammals to undersea and hyperbaric environments. Physics and chemistry of pressure and the ocean. Decompression, scuba diving, hyperbaric medicine. Pre: 603 or consent.

PHYL 710 Special Topics: Water and Electrolytes (1)

PHYL 711 Special Topics: Environmental Physiology (V)

PHYL 712 Topics: Nerve, Muscle, Physiology (V) Advanced treatment of selected topics at the frontiers of physiology. Repeatable. Pre: one 600-level course covering the area in question and consent. (Cross-listed as ZOOL 712)

PHYL 800 Dissertation Research (V)

PLAN

See Urban and Regional Planning

Plant and Environmental Protection Sciences (PEPS)

College of Tropical Agriculture and Human Resources

PEPS 210 Environmental Resources: Issues and Options (3) Analysis of our environment with emphasis on understanding relationships and interactions of physical, biological, technological, and political components using scientific methods

of inquiry. Food supply and safety, water quality, pollution control, biodiversity, environmental policy. Open to nonmajors. (Cross-listed as NREM 210) **DB**

PEPS 250 The World of Insects (3) Biology/ecology of insects with emphasis on relationships to plants, animals, and especially people in Hawai'i and the tropics. Open to nonmajors. A-F only. Spring only. **DB**

PEPS 350 Invasive Pest Species (3) Ecological, economic and sociological impacts of invasive pest species on tropical ecosystems; characteristics of invasive species and nature of vulnerable habitats; management of invasive species or eradication options; impacts on evolution, biological diversity and ecological stability. Open to nonmajors. Pre: 210, 250, or consent. Fall only. **DB**

PEPS 363 General Entomology (4) (3 Lec, 1 3-hr Lab) Biology, ecology, habits, structure of Hawai'i's insects/arthropods. Classification to family level. A-F only. Pre: BOT 101, ZOOL 101, or consent. **DB**

PEPS 402 Principles of Biochemistry (4) Molecular basis of living processes in bacteria, plants, and animals; emphasis on metabolism of carbohydrates, lipids, proteins, and nucleic acids. Pre: BIOL 275, BIOL 275L, CHEM 272, and CHEM 273; or consent. (Cross-listed as BIOL 402 and MBBE 402) **DB**

PEPS 402L Principles of Biochemistry Lab (2) (1 Lec, 1 3-hr Lab) Principle techniques of biochemical laboratory. A-F only. Pre: 402 (or concurrent), BIOL 402 (or concurrent), MBBE 402 (or concurrent). (Cross-listed as MBBE 402L) **DB**

PEPS 403 Molecular Biosensors (3) (Lec-Lab) Molecular methods for detection of pathogenic bacteria and potentially hazardous chemicals in air, water, soil and plant materials. Impacts of invasive microbial species on human health and welfare. Repeatable one time. A-F only. Pre: MICR 351 or consent. Recommended: 350. Fall only. (Cross-listed as MBBE 403)

PEPS 405 Plant Pathogens and Diseases (4) (3 Lec, 1 3-hr Lab) Classification, morphology, ecology, and biology of bacteria, fungi, nematodes, and viruses that attack economic crops. Etiology and control of plant diseases. Pre: 210 or BOT 101 or MICR 130; or consent. Fall only. **DB**

PEPS 412 Environmental Biochemistry (3) Biochemical and chemical principles of occurrence, distribution, biotic and abiotic conversion, fate, and impact of synthetic and natural molecules in the environment. Important pollutants will be used as case studies to illustrate the principles. A-F only. Pre: CHEM 152 or CHEM 272 and CHEM 162 or 171; or consent. Spring only. (Cross-listed as MBBE 412)

PEPS 421 Foundations of Pest Management (3 Lec, 1 3-hr Lab) Principles and concepts of insect pest management using biological, ecological, cultural, behavioral, legislative, microbial and chemical methods. A-F only. Pre: 363, CHEM 151, and CHEM 152; or consent. Spring only. **DB**

PEPS 422 Biocontrol of Invasive Species (3) Biological control of arthropods, weeds, plant pathogens, and vertebrates. Pre: 350, BIOL 171, or consent. Fall only. **DB**

PEPS 451 Environmental Law (3) Policies, regulations, acts, and laws that govern our interaction with the environment are explored. Analysis of the legal system's impact on the movement of invasive pests, control of agricultural and urban pests, agribusiness and property rights, endangered species protection and private land ownership rights, water resource management, and pollution effects. Pre: 350 or 363 or 405; or consent. Spring only.

PEPS 462 Systematic Entomology (3) (2 Lec, 1 3-hr Lab) Classification of insects, orders and families. Use of taxonomic tools. Rules of zoological nomenclature. A-F only. Pre: 363 or consent. **DB**

PEPS 463 Urban Pest Management (3) (2 Lec, 1 3-hr Lab) Lecture-lab course on biology, ecology, and management of pest organisms associated with people, structures and the urban environment. Emphasis on household/structural insect pests. Pre: 363 or consent. (Alt. years: spring) **DB**

PEPS 470 Forensic Entomology (3) (2 Lec, 1 3-hr Lab) Entomological techniques used to estimate postmortem intervals, movement of the body following death, trauma assessment, entomotoxicology, and documentation of abuse and neglect of the living. Report preparation and expert witness testimony. A-F only. Pre: 363 or consent. Recommended: 462. **DB**

PEPS 471 Insect/Plant Pathogen Genetics (3) (2 Lec, 1 3-hr Lab) Genetic analysis, manipulations, and control of insect and plant pathogens using biotechnological methods. Multidisciplinary approach to genetics and applications to pest control. Pre: BIOL 172, CHEM 162, CHEM 272, or MBBE 152; or consent.

PEPS 481 Weed Science (3) (2 Lec, 1 3-hr Lab) Weed classification, identification, adaptations for weediness; principles of weed control; properties, uses, and action of herbicides. Lab: pesticide application equipment and techniques, no-till farming, greenhouse and field experiments. Pre: CHEM 152 and TPSS 200. (Cross-listed as TPSS 481) **DB**

PEPS 491 Topics in Plant & Environmental Protection (V) Study and discussion of significant topics and problems. May be offered by visiting faculty, extension faculty or research faculty. Repeatable two times.

PEPS 495 PEPS Capstone (4) Integration and application of academic knowledge and critical skills emphasizing professional development, Directed Research, field studies, employment with cooperating businesses, government or schools are all options. A-F only. Pre: consent.

PEPS 499 Directed Research (V) Conduct research in environmental protection sciences. Limited to qualified undergraduate students. Repeatable one time. CR/NC only. Pre: consent.

PEPS 612 Plant Epidemiology and Disease Management (2) Principles of epidemiology as a basis for disease management. Pre: 405, NREM 310, or consent.

PEPS 612L Plant Epidemiology and Disease Management Lab (1) (1 3-hr Lab) Methodology and applications of epidemiology as a basis for disease management. Co-requisite: 612.

PEPS 616 Plant Nematology (3) (2 Lec, 1 3-hr Lab) Advanced classification and studies of nematodes associated with economic crops. Pre: 405.

PEPS 630 Plant Virology (4) (2 Lec, 2 3-hr Lab) Isolation, identification, and molecular biology of plant viruses; biological and physical properties. Pre: 402, 405, or consent.

PEPS 641 Insect Physiology (4) (3 Lec, 1 3-hr Lab) Study of the principal physiological and biochemical functions in insects, with emphasis on hormonal interactions. Pre: 402 and 402L, or CHEM 272, CHEM 272L, CHEM 273, and CHEM 273L; or consent.

PEPS 646 Plant-Bacterial Interactions (3) Diagnosis, molecular biology, genetics, and infection mechanisms of bacterial plant pathogens and symbionts. Pre: one of BIOC 481, MICR 351, MICR 475, or consent. (Cross-listed as MICR 646)

PEPS 646L Plant-Bacterial Interactions Lab (2) (2 3-hr Lab) Diagnostic methods, virulence evaluations, genetics, and molecular biology of plant bacteria. Pre: one of BIOC 481, MICR 351, MICR 475, or consent. Co-requisite: 646.

PEPS 660 Research Seminars (V) Research seminars in entomology, plant pathology, weed science and environmental protection. Repeatable. Pre: graduate standing or consent.

PEPS 661 Medical and Veterinary Entomology (3) (2 Lec, 1 3-hr Lab) Vector control; insects and other arthropods in relation to human and animal diseases. Pre: 363 or consent. (Cross-listed as PH 682)

PEPS 664 Immature Insects (3) (2 Lec, 1 3-hr Lab) Identification, structure, biology, literature, economic significance, emphasis on holometabola. Pre: 462 or consent.

PEPS 671 Insect Ecology (3) (2 Lec, 1 3-hr Lab) Insects as living units in an environment of physical and biotic factors. Pre: 374 and 462, or consent.

PEPS 672 Acarology (3) (2 Lec, 1 3-hr Lab) Taxonomy, biology, ecology of mites. Emphasis on medically and agriculturally important species. Pre: 462 or consent. (Cross-listed as ZOOL 672)

PEPS 675 Biological Control of Pests (3) (2 Lec, 1 3-hr Lab) Fundamental concepts. Critical study of major biological control projects. Pre: 421 and 462, or consent. Recommended: ZOOL 631 or 632.

PEPS 681 Pesticide Toxicology (3) Principles of toxicology; chemical and biochemical mechanisms of pesticide toxicity. A-F only. Pre: 402 or BIOC 441; CHEM 272; or consent. Fall only. (Cross-listed ENBI 681)

PEPS 686 Insect Transmission of Plant Pathogens (3) (2 Lec, 1 3-hr Lab) A multidisciplinary treatment of insect transmission of plant pathogens. Insect-plant and cellular insect-pathogen interactions and management strategies are emphasized.

PEPS 690 Foundations in PEPS (1) Seminars on foundations of current research in entomology, plant pathology and environmental protections. Repeatable. A-F only. Spring only.

PEPS 699 Directed Research (V) Directed research, critical reviews in various fields of entomology.

PEPS 700 Thesis Research (V)

PEPS 799 Proposal/Defense Seminar (1) Thesis/dissertation proposal and defense seminars. Repeatable one time. CR/NC only. Pre: Graduate standing or consent.

PEPS 800 Dissertation Research (V)

Plant Molecular Physiology (PMP)

See Molecular Biosciences and Bioengineering

Plant Pathology (PPTH)

See Plant and Environmental Protection Sciences

PMP

See Plant Molecular Physiology

Polish (POLH)

College of Languages, Linguistics and Literature

Students choosing Polish for the language requirement should realize it may not be offered if demand is limited.

POLH 101 Elementary Polish (4) Conversation, lab drill, grammar, reading. **HSL**

POLH 102 Elementary Polish (4) Continuation of 101. Pre: 101. **HSL**

POLH 201 Intermediate Polish (3) Reading, conversation and composition, laboratory drill. Pre: 102. **HSL**

POLH 202 Intermediate Polish (3) Continuation of 201. Pre: 201. **HSL**

Political Science (POLS)

College of Social Sciences

Either a 100 level or 200 level course is a prerequisite to all 300 level courses except with the consent of the instructor

POLS 110 Introduction to Political Science (3) Discussion of politics as an activity and of political problems, systems, ideologies, processes. **DS**

POLS 120 Introduction to World Politics (3) Power and contemporary world politics since 1945 with emphasis on the U.S. role. **DS**

POLS 130 Introduction to American Politics (3) American political processes and institutions, as seen through alternative interpretations. Emphasis on opportunities and limitations for practical political participation. **DS**

POLS 170 Politics and Public Policy (3) Perspectives on the role of government in guiding economies and civil societies with particular emphasis on the recent United States. **DS**

POLS 171 Introduction to Political Futures (3) Introduction to political future studies. Using science fact and fiction, shows how past and present images of the future influence people's actions. **DS**

POLS 190 Media and Politics (3) Influences and effects of media on politics. Setting public agendas, interpreting events, manipulating the political process, political learning through popular culture. **DS**

POLS 201 Problems of War and Peace (3) Introduction to the problems individuals and political communities currently face with respect to war, peace, and international conflict. Includes questions of human nature, economy, morality, nuclear deterrence, arms control and disarmament, and alternatives to war. **DS**

POLS 241 Political Design and Futuristics (3) Possible social and political alternatives for the future. Conditions likely if present trends continue, formulation of visions of better futures, means for their achievement. **DS**

POLS 271 Race and Politics (3) Racial inequality in the United States; mechanisms of institutional racism in employment, education, criminal justice, electoral politics. **DS**

POLS 301 Hawai'i Politics I (3) Introduction to study of institutions, processes, and issues. Pre: any 100 level POLS course or consent. **DS**

POLS 302 Hawai'i Politics II (3) Application of theoretical modes and techniques to institutions, processes, and issues that characterize politics in Hawai'i. Pre: any 100 level POLS course or consent. **DS**

POLS 303 (Alpha) Topics in Hawai'i Politics (3) Intensive examination of particular institutions, processes, and issues. (B) the military in Hawai'i; (D) alternative politics in Hawai'i. Pre: any 100 level POLS course or consent. **DS**

POLS 304 Indigenous Politics (3) Conceptualizing politics from the perspective of indigenous epistemologies, philosophies, language, and social and political movement. Pre: any 100 level POLS course or consent.

POLS 305 Global Politics/Comparative (3) Introduction to global politics with emphasis on concepts and theories developed from a comparative politics perspective. Pre: any 100 level POLS course or consent. **DS**

POLS 306 Comparative Politics of Developing Countries (3) Political, economic, and social development in the Third World. Repeatable one time. Pre: any 100- or 200-level POLS course, or consent. **DS**

POLS 307 (Alpha) Topics in Comparative Politics: Country/Regional (3) Political, social, and economic processes in specific countries/regions. (B) Southeast Asia; (C) Pacific Islands; (D) Communism in Asia; (F) Middle East; (G) Philippines; (H) Japan; (I) Europe; (J) India; (R) Russia. Repeatable one time. Pre: any 100- or 200-level POLS course, or consent. **DS**

POLS 308 Society and Politics in China (3) Interdisciplinary review and analysis of the social and political issues in contemporary China, the interchange between state and society in national policies, the relationship between cultural tradition and technological modernization in the socialist transformation process. Pre: ASAN 310 or ASAN 312 or SOC 356 or consent. (Cross-listed as ASAN 484). **DS**

POLS 315 Global Politics/International Relations (3) Introduction to global politics with emphasis on concepts and theories developed from an international relations perspective. Pre: any 100 level POLS course or consent. **DS**

POLS 316 International Relations (3) Decision-making behavior of international actors; strategies of peacemaking. Pre: any 100 level POLS course or consent. **DS**

POLS 317 International Law (3) Nature and function of international law in international politics. Pre: any 100 level POLS course or consent. **DS**

POLS 318 Current Issues in International Law, Organization, and Culture (3) Principles, norms, cases, and their interaction with culture and organization in international politics. Pre: any 100 level POLS course or consent. **DS**

POLS 319 International Organization (3) International relations of governmental and nongovernmental organizations. Pre: any 100 level POLS course or consent. **DS**

POLS 321 International Migration (3) Political-cultural economy of international migration: post-colonial populations, refugees, and immigrants. Pre: any 100 level POLS course or consent.

POLS 322 American Foreign Policy (3) Purposes, methods, strengths, obstacles, prospects; factors affecting American foreign policy; impact abroad and at home. Pre: any 100 level POLS course or consent. **DS**

POLS 323 International Relations Lab (1) Pre: any 100 level POLS course or consent. Co-requisite: 315 or 319. **DS**

POLS 333 Advanced Topics in Global Politics (3) Studies of political development in the context of increasingly integrated and globalized political economies. Repeatable one time. Pre: any 100 level POLS course or consent.

POLS 335 Political Philosophy and Theory (3) Theories, approaches, concepts, and issues developed or raised in history of western political philosophy and thought. Pre: any 100- or 200-level POLS course, or consent. **DS**

POLS 336 Non-Western Political Theory (3) Survey of major historical schools and/or contemporary directions in non-western political thought. A-F only. Pre: any 100- or 200-level POLS course, or consent. **DS**

POLS 337 American Political Theory (3) Origins and development of American political thought. Pre: any 100 level POLS course or consent. **DS**

POLS 338 (Alpha) Topics in Political Theory (3) Significant works, historical continuities, themes, and issues in political theory. (B) classical political philosophy; (F) revolution and utopia; (G) contemporary political theory; (I) Marxist philosophy. Pre: any 100- or 200- level POLS course, or consent. **DS**

POLS 339 Feminist Theory (3) Contemporary debates in feminist theory concerning gender, race, and class; subjectivity and representation; gender and colonialism; bodies, sexualities and "nature." Pre: any 300 level POLS or WS course; or consent. (Cross-listed as WS 439) **DS**

POLS 341 The Politics of Media (3) Study of the political manipulation of aural and verbal images. Exercises to increase media literacy. Pre: any 100 level POLS course; or consent. **DS**

POLS 342 Political Design and Futuristics (3) Alternative future social and political possibilities; design of means of realization of desirable futures. Pre: any 100 level POLS course or consent. **DS**

POLS 343 The Politics of Film (3) Political, philosophical, and artistic dimensions of film; cross-cultural film genres; representational practices in films. Pre: any 100 level POLS course or consent. **DS**

POLS 346 (Alpha) Topics in Comparative Political Process (3) (B) peasant politics; (E) health and environment. **DS**

POLS 366 Advanced Topics in Theory, Media, and Method (3) Studies in political theory, media, and methods that analyze their interrelations in a globalized world. Pre: any 100- or 200-level POLS course, or consent.

POLS 372 Asian Women (3) History, culture, and contemporary reality of Asian women in Asia and the United States. Includes critical analysis of American feminist methodology and theory. Pre: any 100 level POLS course or POLS 339 or WS 366 or WS 361 or WS 439; or consent. (Cross-listed as AMST 438 and WS 462) **DS**

POLS 373 American Politics (Elections) (3) Examination of voters and voting processes (participation, apathy, socialization, symbolic process, media, etc.); ideologies and belief systems. Pre: any 100 level POLS course or consent. **DS**

POLS 375 Public Law and Judicial Behavior (3) Analysis of law, legalism, legal ideology, and legality; constitutions and constitutionalism; the political context of legal stability and change; institutional structure and function of dispute-resolution agencies. Pre: any 100 level POLS course or consent. **DS**

POLS 376 Public Law and Judicial Behavior II (3) Attributes, attitudes, selection, and decision-making behavior of judges and court personnel. Trends in appellate court policy-making, especially by the United States Supreme Court in Constitutional issues. Pre: any 100- or 200-level POLS course, or consent. **DS**

POLS 377 Current Controversies in Public Law and Judicial Behavior (3) Current issues; recent research findings; practical research undertaken by student. Pre: any 100 level POLS course or consent. **DS**

POLS 378 (Alpha) Topics in American Politics (3) Specific institutions and processes of the American governmental system. (D) public opinion and politics; (F) American legislative behavior; (G) American environmental politics; (H) the presidency. Pre: any 100 level POLS course or consent. **DS**

POLS 379 Power in America (3) Analysis of sources of political, economic, and social power in the United States and the institutions through which it is exercised. Pre: any 100 level POLS course or consent. **DS**

POLS 381 Administration and Society (3) Historical emergence of modern bureaucracy; mutual impact of administrative forms on social life; relation of bureaucracy to capitalism and patriarchy; constitution of the administered individual. Pre: any 100- or 200-level POLS course, or consent. **DS**

POLS 382 Political Leadership (3) Exploration of concepts and theories of political leadership, partly through biography, as preparation for public service or advanced scholarly inquiry. Pre: any 100 level POLS course or consent. **DS**

POLS 383 Politics and Public Policy II (3) Overview of the policy-making process in various political arenas (families, cities, nations, etc.); emphasis on conceptual and empirical analysis. Pre: any 100 level POLS course; or consent. **DS**

POLS 384 Women and Politics (3) Women's role in political institutions and processes in the United States and other countries. Female and male approaches to power; feminist political goals and actions. Pre: any 100 level POLS course (or concurrent), WS 151 (or concurrent), or WS 362 (or concurrent); or consent. (Cross-listed as WS 384) **DS**

POLS 385 American Politics (3) Institutions (parties, interest groups, legislatures, executives, local government); policies (national defense, poverty, energy, etc.), politics (symbolism, inequality, race, and gender). **DS**

POLS 387 Racism and Sexism (3) Racial and sexual discrimination and efforts to combat them. Pre: any 100- or 200-level POLS course, or consent. **DS**

POLS 389 (Alpha) Topics in Politics and Public Policy (3) Topics in public policy and administration. (D) ocean politics; (F) politics of health; (I) political economy. Pre: any 100 level POLS course or consent. **DS**

POLS 390 Political Inquiry and Analysis (3) Introductory survey and analysis of methods used in empirical research, policy analysis, and social criticism. **DS**

POLS 393 Advanced Topics in Law, Policy, and Society (3) Studies integrating concerns of public law, public policy, public administration, and social movements. Pre: any 100- or 200-level POLS course; or consent.

POLS 394 Democracy in Organizations (3) Theory and practice of democratic organizations: women's and feminist organizations; co-ops, communes, and collectives; indigenous people's organizations; workplace democracy and social change. Pre: any 100- or 200-level POLS course or 390 (or concurrent) or WS 151; or consent. (Cross-listed as WS 353) **DS**

POLS 396 Nonviolent Political Alternatives (3) Exploration of scientific and cultural resources for nonviolent alternatives in politics. Pre: any 100- or 200-level POLS course; or consent. (Cross-listed as PACE 373) **DS**

POLS 399 Directed Reading and Research (V) Pre: consent.

POLS 401 Teaching Political Science (6) Practicum for majors who lead, under supervision, a freshman seminar section of 110 or serve as undergraduate teaching assistants. Repeatable one time. Pre: 390 (or concurrent), senior standing, and consent.

POLS 402 Legislative Internships (15) Field placement at the Hawai'i Legislature integrated with academic study of political institutions and practices. Pre: consent. Recommended: 390. **DS**

POLS 403 Community Internship (V) Field placement integrated with academic study of political institutions and community organizations. Repeatable one time. Pre: consent. Recommended: 390. **DS**

POLS 404 Senior Thesis (6) Independent research and thesis writing with supervision of senior adviser. Pre: 390 (or concurrent) and consent.

- POLS 406 Senior Seminar in Political Science (3)** Discussion of issues and questions of concern to graduating seniors in political science, including substantial research project. Pre: 390 (or concurrent) or senior standing or consent. **DS**
- POLS 500 Master's Plan B/C Studies (1)** Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.
- POLS 600 Scope and Methods of Political Science (3)** Main concepts delineating boundaries of discipline; approaches to knowledge employed by political scientists; empirical and normative theory; problems in theory-building; validity and reliability in research design; philosophy of science applied to political science.
- POLS 601 Political Analysis and Theory Building (3)** Survey of theory-building, approaches and validation techniques.
- POLS 602 Research Techniques and Analytic Methods (3)** Quantitative models and statistical inference techniques.
- POLS 605 (Alpha) Topics in Methodology (3)** Specific methodological techniques and practices introduced in 601 and 602. (B) methods and nations; (C) simulation practicum. Pre: graduate standing or consent.
- POLS 610 Political Theory and Analysis (3)** Major contemporary approaches and styles in political theory, philosophy, and analysis.
- POLS 611 Tradition of Political Philosophy (3)** Discussion of texts and themes in the Western political tradition from Plato to Nietzsche. Repeatable once.
- POLS 615 (Alpha) Topics in Political Thought (3)** Specific traditions and individuals, or particular issues and problems. (B) Communism; (C) feminist theory. Pre: graduate standing or consent. (615C cross-listed as WS 615)
- POLS 620 Introduction to Political Behavior (3)** Introduction focused on individual behavior (political socialization, political psychology, etc.) and institutional behavior (legislative behavior, judicial behavior, etc.).
- POLS 630 International Relations (3)** Analysis of theories: actors, decisions, systems, conflict, integration, alternative approaches to validation. Pre: graduate standing or consent.
- POLS 633 International Conflict Resolution (3)** Analysis of international conflict and conflict resolution. Theory and practice of negotiation, mediation, conciliation, facilitation, and other "third-party" methods of peaceful settlement. Pre: graduate standing or consent.
- POLS 635 (Alpha) Topics in International Relations (3)** (B) international relations and war; (C) dependencies; (D) U.S.–China relations (E) international organization; (F) modeling international systems; (G) U.S.–Japan relations. Pre: graduate standing or consent.
- POLS 640 Comparative Politics (3)** Emphasis on Asia, theories of development, and comparative methods. At least one section a semester.
- POLS 645 (Alpha) Politics and Development: Regional (3)** Politics of particular regions; particular development processes. (B) Middle East; (C) China. (645C cross-listed as ASAN 608)
- POLS 646 (Alpha) Politics and Development: Topical (3)** (B) agriculture; (F) political ecology and development.
- POLS 650 Public Administrative Theory (3)** Focus varies among theoretical, comparative and developmental approaches to study of administration. One section each semester.
- POLS 651 Political Leadership (3)** Exploration of political leadership as a focus for research, teaching, and applied political science.
- POLS 652 Comparative Public Administration (3)** Detailed examination of implementation of governmental policy in different countries. Pre: graduate standing.
- POLS 655 (Alpha) Topics in Public Administration (3)** Theoretical and applied examination of public administration structures and processes. Pre: graduate standing or consent.
- POLS 660 Public Law and Judicial Systems (3)** Law, courts, and rights as a political resource; analyses of public law (including court decisions), other forms of dispute management, and judicial behavior and policy-making. Pre: 110.
- POLS 665 (Alpha) Topics in Public Law and Judicial System (3)** Recent issues and practices in public law; particular judicial systems. Pre: graduate standing or consent.
- POLS 670 Introduction to Public Policy (3)** Perspectives on policy analysis; basic approaches to the study of public policy, political economy, and policy evaluation.
- POLS 671 Public Policy (3)** Examination of theory and practice of formation and implementation; emphasis on American politics. Pre: graduate standing. Co-requisite: PUBA 661.
- POLS 672 Politics of the Future (3)** Introduction to political futures studies; images of future, theories of social change, methods of social forecasting and designing preferred futures. Pre: graduate standing.
- POLS 673 The Future of Political Systems (3)** Normative and descriptive forecasts of political institutions, systems, subsystems, and behaviors. Design of preferred systems.
- POLS 674 New Age Politics (3)**
- POLS 675 (Alpha) Topics in Public Policy (3)** Particular political processes, specific political institutions, or particular policy area. (E) current environmental issues: examines one of the seminal concerns of local, state, national, and international governments and NGOs—issues affecting the natural environment, and especially policies to preserve and enhance it. A-F only. Repeatable one time. (F) politics of health. Pre: graduate standing or consent.
- POLS 676 Nonviolent Political Alternatives (3)** Exploration of nonviolent, non-killing alternatives in political science research, teaching, and public service.
- POLS 680 Asian and/or Pacific Politics (3)** Political development, international relations, decision-making processes, and systems of political thought in all or part of Asia and/or the Pacific.
- POLS 682 Indigenous Politics (3)** Historical treatment of the contact between state and indigenous peoples and a survey of contemporary indigenous political initiatives: social movements, media, indigenous studies programs, and events. A–F only.
- POLS 685 (Alpha) Topics in Asian and/or Pacific Politics (3)** (B) Japanese politics; (C) Korean politics; (D) Chinese foreign policy. Pre: graduate standing or consent.
- POLS 686 Politics of Hawai'i (3)** Examinations from several perspectives of the political, economic, and cultural forces that historically formed Hawai'i and contemporary political themes, issues, and processes. Pre: graduate standing.
- POLS 692 Teaching Initiative in Political Science (3)** This course combines the study of the theoretical and practical aspects of teaching political science with supervised classroom teaching of POLS 110. Repeatable once.
- POLS 695 Colloquium (3)** Specialized subjects in political science.
- POLS 696 Graduate Intern Seminar (3)** Seminar for interns in the alternative futures or the indigenous politics options. Repeatable once. A–F only. Pre: 672 and 673 or consent for the alternative futures option; 682 or consent for the indigenous politics option.
- POLS 699 Directed Reading and Research (V)** Pre: consent.
- POLS 700 Thesis Research (V)**
- POLS 701 Seminar in Empirical Theory (3)** Pursuit of individual empirically based research topics. Repeatable. Pre: graduate standing.
- POLS 702 Seminar: Research Methods (3)** Conceptual strategies, data collection approaches, and data analysis techniques appropriate to political inquiries. Repeatable.
- POLS 710 Seminar: Political Thought (3)** Pre-announced topics. Repeatable. At least one section a year.
- POLS 730 Seminar: International Relations (3)** Pre-announced problems of both international organization and politics. Repeatable. At least one section a semester.
- POLS 735 Seminar: Peace/Development Connection (3)** Relationship between peace and development with special emphasis on hunger and militarism in Asia, the Pacific, and Africa. Pre: graduate standing. (Cross-listed as SOC 735)
- POLS 740 Seminar: Comparative Government and Politics (3)** Pre-announced topics. Repeatable. At least one section a semester.
- POLS 750 Seminar: Public Administration (3)** Pre-announced administrative theory, comparative and development administration, and functional aspects. Repeatable. At least one section a year.
- POLS 770 Seminar: Public Policy (3)** Pre-announced topics. Repeatable. Pre: consent of instructor. At least one section a year.
- POLS 780 Seminar: Politics of Regions (3)** Analysis of political development, international relations, decision-making processes, and systems of political thought in regions and subregions of the world. Repeatable.
- POLS 800 Dissertation Research (V)**

Population Studies (PPST)

College of Social Sciences

PPST 101 Introduction to Population Studies (3) Introduces the study of population (demography), human fertility, mortality, and migration. Focus on the U.S., Hawai'i, and the Asia-Pacific region.

PPST 301 Populations of Hawai'i (3) Demographic characteristics of Hawai'i's populations: origins, distribution, growth, and behaviors. Open to nonmajors. A–F only. Pre: an introductory social science course (ANTH 150; ECON 120, 130, 131; GEOG 151; POLS 110; or SOC 100) or consent. **DS**

PPST 302 Population in the Pacific Islands (3) Survey of the characteristics of human populations of the Pacific Islands region. Working of population forces from early settlement to the demographic transitions of the present day. Pre: consent. **DS**

PPST 401 Forced Migration (3) Global view of refugee and other forced migration; emphasis on humanitarian assistance. Pre: 101 or any PPST 300-level course; or consent. Graduate students taking the course for graduate credit should have taken 650 or 691; or consent. **DS**

PPST 412 Analysis in Population and Society (3) Global and U.S. patterns of population growth; composition and distribution, elementary demographic techniques; development issues and population policy. (Cross-listed as SOC 412) **DS**

PPST 432 Economics of Population (3) Determinants and consequences of growth and structure of human populations. Relationships between economic factors and fertility, population growth and economic growth. Pre: ECON 301 (or concurrent). (Cross-listed as ECON 432) **DS**

PPST 649 Faculty Seminar Series (1) Seminar required of all graduate certificate students. Single credit course in which program faculty present ongoing research in their fields of specialization. Pre: consent. Co-requisite: 650.

PPST 650 Introduction to Human Population (3) Comparative analysis of quantitative and qualitative aspects of population; factors affecting size, distribution, and composition; impact of population size and composition on society.

PPST 661 Demography of Human Fertility (3) Causes of variation in human fertility between and within societies and over time; role of economic and social factors. Implications for population policy. Pre: 650 and 691. (Cross-listed as SOC 661)

PPST 662 Migration and Population Distribution (3) Analysis of the nature, causes, and consequences of human migration and population distribution, especially in relation to economic development, urbanization, and demographic change. Pre: 650 and 691, or consent.

PPST 672 Demographic History of Southeast Asia (3) Seminar in Southeast Asian population histories. Contrasts with East and South Asian population histories. Links among demography, subsistence activities and social institutions. Evolution of indigenous and colonial population records. Practical applications of historical demographic methodology. A–F only. Pre: graduate standing or consent. (Cross-listed as ASAN 672)

PPST 691 Methods of Demographic Analysis (3) Statistical evaluation and analysis of population data; data sources; population growth; composition; standardization of rates; mortality and the life table; nuptiality and fertility; distribution, migration, urbanization; projections and stable population theory. Pre: basic statistics or consent. (Cross-listed as PH 659)

PPST 692 Estimation from Limited Data (4) Analysis of limited and defective data on populations with particular reference to Asia and the Pacific. Pre: 691.

PPST 695 Demographic Surveys (3) Design, field execution, and analysis. Sampling techniques, field operations, sampling error, analysis. Pre: 691.

PPST 699 Directed Reading and Research (V) Pre: consent of program director or instructor.

PPST 705 Multivariate Analysis (3) Application to population data. Multiple classification analysis, path analysis, logit and multinomial logit regression, and hazard models. Pre: one graduate-level course in social or biomedical sciences. (Cross-listed as SOC 705)

PPST 750 Interdisciplinary Seminar in Population Studies (3) Major theoretical developments and research problems in population studies as seen by various behavioral sciences and related applied disciplines. Pre: 650 and 691.

Portuguese (PORT)

College of Languages, Linguistics and Literature

Students choosing Portuguese for the language requirement should realize it may not be offered if demand is limited.

PORT 101 Elementary Portuguese (4) Reading, conversation, laboratory drill, grammar. **HSL**

PORT 102 Elementary Portuguese (4) Continuation of 101. Pre: 101. **HSL**

PORT 201 Intermediate Portuguese (3) Reading, conversation, writing, laboratory drill. Pre: 102. **HSL**

PORT 202 Intermediate Portuguese (3) Continuation of 201. Pre: 201. **HSL**

PPST

See Population Studies

Prakrit (PRAK)

College of Languages, Linguistics and Literature

PRAK 481 Introduction to Prakrit (3) Survey of principal Prakrit languages; selected readings and analysis. Pre: PALI 381, PALI 382, SNSK 281, and SNSK 282; or equivalent.

PRAK 482 Introduction to Prakrit (3) Continuation of 481.

Psychiatry (PSTY)

School of Medicine

PSTY 531 7-Week Psychiatry Clerkship (10) Unit VI—7-week basic psychiatry clerkship. CR/NC only. Pre: BIOM 555.

PSTY 532 Psychiatry Longitudinal Clerkship (5) Year-long clerkship in ambulatory setting, including knowledge, skills, attitudes for assessment, diagnosis, and management of psychiatric problems in medical practice, inpatient, and emergency room settings. Emphasis on development and application of psychosocial cultural formulations in all areas of psychiatric and medical practice. Repeatable twice. CR/NC only. Pre: third-year standing and concurrent registration in 532 courses and SURG 535.

PSTY 545 (Alpha) Unit VII Electives in Psychiatry (V) Opportunities for fourth-year students to acquire in-depth psychiatric experience. (B) adult inpatient PSTY; (C) child PSTY; (D) forensic PSTY; (E) journal editing; (F) community mental health; (G) PSTY aspects of OBGYN, PED, MED, SURG; (H) sub-internship in adult PSTY; (I) substance abuse; (J) PSTY aspects of rehab medicine; (K) PSTY aspects of SURG; (M) PSTY consult liaison; (N) post-traumatic stress disorder; (O) extramural elective in PSTY; (Q) geriatric PSTY; (R) rural child PSTY; (S) public and rural PSTY. CR/NC only. Pre: 531 or 532, and fourth-year standing.

PSTY 599 Directed Reading/Research (V) Pre: consent.

Psychology (PSY)

College of Social Sciences

PSY 100 is a prerequisite for all undergraduate courses except 170. Unless otherwise noted, 700-level seminars are explorations of current issues in their respective areas.

GENERAL PSYCHOLOGY (X0X)

PSY 100 Survey of Psychology (3) An overview of the field: psychophysiology, perception, learning, cognition, stress, personality, social psychology. **DS**

PSY 201 Unit Mastery Instruction (3) Principles, techniques, issues, and philosophy. Laboratory provides working experience with this instruction technique. Pre: 100 and written consent.

PSY 202 Psychology of Women (3) Survey of topics in psychology relevant to women's lives: socialization of gender, mental health, violence against women, achievement motivation, life-span issues, domestic violence. Pre: 100 or WS 151. (Cross-listed as WS 202) **DS**

PSY 402 History of Psychology (3) Origin and development of contemporary points of view. Pre: 100. Recommended: 9 credit hours in psychology. **DS**

PSY 403 Seminar on the Psychology of Knowledge (3) Selected topics in the psychology of knowledge and mind from Western and/or non-Western perspectives. Repeatable in different topics up to 9 credit hours. Pre: 100 and written consent. **DS**

PSY 407 Practicum in Psychology (V)

Supervised psychological experience in school, clinic, hospital, industry, social welfare, government, etc. Pre: 100 and consent.

PSY 408 Teaching General Psychology (V)

Supervised experience. Pre: 100, at least 12 additional credit hours in psychology, and written consent. Repeatable once.

PSY 409 General Psychology: Advanced Topics (3)

In-depth coverage of some area of theory and research. Repeatable to 6 credit hours. Pre: 100. DS

PSY 600 Methodologic Foundations of Psychology (3)

Methods used in psychological research; observational, correlational, and experimental types of design.

PSY 603 Current Developments in Psychological Research I (1)

Results of current research programs in terms of their historical and theoretical contexts. CR/NC only.

PSY 604 Current Developments in Psychology Research II (1)

Results in current research programs will be presented and evaluated in terms of their historical and theoretical contexts. CR/NC only.

PSY 700 Thesis Research (V)

Research for master's thesis. Maximum of 6 credit hours. Not repeatable for credit toward master's degree.

PSY 701 Seminar in General Psychology (3)**PSY 702 Seminar in History and Theory of Psychology (3)**

Theory and methods. Observation. Experience in preparation of lectures, discussions, quizzes, and examinations; class presentations. Current and needed research. Pre: consent.

PSY 800 Dissertation Research (V)

Research for doctoral dissertation.

PSYCHOMETRICS (X1X)

PSY 210 Statistical Techniques (3) Frequency distributions; graphic methods; central tendency; variability; correlation; reliability; tests of significance. Pre: 100. DS

PSY 212 Survey of Research Methods (3) Survey of standard methods and related conceptual issues employed in psychological research. Both experimental and non-experimental methods will be reviewed. Pre: 100. DS

PSY 311 Introduction to Methodology in Psychology (3) Emphasis on experiment control, data description and analysis, and communication of findings. Pre: 100. DS

PSY 412 Individual Differences and Measurements (3) Individual differences in personality, aptitude, intelligence; test construction, validation, administration, interpretation. Pre: 100. Recommended: 210. DS

PSY 419 Psychometrics: Advanced Topics (3) In-depth coverage of some area of theory, research, or methodology relevant to individual differences, measurement, or aspects of psychometrics. Repeatable to 6 credit hours. Pre: 100. DS

PSY 610 Introduction to Quantitative Methods (3) Review of elementary statistical methods. Introduction to general linear models as principle of data analysis. Pre: 210. (Cross-listed as EDEP 601 and SW 651)

PSY 611 Design and Analysis of Psychological Experiments (3) Analysis of variance and other models of assessing results of experiments. Relation of analysis to design. Pre: 610. (Cross-listed as EDEP 603 and SW 653)

PSY 612 Multiple Regression in Behavior Research (3) Advanced application of general linear model to complex problems of data analysis. Relation of analysis of variance and co-variance to regression analysis. Non-linearity and treatment of missing data. Pre: 610 or consent. (Cross-listed as EDEP 604 and SW 654)

PSY 613 Factor Analysis (3) Theory and method; related methods of multivariate analysis. (Cross-listed as EDEP 605 and SW 655)

PSY 614 Multivariate Methods (3) Multivariate forms of multiple linear regression, analysis of variance, and analysis of co-variance. Multiple discriminant analysis, canonical correlation, and principal components analysis are discussed. Pre: 611, 612, and 613. (Cross-listed as EDEP 606 and SW 656)

PSY 615 Nonparametric Methods for Behavioral Sciences (3) Conditions for valid applications of nonparametric statistical techniques; theoretical and methodological perspectives. Pre: 610 or consent. (Cross-listed as EDEP 607 and SW 657)

PSY 616 Measurement and Evaluation (3) Theory of measurement and evaluation; analysis of experimental and standardized tests and scales. Pre: 412 or consent. (Cross-listed as EDEP 616 and SW 658)

PSY 617 Scaling: Measurement of Attitude and Perception (3) Theory and methods of major unidimensional and multidimensional scaling techniques. Examples from education, sociology, and psychology. Pre: 616 or consent. (Cross-listed as EDEP 626)

PSY 719 Research in Psychometrics (3) Supervised reading, discussion, research projects in areas of special interest. Repeatable. Pre: consent.

EXPERIMENTAL PSYCHOLOGY (X2X)

PSY 220 Introduction to Behavioral Psychology (3) Outline of basic learning principles. A general, unified approach to study of human personality and behavior. Based upon a learning conception; various areas of psychology and the other social sciences are treated. Pre: 100. DS

PSY 321 Experimental Psychology (3) Original experiments; laboratory techniques. Control of variables, apparatus design, statistics in research. Pre: 100, either 210 or SOCS 225, and 311. DS

PSY 322 Learning and Motivation (3) Theoretical interpretations; survey of major theorists and contemporary controversial issues; major influences in classical and instrumental conditioning. Pre: 100. Recommended: 220. DS

PSY 323 Animal Psychology (3) Biological, ecological, social, and learned bases of animal behavior based on laboratory and field investigations. Pre: 100. Recommended: 311.

PSY 324 Psychology of Emotion (3) Survey of traditional views and leading theories, and research in related topics. Pre: 100. Recommended: 220 or 322. DS

PSY 325 Cognitive Psychology (3) Mental processes of humans and other organisms. Survey of major theories and findings in cognitive psychology. Pre: 100 or consent. DS

PSY 429 Experimental Psychology: Advanced Topics (3) Coverage in-depth of some area of theory and research. Repeatable to 6 credit hours. Pre: 100. DS

PSY 621 Behavioral Psychology (3) Basic learning theory; concepts for the comprehensive study of human behavior. Issues in behavioral psychology and potential research problems in various areas of human behavior. Pre: 220 or consent.

PSY 622 Animal Learning (3) Principal findings and major theories in animal learning. Detailed consideration of the contemporary literature.

PSY 625 Knowledge and Wisdom (3) Topics in the psychology of mind from Western and/or Asian perspectives. Repeatable in different topics. Pre: consent.

PSY 626 Cognitive Psychology (3) In-depth survey of the computational and representational structures and processes of cognition. Special attention devoted to consideration of the relationship between brain, mind, and computation. Pre: 325 or consent.

PSY 627 Learning, Language, and Cognition (3) Theory, research, and method in study of language acquisition; the function of language in intellectual activities; application to cognitive behavior modification.

PSY 721 Seminar in Experimental Psychology (3)**PSY 722 Seminar in Learning (3)**

PSY 726 Seminar in Cognitive Science (3) Topics on the conceptual and biological bases of mind. Emphasis on representation, modeling, and connectionism. Topics vary from semester to semester. Repeatable in different topics. Pre: graduate standing or consent.

PSY 729 Research in Experimental Psychology (3) Supervised reading, discussion, research projects in areas of special interest. Repeatable.

PSYCHOBIOLOGY (X3X)

PSY 230 Introduction to Psychobiology (3) Survey of study of behavior from a natural sciences viewpoint. Evolution, ethological analysis of behavior genetics, neural mechanisms, drugs and behavior, biological development. Pre: 100. DS

PSY 331 Physiological Psychology (3) Physiological basis of vision, audition, motivation, emotion, and learning. Pre: 100 and 230. DB

PSY 332 Sensory Processes (3) Major determinants of sensory experience: vision, audition, taste, smell, touch, pain, psychophysical methods. Pre: 100. Recommended: 230. DB

PSY 439 Psychobiology: Advanced Topics (3) Coverage in-depth of some area of theory and research in psychobiology, physiological psychology, or sensory processes. Repeatable to 6 credit hours. Pre: 100. DB

PSY 631 Comparative Psychology (3) Comparative study of natural behavior, learned behavior, sensory processes, social behavior in animals.

PSY 632 Selected Topics in Comparative Psychology (3) Intensive review of comparative, communicative, sensory, or learning mechanisms in animals. Pre: 631.

PSY 633 Behavioral Processes of Marine Mammals (3) Sensory, learning, and social processes. Pre: 631.

PSY 634 Physiological Psychology (3) Relation of central and peripheral nervous systems to behavior.

PSY 731 Seminar in Physiological Psychology (3)

PSY 732 Seminar in Comparative Psychology (3)

PSY 733 Seminar in Perception (3)

PSY 739 Research in Psychology (3) Supervised reading, discussion, research projects in areas of special interest. Repeatable.

DEVELOPMENTAL PSYCHOLOGY (X4X)

PSY 240 Developmental Psychology (3) Emotional, mental, physical, social development from infancy to adulthood; interests and abilities at different age levels. Pre: 100. **DS**

PSY 341 Social Development of Children (3) Survey of socialization process and acquisition of social behavior. Pre: 100 and 240. **DS**

PSY 342 Adult Development and Aging (3) Overview from a multidisciplinary, life-span perspective. Includes research techniques, personality development, family relationships, occupational attainment, death. Pre: 100. Recommended: 240. **DS**

PSY 442 The Exceptional Child (3) Evaluation of physical, emotional, and intellectual deviations; effects on growth and development of children. Pre: 100. Recommended: 240. **DS**

PSY 449 Development Psychology: Advanced Topics (3) Coverage in-depth of some area of theory and research. Repeatable to 6 credit hours. Pre: 100. **DS**

PSY 640 Developmental Foundations (3) Historical, theoretical, and methodological foundations of developmental psychology.

PSY 641 Developmental Phenomena (3) Graduate-level introduction to the analysis of biological, cognitive, and social development. Pre: 640.

PSY 642 Cognitive Development (3) Familiarizes students with current research and theory in cognitive development through readings of original journal articles and monographs. Repeatable once. Pre: 640 (or concurrent) or consent.

PSY 741 Seminar in Developmental Psychology (3)

PSY 749 Research in Developmental Psychology (3) Supervised reading, discussion, research projects in areas of special interest. Repeatable.

SOCIAL PSYCHOLOGY (X5X)

PSY 250 Social Psychology (3) Cognitive, behavioral, and emotional effects of people: interpersonal relations, attribution, attitudes, group behavior, stereotypes, social roles, aggression, helping, self-concept; applications. Pre: 100. **DS**

PSY 351 Cross-Cultural Psychology (3) Psychological theories and cultural systems; understanding of own and other cultures; psychological and cultural perception of social motivation; cultural similarities and differences in interpersonal relations. Pre: 100. Recommended: 311. **DS**

PSY 352 Psychology of Human Sexuality (3) Psychosocial aspects of human sexual relationships. Social psychology of emotional and physiological arousal, interpersonal attraction, and societal regulation of intimate relationships. Pre: 100. **DS**

PSY 459 Social Psychology: Advanced Topics (3) Coverage in-depth of some area of theory and research. Repeatable to 6 credit hours. Pre: 100. **DS**

PSY 650 Social Psychology (3) Theories and research in social cognition and behavior. Pre: 250.

PSY 653 Cross-Cultural Psychology (3) Application of psychological theories to cross-cultural phenomena; assessment of cross-cultural processes and social motivations; culture and personality; research evaluation and design.

PSY 654 Psychology and Social Issues (3) Conflict, dissent, community issues, problems; social change and its relation to mental disorder.

PSY 655 Applied Social Psychology (3) Problems in use of social psychology principles in human affairs; multidisciplinary considerations.

PSY 751 Seminar in Social Psychology (3)

PSY 759 Research in Social Psychology (3) Supervised reading, discussion, research projects in areas of special interest. Repeatable.

PERSONALITY/TRANSPERSONAL PSYCHOLOGY (X6X)

PSY 260 Psychology of Personality (3) Scientific study of personality, its meaning, assessment, development, relation to cultural-social determinants. Pre: 100. **DS**

PSY 361 Transpersonal Psychology (3) Psychological study of transpersonal human capacities, potentialities, awareness, and growth. Pre: 100. **DS**

PSY 469 Personality: Advanced Topics (3) Coverage in-depth of some area of theory and research in personality or transpersonal psychology. Repeatable to 6 credit hours. Pre: 100. **DS**

PSY 660 Personality Theory and Research (3) Methods of measurement, antecedents, structure, dynamics, situational determinants of individual reactions. Evaluation of theories and related research. Pre: 260.

PSY 761 Seminar in Personality (3)

PSY 763 Seminar in Transpersonal Psychology (3)

PSY 764 Seminar in Humanistic Psychology (3)

PSY 769 Research in Personality (3) Supervised reading, discussion, research projects in areas of special interest. Repeatable.

ADJUSTMENT/CLINICAL (X7X)

PSY 170 Psychology of Adjustment (3) Understanding, evaluating, and improving adjustment. Ideas and techniques concerning behavior change and personal growth. **DS**

PSY 170A Psychology of Adjustment (3) Understanding, evaluating, and improving adjustment. Ideas and techniques concerning behavior change and personal growth. A-F only.

PSY 270 Introduction to Clinical Psychology (3) History, theories, types of psychological problems, methods of assessment, forms of intervention, current developments. Pre: 100. **DS**

PSY 371 Abnormal Psychology (3) Nature and causes of psychoses; abnormalities of intelligence; psychotherapy. Pre: 100. Recommended: 270. **DS**

PSY 472 The Personal Journal (3) Use and analysis of the personal journal for self-insight and growth. Pre: 18 credit hours in psychology, previous experience with a journal, and consent. **DS**

PSY 476 Health Psychology (3) Psychological principles for understanding and dealing with wellness and illness. Theories and research on stress-related disorders; prevention of stress through lifestyle and healthy behaviors. Pre: 100 or consent. Recommended: 220 or 322. **DS**

PSY 477 The Helping Relationship (3) Theory and application of personal and interpersonal elements affecting communication of human-service professionals. Supervised practice, video lab. Pre: 100 or SP 151. (Cross-listed as SP 490) **DS**

PSY 478 Teaching Psychology of Adjustment (6) Supervised experience. Pre: 100 and consent, which must be obtained in the previous semester.

PSY 479 Advanced Topics in Adjustment/Treatment/Prevention (3) Coverage in-depth of some area of theory and research. Repeatable to 6 credit hours. Pre: 100. **DS**

PSY 670 Introduction to Clinical Psychology (3) Preparation for being a clinical psychologist; assessment, research, teaching, treatment, scientific and professional ethics, standards, and communication. Pre: consent.

PSY 671 Introduction to Assessment I (3) Psychometric theory; principles and methods of intellectual, cognitive, and neuropsychological assessment. Pre: 670 or consent.

PSY 672 Introduction to Assessment II (3) Principles and methods of behavioral assessment. Pre: 670 or consent.

PSY 674 Child Psychology and Treatment (3) Disturbances in the development of child behavior and techniques for amelioration. Professional ethics and standards. Pre: 670 and 671.

PSY 675 Adult Treatment (3) Methods of treating adult behavior disorders. Pre: 670 (or concurrent) and 671, or consent.

PSY 677 Practicum in Treatment: Children (3) Supervised experience in analyzing and developing methods for therapeutic change. Repeatable. Pre: consent.

PSY 678 Practicum in Treatment: Adults (3) Supervised experience in analyzing and developing methods for therapeutic change. Repeatable. Pre: consent.

PSY 679 Practicum in Clinical Psychology (V)
Repeatable. Pre: consent.

PSY 771 Theory and Practice of Family Therapy (3) Emphasis on application of systems theory. Pre: graduate standing or consent.

PSY 773 Seminar in Psychopathology (3)

PSY 774 Seminar in Clinical Psychology (3)

PSY 775 Seminar in Psychological Therapies (3)

PSY 776 Health Psychology: Behavioral and Biological Bases (3) Psychological and biological bases of health psychology and behavioral medicine. Overview of cognitive, behavioral, and psychophysiological mechanisms; theories and methods of prevention in physical disease. Pre: 670 or consent.

PSY 778 Internship in Clinical Psychology (1)
Pre: consent of instructor and department chair.

PSY 779 Research in Clinical Psychology (3)
Supervised reading, discussion, research projects in areas of special interest. Repeatable. Pre: consent.

APPLIED PSYCHOLOGY (X8X)

PSY 280 Introduction to Community Psychology (3) Examination of human functioning in social and ecological context. Topics include stress, health, intergroup relations, culture, ethnicity, social competence, and community empowerment. Pre: 100. **DS**

PSY 385 Consumer Behavior (3) Analysis of consumer behavior and motivation; principles of learning, personality, perception, and group influence, with emphasis upon mass communication effects. Pre: BUS 312 or consent. (Cross-listed as MKT 311) **DS**

PSY 480 Industrial and Organizational Psychology (3) Issues in the application of psychological principles in work settings; employee selection, training performance appraisal, worker motivation and satisfaction, leadership, organization theory. Pre: 100. Recommended: 311. **DS**

PSY 481 Environmental Psychology (3) Psychological aspects of problems of ecology, environment, and the future. Pre: 100. Recommended: 311 or ARCH 202. **DS**

PSY 489 Applied Psychology: Advanced Topics (3) Coverage in-depth of some areas of theory and research. Repeatable to 6 credit hours. Pre: 100. **DS**

PSY 680 Introduction to Community Psychology (3) Review of history, theoretical perspectives, prevention, intervention, methodology, professional issues, and future directions.

PSY 681 Seminar in Organizational Change (3) Concepts of organizations, organizational development and decline, institutional climate, commitment, leadership, structure, governance, the consultation process, strategies/techniques for promoting institutional change and enhancing effectiveness. Pre: consent.

PSY 682 Practicum: Behavioral Change and Community (3) Supervised experience in educational, mental health, correctional, consulting, or community action agencies. Pre: consent.

PSY 781 Community Psychology Seminar (3)

PSY 789 Community Psychology Research (3)
Supervised reading, discussion, research projects in areas of special interest. Repeatable.

RESEARCH (X9X)

PSY 499 Directed Reading or Research (V)
Repeatable. Pre: 100 and consent of instructor and department chair.

PSY 699 Directed Reading or Research (V) Pre: consent.

Public Administration (PUBA)

College of Social Sciences

PUBA 399 Directed Reading and Research in Public Administration (V) Independent research and reading on topics in public administration, public service, and community development. Pre: consent.

PUBA 500 Master's Plan B/C Studies (1)
Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

PUBA 600 Political and Economic System Processes (7) Interprets the American political economy and its public institutions and links these to companion economic institutions. Includes communication processes in organizational settings and information resources relevant to public service work.

PUBA 601 Policy and Organizational Processes (7) Examines origins of policies in social issues; their implementation and evaluation; normal public organizations and the prospects for change; ethical dilemmas in public setting; and the importance of cultural differences in Hawai'i. Pre: 600.

PUBA 612 Ethics and the Public Interest (1) Examination of the relevance of an ethical code for individuals working in public institutions; problems presented by unethical practices; ethical dilemmas faced by individuals. Pre: 600 and 601.

PUBA 613 Cultural Perspectives (1) Aimed at sensitizing students to the significance of culture in public service. The focus is on the cultural differences that individuals bring to settings, as well as culture of organizations. Pre: 600 and 601.

PUBA 620 Reforming Public Organizations (3) Explores the possibilities for reducing the most difficult aspects of the bureaucratic form in public organizations while increasing effectiveness and accountability. Repeatable one time. A-F only. Pre: graduate standing or consent. Fall only. (Cross-listed as CEE 620)

PUBA 622 Strategies of Change (3) Examines the assumptions of the different theories of change; TQM, action research, and organizational culture. Examines different techniques of organizational diagnosis and explores specific interventions.

PUBA 626 Results Accountability and Outcomes (3) This course provides an introduction to results accountability, a movement occurring both locally and nationally that calls providers of services to clearly articulate the results they achieve through the investment of community resources, either in the form of tax dollars or donated funds. A-F only. Pre: consent.

PUBA 660 (Alpha) Topics in Public Issues (3)
In-depth analysis of significant contemporary issues related to public service work in Hawai'i and the Pacific: (B) public policy theory and analysis; (C) budgetary processes and reform.

PUBA 661 Collaboration Between Sectors (3)
Examines theories and practices of multi-sector collaboration (public, private, nonprofit). The use of collaboration as an alternative way of solving public problems. (Cross-listed as PLAN 661)

PUBA 662 Applied Policy Analysis (3) Explores significant contemporary policy issues relating to public administration practice. Develops analytic techniques and models of public policy-making processes, and looks at how social forces and political and economic pressures influence policy orientations. Pre: graduate standing and consent.

PUBA 690 Practicum (3) Placement of students in public, private, and nonprofit organizations where they can observe and analyze organizational functions and processes while undertaking projects of use to the host agency. Pre: 600 and 601.

PUBA 699 Directed Reading (V)

PUBA 700 Thesis Research (V)

PUBA 709 Capstone Planning Seminar (1)
Develops topics, methods, objective, and resources to guide work of capstone seminar. Pre: 600 and 601.

PUBA 710 Capstone Seminar (3) Integrates public administration core courses by incorporating theoretical, analytical, and practicum observations into examination of public issue of importance to Hawai'i and the Pacific. Pre: 600 and 601.

Public Health Sciences and Epidemiology (PH)

School of Medicine

The courses listed below are offered subject to student interest and faculty availability. Please consult the current Schedule of Classes for confirmed offerings each semester. Individuals who are not public health students require instructor consent to enroll in courses; all courses 600 level and above require graduate standing. For additional information, contact the School of Medicine's Office of Graduate Student Academic Services.

PH 500 Master's Plan B/C Studies (1)
Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

PH 602 Fundamentals of Health Administration (V) Fundamental concepts and methods of modern management in health-care settings. (Cross-listed as NURS 602)

PH 623 Social Science and Public Health (2) Individual and community health; implications for public health practice, individual and social change processes.

PH 631 Nutritional Epidemiology (3) Dietary, biochemical, anthropometric and clinical methods used for evaluating nutrition and diet in the etiology and epidemiology of disease. A-F only. Pre: 663 and FSHN 487 or equivalent; or consent.

PH 633 International Nutrition (3) Analysis of major nutrition problems in developing countries. Comparative review of the design, implementation, and evaluation of programs to intervene in the development of malnutrition.

PH 636 Policies, Programs, and Services on Aging (3) Course explores policies, programs, and services for older adults. Students learn about the aging network, assess older adults' needs, link older adults to appropriate services in the community, and track legislative bills that address older adults' quality of life. Pre: graduate standing or consent.

PH 639 Social and Cultural Aspects of Aging (3) Course provides an overview of aging from the biopsych and social-economic perspectives. Explores common theories of aging. Emphasis on bridging the gap between realm of concepts and theories, and the world of practice. Pre: graduate standing or consent.

PH 640 Health and Aging (3) Biological and physiological changes associated with aging. Social, psychological, environmental factors associated with health maintenance. Major threats to health, changing patterns of morbidity and mortality of the aged. Pre: 639 or consent.

PH 644 The Special Child (3) Discussion of the health and psychosocial needs and organization, delivery, and financing of health care for children with special health-care needs.

PH 647 Analytic Approaches to MCH (3) Application of analytic methods to the identification of health problems in children and women of reproductive age. Evidence-based approach in MCH. Repeatable one time. Pre: graduate standing.

PH 649 Needs Assessment and Program Planning (3) Knowledge and skills acquisition in conducting needs assessment and program planning in public health practice. Pre: graduate standing or consent.

PH 654 Introduction to Public Health Statistics (3) Organization, summary, presentation, and logical interpretation of statistical data (descriptive statistics). Probability, statistical inference, elementary tests of significance, sampling. A-F only. Pre: one year of high school algebra, or MATH 24 and MATH 25, or equivalent.

PH 655 Biostatistics I (3) Introduction to statistical methods for public health sciences. Probability, experimental design, t tests and analysis of variance, 2X2 contingency tables, linear regression, introduction to life tables. Pre: MATH 203 or MATH 205 or equivalent course in calculus, and graduate standing; or consent.

PH 656 Biostatistics II (3) Poisson distribution, Fisher's exact test, contrasts in ANOVA, two way ANOVA, multiple linear regression and analysis of covariance, path analysis, logistic regression, method of maximum likelihood, likelihood ratio tests. Pre: 655, completion of one semester of calculus; or consent.

PH 658 Computer Applications in Public Health (2) Applications of computers to problems common to public health. Emphasis on data analysis and processing using existing computer programs. Pre: 654.

PH 659 Methods of Demographic Analysis (3) Statistical evaluation and analysis of population data; data sources; population growth; composition; standardization of rates; mortality and the life

table; nuptiality and fertility; distribution, migration, and urbanization; projections and stable population theory. Pre: 654 or comparable statistics course, or consent. (Cross-listed as PPST 691 and SOC 691)

PH 661 Epidemiological Study Design Critique (2) Critique of study design using published public health literature. Emphasis on exchange of ideas, alternative approaches; stresses epidemiology as science of public health. Repeatable. A-F only.

PH 663 Principles of Epidemiology I (3) Research methods and evaluation of research in epidemiology. Pre: 654 or consent.

PH 664 Principles of Epidemiology II (3) Study design, epidemiologic methods, and grant proposal writing. Pre: 654 and 663; or consent.

PH 665 Infectious Disease Micro I (3) Pathogenesis, epidemiology, immunobiology of infectious diseases caused by bacterial and fungal pathogens; principles of host-pathogen interactions; public health aspects of infectious diseases. Repeatable one time. A-F only. Pre: MICR 351 or consent. (Cross-listed as TRMD 604)

PH 666 Seminar in Infectious Disease Control (3) Strategies for controlling important infectious diseases in the Pacific area. Emphasis on epidemiology, ecology, and public health principles. Pre: 663 (or concurrent), MICR 130, and consent.

PH 667 Infectious Disease Micro II (3) Pathogenesis, epidemiology, immunobiology of infectious diseases caused by viruses and parasites; principles of host-pathogen interactions; public health aspects of infectious diseases. Repeatable one time. A-F only. Pre: MICR 351 and TRMD 604; or consent. (Cross-listed as TRMD 605)

PH 668 Tropical Medicine and Microbiology Lab (3) Laboratory projects in infectious diseases microbiology; practical experience in use of instruments, equipment, and procedures used in public health and diagnostic microbiology, and research on infectious diseases. Pre: TRMD 605 or consent. (Cross-listed as TRMD 606)

PH 669 Laboratory Aspects of Parasitic Diseases (2) Lectures and practical training in public health aspects of laboratory techniques for parasitological diseases with special reference to the Pacific Basin. Pre: consent. (Cross-listed as TRMD 669)

PH 671 Community and Public Health Practice (2) Community organization and development applicable to the delivery of health services. Understanding community dynamics, mobilizing community groups for effective health care practice and delivery. Pre: 647 or 737 or graduate standing; or consent. (Cross-listed as SW 674)

PH 681 Environmental Determinants of Health (2) Environmental factors in personal and community health; implications for public health practice. Consideration of major issues from local, U.S., and international perspectives. (Cross-listed as NURS 681)

PH 682 Medical and Veterinary Entomology (3) Vector control; insects and other arthropods in relation to human and animal diseases. Pre: PEPS 363 or consent. (Cross-listed as PEPS 661)

PH 699 Directed Reading/Research (V) Pre: consent.

PH 700 Thesis Research (V) Pre: consent.

PH 710 Politics of Health/Policy Process (3) Constitutional, legal, governmental framework of health. Policy process, analytic techniques, assessing alternatives, adoption, implementation, evaluating effectiveness. Impact of constraints on policy analysis strategy. Pre: 608 or consent. (Cross-listed as NURS 720)

PH 734 Health and Development: The First Three Years (3) (Seminar) This course focuses on development and the factors influencing healthy child development in the first three years of life. Nutrition, parent-child relationships, family environment, sociodemographics, health supervision of the child, health education of the caregivers, heredity, resiliency, and special needs are examined with regard to their influence on physical/motor, cognitive/language, social emotional, and adaptive development. The role and timing of interventions to promote healthy development are addressed. Open to nonmajors. Pre: instructor consent. (Previous course in human development recommended)

PH 737 Policies/Programs in MCH Services (3) Development and organization of health services for mothers and children—review and analysis of policies and events, legislation and programs; current issues. Pre: 647 or consent.

PH 745 Maternal and Child Health and Disabilities I (V) This course is designed to teach leadership development for health professionals in an interdisciplinary seminar format. Inquiry-based learning approaches are applied with a series of families and children with neurodevelopmental and related disabilities to explore clinical, cultural, policy, and program implications for services and supports for individuals with disabilities and family members. Program evaluation and research analysis are also conducted with relevance to best practice with the MCH or CSHN population. Pre: consent.

PH 746 Maternal and Child Health and Disabilities II (V) This course is designed to apply leadership development for health professionals in an interdisciplinary seminar format. Inquiry-based learning approaches are applied with a series of families and children with neurodevelopmental and related disabilities to explore clinical, cultural, policy, and program implications for services and supports for individuals with disabilities and family members. Program evaluation and research analysis are also conducted with relevance to best practice with the MCH/CSHN population. Pre: consent.

PH 747 Statistical Methods in Epidemiological Research (3) Multiple variable statistical methods currently used in chronic disease epidemiology. Logistic regression, conditional logistic regression, proportional hazards regression modelling, generalized estimating equation-based methods, delta method approximations, exact tests. Pre: 656, 663, completion of one semester of calculus; or consent.

PH 750 Health Behavior Change (3) The course will provide an understanding of the relationship between health behaviors and outcomes including psychological, physiological, and quality of life aspects. It will also focus on the major theories of behavior and behavior change. Emphasis will be placed on understanding concepts, principles, explanations, and how these are translated into practical interventions for adoption and maintain-

ing behavior change. Repeatable one time. A-F only. Pre: graduate standing or consent.

PH 751 Social Epidemiology (3) This course will examine the epidemiologic study of the social distribution and social determinants of states of health, including the identification of social-environmental exposures and their relation to physical and mental health outcomes. Repeatable one time. A-F only. Pre: graduate standing or consent.

PH 753 Life Table and Survival Analysis (3) Construction and interpretation of various types of life tables, treatment of censored data, proportional hazards, relative risk regression models, and parametric survival analysis. Pre: 654.

PH 754 Categorical Data Analysis (3) Theory and practice of statistical analysis of cross-classified data, especially from public health and social sciences, including loglinear models, response models, proportional odds models, and others. Pre: 654.

PH 755 Seminar in Tropical Medicine and Public Health (1) Weekly discussion and reports on current advances in tropical medicine and public health. Repeatable. (Cross-listed as TRMD 690)

PH 756 Special Topics in Tropical Medicine (1) Advanced instruction in frontiers of tropical medicine and public health. Repeatable. (Cross-listed as TRMD 705)

PH 765 Program Evaluation (3) Presented are principles of and frameworks for program evaluation. Students develop logic models and evaluation plans for a community program, and collect and analyze evaluation data. A-F only. Pre: graduate standing or consent. Spring only.

PH 788 Seminar in Public Health Sciences (V) Topics related to recent developments in major areas; student and faculty research activities. Sections: (1) biostatistics; (2) environmental health; (3) epidemiology; (4) public health nutrition. Repeatable. Pre: consent.

PH 789 Seminar in Community Health Development (V) Graduate seminar for students in department of community health development. Sections: (1) gerontology; (2) health planning; (3) health services administration; (4) maternal and child health; (5) mental health; (6) health education. Repeatable. Pre: consent.

PH 791 (Alpha) Advanced Public Health Practice (3) Observation, study, and practical work in student's area of emphasis. (B) biostatistics; (E) epidemiology; (G) gerontology; (T) public health science. Pre: public health degree candidate and consent.

PH 792 (Alpha) Current Issues and Topics in Public Health (V) Current and emerging issues and topics related to public health. (B) biostatistics; (E) epidemiology; (J) maternal and child health; (S) community health development; (T) public health science; (U) public health. Repeatable. Pre: consent.

PH 797 (Alpha) Exploration in Public Health (V) Investigation of emergent fields of inquiry in public health. (B) biostatistics; (E) epidemiology; (S) community health development; (T) public health science; (U) public health. Pre: consent. (Cross-listed as NURS 797)

PH 800 Dissertation Research (V) Pre: consent.

Real Estate (RE)

College of Business Administration

RE 300 Principles of Real Estate (3) Principles affecting the allocation and utilization of real estate resources, including legal, physical, economic elements; valuation; market analysis; finance; investments, and public and private externalities affecting the allocation and utilization of real estate resources.

RE 310 Real Estate and Environmental Law (3) Property rights, land tenure, agency, contracts and negotiation theory, title conveyancing and escrow, mortgage instruments, fair housing, state and federal environmental policy.

RE 320 Real Estate Finance and Investment (3) Financial and investment techniques used to evaluate real property and real estate security investments.

RE 330 Real Estate Appraisal/Analysis (3) Analysis of real property, including feasibility analysis, market analysis, income property capitalization, and general real estate valuation techniques.

RE 340 Administration of Real Property Assets (3) How business firms and investors manage their real property assets in terms of the legal, financial, and physical dimensions of real property. Case studies in hotels, condominiums, and office buildings in the environment in Hawai'i.

RE 351 Tourism Destination Development (3) Examination of the interrelationships of social, economic, and physical aspects of total resort development, with emphasis on physical development of tourist centers and resort areas. Pre: TIM 101.

RE 390 Current Topics in Real Estate Analysis (3) Consideration of various special concepts and problems in real estate. May be repeated for credit with permission.

RE 399 Directed Reading and Research (V) Reading and research in a special area within the major field under direction of faculty member(s). Project must include statement of objectives, outline of activities planned, results expected, and how they are to be reported and evaluated. Must be approved in advance by the department chair and faculty adviser.

RE 673 Business Property Administration (3) Use of real property resources by business firms, including determination of real property requirements, development, financing, investments, legal environment, and valuation of business real estate. Pre: BUS 612 or BUS 615, or consent.

RE 674 Real Estate Investment Analysis (3) Development of strategic business plans for the optimization of a firm's real property assets. Includes facilities utilization audits, contingency planning, and the impact of new techniques. Pre: 673.

RE 675 Development of Real Property (3) Economic, market, and financial analyses of real property projects by students organized into teams. Includes site analysis and acquisition, planning, design, and construction. Pre: 300 or 673, or consent.

RE 690 Topics in Real Property Analysis (3) Consideration of selected special issues currently impacting real property in Hawai'i and the Pacific Basin. Repeatable. Pre: 300 or 673, or consent.

Religion (REL)

College of Arts and Humanities

In addition to those specified for individual courses below, 150, 151, or an appropriate 200-level course is generally a prerequisite to all upper division religion courses.

REL 150 Introduction to the World's Major Religions (3) Buddhism, Christianity, Confucianism, Islam, Hinduism, Judaism, Shinto, Taoism. FG

REL 151 Religion and the Meaning of Existence (3) Basic ideas and issues in contemporary religious thought about the meaning of existence. DH

REL 200 Understanding the Old Testament (3) Developing beliefs and practices of Hebrew religion as set forth in the Old Testament. Meaning of its faith for the modern world. DH

REL 201 Understanding the New Testament (3) Origin and development of early Christian message as set forth in the New Testament; special attention to Jesus and Paul. DH

REL 202 Understanding Indian Religions (3) Teachings and practices of major religious traditions of India. DH

REL 203 Understanding Chinese Religions (3) Taoist, Confucian, Buddhist, socialist, and folk beliefs and practices in their social and historical context. DH

REL 204 Understanding Japanese Religions (3) Broad survey, with primary focus on Shinto, Buddhist, and modern sectarian movements, analyzed in relation to social and cultural themes of major historical periods. DH

REL 205 Understanding Hawaiian Religion (3) Major teachings and practices from ancient times to present, their cultural influence; analysis of religious texts; relation to other traditions of Oceania and to Christianity. DH

REL 207 Understanding Buddhism (3) Survey of major forms and practices. DH

REL 208 Understanding Judaism (3) Survey from origin to modern times; emphasis on Jewish thought in Talmudic and medieval periods. DH

REL 210 Understanding Christianity (3) History of ideas concentrating on events, persons, and issues with the greatest impact on the evolution of Christianity. DH

REL 300 The Study of Religion (3) Definitions and functions of religion; methodologies by which it is studied; relationship to other areas of human endeavor. DH

REL 302 Soul, Self, and Spirit (3) A psychological survey of religious conceptions and constructions of self and personality. Pre: 150, 151, or consent. DH

REL 303 Creation and Evolution (3) An exploration of interactions between science and religion with a focus on cosmogonies. Pre: 150 or consent. DH

REL 308 Zen (Ch'an) Buddhist Masters (3)

Study of lives, teachings, practices of Zen masters in China, Japan, Korea, and the West. Pre: one of 150, 203, 207, or consent. **DH**

REL 333 Cults and New Religions (3) Study of cults and new religious movements in America, the Pacific, and East Asia; examining types, causes, and functions of these movements. Pre: 150 or 151. **DH**

REL 348 Religion, Politics, and Society (3)

Exploration of the diverse approaches and perspectives that American religious groups embrace with respect to some of the more controversial and diverse elements of contemporary American life. Pre: 150, 151, or consent. **DH**

REL 351 Christian Ethics in Modern Life (3)

The meaning of Christian faith for the moral life with reference to contemporary moral issues. Pre: 150 or 151, or consent. **DH**

REL 352 Comparative Ethics (3) Ethical thought and practice in major world religions. Pre: 150 or consent. **DH**

REL 353 Witches and Witchcraft (3) Persecution of witches, witchcraft in Europe, 1300–1700, examined as crisis of church and theology; origins, effects on church and society. Pre: one of 201, HIST 151, HIST 152, PSY 100, or consent. **DH**

REL 356 Women and Religion (3) Examining roles of, and attitudes toward, women in major religious traditions through autobiographies, films, and primary texts. Pre: 150, 151, or consent. **DH**

REL 361 Love, Sex, and Religion (3) Love and sex as themes in religions of Asia and the West. Pre: 150 or consent. **DH**

REL 383 Mysticism East and West (3) Mystic traditions of the West from desert monasticism to Renaissance mystics compared with those of South and East Asia. Pre: one of 150, 202, 203, 204, or consent. **DH**

REL 390 Hawaiian Gods: Pele, Kamapua'a (3) The traditions and practices related to two major indigenous gods will be studied by the interpretation and analysis of primary texts. Pre: 205 or consent. **DH**

REL 394 On Death and Dying (3) Aspects of death and dying; relation to our culture and society, to understanding of each other and of ourselves. Pre: 151. **DH**

REL 399 Directed Reading (3) Pre: one 200-level religion course.

REL 409 Life and Teachings of Jesus (3) Critical study of synoptic gospels and of extra-Biblical sources. Pre: 201 and upper division standing, or consent. **DH**

REL 422 Anthropology of Religion (3) Myth, witchcraft, symbolism, values, ritual, spirit possession, shamanism, religious healing, and millennial cults in primitive, folk, and urban societies. Pre: ANTH 200 or consent. (Cross-listed as ANTH 422)

REL 431 Health/Medicine in Religion (3) Issues of health and disease in the light of religious beliefs and practices. Pre: 150 or consent. **DH**

REL 452 Sociology of Religion (3) Seminar on research in sociological aspects of religious sectarianism, historical and current; special reference to Hawai'i. Pre: SOC 300 or consent. (Cross-listed as SOC 455) **DS**

REL 475 Seminar on Buddhism (3) Selected historical, thematic, and textual research topics in Buddhism; topics and geographical focus to be announced each semester. Pre: 207 or consent. **DH**

REL 476 Taoism in China (3) Seminar on early Chinese religion, formative years (Han-Sui), developing years (T'ang-Sung), and modern period. Emphasis on religious Taoism. Pre: 203 or consent. **DH**

REL 480 Field Methods in Religion (3)

Introduction to theoretical and methodological approaches to doing fieldwork in the study of religion. Application of these in studying Hawai'i's diverse religious environment. Pre: 300 or consent.

REL 490 Buddhism in Japan (3) Major features and trends in thought, institutions, and practices in the context of Japanese history and culture, 6th–20th century. Pre: 204, 207, or consent. **DH**

REL 492 Polynesian Religions (3) Introduction to field, comparison of several traditions; beliefs and practices from analysis of texts. Historical interactions with Christianity. Pre: 150, 205, courses in Pacific Islands, or consent. **DH**

REL 495 Seminar in Religion (3) Topics pre-announced each semester. Pre: upper division standing or consent. **DH**

REL 499 Directed Reading or Research (V) Repeatable. Pre: consent of instructor and department chair.

In addition to those specified for individual courses, prerequisites for all courses 500 and above are graduate standing and consent.

REL 500 Master's Plan B/C Studies (1)

Enrollment for degree completion. Pre: master's Plan B candidate with consent.

REL 600 History and Theory of the Study of Religion (3) Survey of development of history of religions; application of methodologies from anthropology, history, philosophy, political science, psychology, and sociology.

REL 625 Applied Methods in the Study of Religion (V) Practicum in methods of research, argument, and discourse in scholarly writing about selected topics in religious studies. Repeatable up to four credits. A-F only. Pre: 600 and restricted to graduate students in Religion only; or consent.

REL 630 Field Research in Religion (3)

Independent field study of an Asian or Polynesian religion at an appropriate academic or religious institution abroad or in Hawai'i. Repeatable up to 6 credit hours. Pre: 600, 6 credits of area studies, and consent of graduate chair and instructor.

REL 650 Seminar on World Religions (3)

Theoretical and methodological issues in the study of world religions. Not repeatable. Pre: 600 or consent.

REL 661 (Alpha) Seminar on East Asian Religions (3)

Selected historical, thematic, and textual research topics in East Asian Buddhist schools and traditions: (B) Chinese religions (repeatable up to 9 credit hours); (C) Japanese religions (repeatable up to 9 credit hours); (D) East Asian Buddhism (repeatable up to 6 credit hours; pre: 661B or 661C).

REL 662 (Alpha) Seminar on South Asian Religions (3)

Selected historical, thematic, and textual research topics in Indian religious traditions: (B) Indian religions (repeatable up to 9 credit hours); (D) Indian Buddhism (not repeatable).

REL 663 (Alpha) Seminar in Polynesian Religions (3)

Selected historical, thematic, and textual research topics in Polynesian and Hawaiian religious traditions: (B) Polynesian religions (repeatable up to 9 credit hours); (C) Hawaiian religion (repeatable up to 9 credit hours).

REL 680 (Alpha) Pedagogy in Religion (3)

Theory, preparation, and practice in the teaching of religious studies at the community college level: (B) teaching religion (not repeatable; pre: 600 and 650); (C) teaching religion practicum (not repeatable; pre: 600, 650, and 680B).

REL 699 Directed Reading and Research (V)

REL 700 Thesis Research (V) Pre: graduate standing and consent of thesis chair.

Reproductive Biology (REPR)

School of Medicine

REPR 499 Directed Reading/Research (V)

REPR 603 Biology of Gametes, Fertilization, and Embryos (2) Morphological and physiological aspects of gamete formation and maturation, sperm-egg interactions, fertilization, and early development. Pre: BIOC 441 (or concurrent) and consent.

REPR 611 Seminar in Biomedical Sciences (1)

Presentation and discussion of current research topics in biomedical sciences. Repeatable. Pre: consent. (Cross-listed as CMB 611)

REPR 633 Sexual Behavior Research (V)

Individual research on psychological, social, or biological aspects of sexual behavior. Pre: PSY 100, PSY 170, ZOOL 101, and consent.

REPR 699 Directed Research (V)

REPR 700 Thesis Research (V) Pre: admission to candidacy (master's program).

REPR 705 Special Topics in Reproductive Biology (V)

In-depth discussion of selected areas of reproductive biology, with special emphasis on recent research results and methodologies. May be retaken for credit. Pre: consent.

REPR 800 Dissertation Research (V)

Pre: admission to candidacy (PhD program).

Russian (RUS)

College of Languages, Linguistics and Literature

All courses are conducted in Russian except 107 and 108.

RUS 101 Elementary Russian (4) Conversation, lab drill, reading, writing, grammar. **HSL**

RUS 102 Elementary Russian (4) Continuation of 101. Pre: 101. **HSL**

RUS 107 Reading Scientific Russian (3)

Intensive course for reading scientific literature. Basic Russian grammar; reading and translating. For science majors.

RUS 108 Reading Scientific Russian (3)

Continuation of 107. Pre: 107.

RUS 201 Intermediate Russian (4) Reading, conversation, laboratory drill, grammar, composition. Pre: 102. **HSL****RUS 202 Intermediate Russian (4)** Continuation of 201. Pre: 201. **HSL****RUS 209 Russian Phonetics (3)** Basic theory of Russian sound system; practice in pronunciation, intonation, and fluency. Pre: 102. May be concurrent with 201.**RUS 260 Intensive Intermediate Russian Abroad (V)** Intensive course of formal instruction on the second-year level in Russian language and culture in Russia. Pre: 102. **HSL****RUS 303 Advanced Russian (3)** Systematic practice for control of spoken and written Russian, vocabulary building, fluency in various subjects, accuracy in sentence structure, phrasing stylistic appropriateness. Pre: 202**RUS 304 Advanced Russian (3)** Continuation of 303.**RUS 306 Russian Structure (3)** Advanced grammar; complexities of standard contemporary Russian; word formation and verb system. Pre: 202 or consent.**RUS 311 Readings in Russian Civilization and Literature (3)** Mid-level readings in Russian civilization and literature of edited and adapted texts. Pre: 202. **DL****RUS 312 Readings in Russian Civilization and Literature (3)** Continuation of 311. Pre: 311. **DL****RUS 360 Intensive Third-Level Russian Abroad (V)** Intensive course of formal instruction on the third-year level in Russian language and culture in Russia. Pre: 202 or 260.**RUS 403 Advanced Conversation and Composition (3)** Systematic practice on selected topics; vocabulary building and development of fluency; writing short reports, narratives. Pre: 304 or consent.**RUS 404 Advanced Conversation and Composition (3)** Continuation of 403. Pre: 403.**RUS 418 Advanced Reading and Translation: Modern Prose (3)** Readings in various fields, emphasizing idiomatic usage. Pre: 312 or consent.**RUS 419 Advanced Reading of Russian Press (3)** Materials from Soviet/Russian newspapers and magazines. Pre: 311 or consent.**RUS 431 Russian Folklore (3)** Selected Russian folk narratives, bylinas, songs, and proverbs. Influence of folklore on major Russian authors. Pre: 312 or consent. **DL****RUS 441 Russian Short Story (3)** Origin and development (19th and 20th century); the major writers. Pre: three years of Russian or consent. **DL****RUS 442 Russian Novel (3)** Origin and development from 18th century to present. Pre: three years of Russian language or consent. **DL****RUS 451 Topics in 19th- and 20th-Century Russian Literature (3)** Focus upon the selected writings of one major Russian writer of the 19th century (e.g., Pushkin, Gogol, Lermontov, Dostoevsky, or Tolstoy) or 20th century (e.g., Bely, Blok, Bulgakov, Chekhov, Pasternak, Sholokhov, or Solzhenitsyn). Repeatable. Pre: 312, LLEA 351, or consent. **DL****RUS 452 Topics in 19th- and 20th-Century Russian Literature (3)** Continuation of 451. Pre: 312, LLEA 352, or consent. **DL****RUS 460 Intensive Fourth-Level Russian Abroad (V)** Intensive advanced courses of formal instruction on the fourth-year level in Russian language and culture in Russia. Pre: 360 or equivalent.**RUS 495 Seminar (3)** Literary or linguistic topics, movements, genres, or their representatives. Repeatable. Pre: consent of chair.**RUS 615 Russian Poetry (3)** Classical and contemporary Russian poets.**RUS 617 Russian Drama (3)** Representative plays of 18th, 19th, and 20th century.**RUS 618 Comparative Grammar: Russian and English (3)** Selected problems in modern Russian compared with English.**RUS 619 Advanced Russian Morphology and Syntax (3)** In-depth analysis of special topics of grammar and syntactical categories. Topics may include complex sentences, lexical-syntactical categories, idiomatic expressions, etc. Pre: 306.**RUS 621 Old Church Slavonic Grammar and Texts (3)** Phonemics, morphophonemics, declension, conjugation, and syntax; readings in selected texts written before 1100; some consideration of common Slavic. Pre: graduate standing.**RUS 622 Historical Grammar of Old Russian Language (3)** Old Russian phonology, morphemics, syntax, and lexicology in contrast with modern Russian; some comparison with contemporary Ukrainian and Byelorussian, etc. Readings and linguistic analysis of medieval Russian literary texts. Pre: 621.**RUS 641 Old Russian Literature (3)** Origins and development of literary trends and genres—chronicles, historical tales, lives—10th–17th century. Pre: graduate standing.**RUS 642 18th-Century Russian Literature (3)** Authors and their works; development of the main genres; West European trends and cultural influences. Pre: 641.**RUS 650 Historical Development of Russian Literary Style (3)** Role of the oral tradition, old church Slavonic, vernacular elements, and Western borrowings; influence of Lomonosov, Pushkin, Tolstoy, etc. Pre: 622 or 641.**RUS 699 Directed Reading (V)** Pre: consent of department chair.**RUS 735 Seminar in Russian Language or Literature (3)** Literary or linguistic topics, movements, genres, or their representatives. Repeatable. Pre: consent.

Samoan (SAM)

*College of Languages, Linguistics and Literature***SAM 101 Elementary Samoan (4)** Listening, speaking, reading, writing skills. Structural points introduced inductively. History and culture. Meets five hours weekly; daily lab work. **HSL****SAM 102 Elementary Samoan (4)** Continuation of 101. **HSL****SAM 107 Elementary Samoan for Professionals (4)** Development of listening, reading, writing, and other communication skills for nursing and social work students. Culture and history integrated with language study. **HSL****SAM 108 Elementary Samoan for Professionals (4)** Continuation of 107. **HSL****SAM 201 Intermediate Samoan (4)** Continuation of 102. Meets five hours weekly, four of five hours devoted to drill and practice. Daily lab work. Pre: 102. **HSL****SAM 202 Intermediate Samoan (4)** Continuation of 201. **HSL****SAM 208 Special Samoan: Reading and Writing (3)** For partially bilingual students whose aural-oral skills in Samoan were acquired informally. Emphasis on reading, writing, and grammar through 202 level.**SAM 227 Overview of Samoan Literature in English (3)** Survey of major writers of Samoan literature in English; lectures, discussions, short paper. **DL****SAM 301 Third-Level Samoan (3)** Continuation of 202. Conversation, advanced reading, and composition. Meets three times weekly; additional lab work. Pre: 202.**SAM 302 Third-Level Samoan (3)** Continuation of 301.**SAM 321 Samoan Conversation: Traditional Contexts (3)** Systematic practice on various topics for control of spoken Samoan in traditional contexts. Pre: 202 or equivalent; or consent.**SAM 322 Samoan Conversation: Contemporary Contexts (3)** Systematic practice on various topics for control of spoken Samoan in modern contexts. Pre: SAM 202 or equivalent; or consent.**SAM 421 Samoan Ceremonial Speech (3)** Development of oratory skills in Samoan ceremonial speech. Emphasis on institutionalized applications such as the kava ceremony and formal speechmaking. Pre: 402.**SAM 422 Samoan Ceremonial Speech (3)** Continuation of 421.**SAM 431 Samoan Oral Traditions (3)** Historical survey and analysis of the oral traditions and genealogies of Samoa with special emphasis on the relationship of these traditions with Samoan ceremonial speech. Pre: 302. **DL****SAM 432 Samoan Oral Traditions II (3)** Continuation of 431. Pre: 431 or consent. **DL****SAM 452 Structure of Samoan (3)** Study of modern Samoan grammar including some sociolinguistic background. Pre: 202 or LING 102, or consent.**SAM 461 Traditional Samoan Literature (3)** A survey of the major genres of traditional Samoan literature. Taught in the Samoan language. Pre: 302 or consent. **DL**

Sanskrit (SNSK)

College of Languages, Linguistics and Literature

SNSK 181 Introduction to Sanskrit (3)

Introduction to basic Sanskrit grammar; reading and analysis of progressively difficult classical texts. **HSL**

SNSK 182 Introduction to Sanskrit (3)

Continuation of 181. **HSL**

SNSK 281 Intermediate Sanskrit (3) Continuation of 182. Reading and analysis of classical texts with review of grammar. Pre: 182. **HSL**

SNSK 282 Intermediate Sanskrit (3) Continuation of 281. **HSL**

SNSK 381 Third-Level Sanskrit (3) Continuation of 282. Reading and analysis of various classical texts. Pre: 282.

SNSK 382 Third-Level Sanskrit (3) Continuation of 381. Introduction to Veda.

SNSK 481 Fourth-Level Sanskrit (3) Continuation of 382. Reading, analysis, and interpretation of various Vedic or Sanskrit texts selected according to students' interests. Pre: 382.

SNSK 482 Fourth-Level Sanskrit (3) Continuation of 481.

SNSK 685 Advanced Readings in Sanskrit (3) Reading, analysis, and interpretation of selected texts. Repeatable. Pre: 482.

Second Language Studies (SLS)

College of Languages, Linguistics and Literature

Courses below 380 are not applicable toward the MA in English as a second language.

SLS 302 Second Language Learning (3)

Theoretical foundations for the learning and teaching of second/foreign languages. Pre: upper division standing.

SLS 303 Second Language Teaching (3) Survey of methodology; basic concepts and practices. Pre: 302.

SLS 312 Techniques in Second Language Teaching: Reading and Writing (3) Methods and materials. Issues in teaching; survey of available materials and practice in their adaptation. Pre: 302.

SLS 313 Techniques in Second Language Teaching: Listening and Speaking (3) Methods and materials. Issues in teaching; survey of available materials and practice in their adaptation. Pre: 302.

SLS 380 Bilingual Education (3) Survey and analysis of current thinking and practices in bilingual/bicultural education; special emphasis on ESL/EFL. Pre: 302, graduate standing; or consent. **DS**

SLS 418 Instructional Media (3) Theoretical foundation and practical applications of using electronic and audiovisual media in second language teaching. Pre: 303 or graduate standing; or consent.

SLS 430 Pidgin and Creole English in Hawai'i (3) Major historical descriptive, pedagogical aspects; pidgin and creole languages, linguistic change, language variation. Work with actual language data. Laboratory work required. Pre: 302 and LING 102, or graduate standing; or consent. **DS**

SLS 441 Language Concepts for Second Language Learning and Teaching (3) Language analysis—phonology, syntax, semantics, discourse for teaching second languages. Pre: one of 302, LING 102, LING 320, or graduate standing; or consent.

SLS 460 English Phonology (3) Basic course in English phonetics and phonology; emphasis on areas of interest to language teachers. Pre: 302. **DH**

SLS 480 (Alpha) Topics in Second Language Studies (3) Variable topics in special areas of second language studies: (E) second language learning (Pre: 302 or consent); (N) second language analysis (Pre: 302 or consent); (P) second language pedagogy (Pre: 303 or consent); (R) second language research (Pre: 302 or consent); (U) second language use (Pre: 302 or consent). Not applicable toward graduate degrees offered within SLS except by departmental consent. Repeatable one time if different alpha.

SLS 490 Second Language Testing (3) Measurement and evaluation of achievement and proficiency in second language learning. Pre: 302, 441, LING 102, or graduate standing.

SLS 499 Directed Reading/Research (V) For liberal studies majors. Pre: a minimum cumulative GPA of 2.7 or a minimum GPA of 3.0 in major, or consent of department chair.

SLS 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

SLS 520 Topics in Second Language Teaching (V) Approaches and methodology in teaching second languages; research in second language acquisition and sociolinguistics. Repeatable three times. CR/NC only. Pre: teaching certificate.

SLS 600 Introduction to Second Language Studies (3) Introduction to basic professional and research issues in second language studies; integration of theory, research, and practice for prospective ESL teachers and researchers. Pre: graduate standing or consent.

SLS 612 Alternative Approaches to Second Language Teaching (3) Examination, comparison with conventional approaches; interpersonal relationships in language teaching. Pre: 600 or consent.

SLS 613 Second Language Listening and Speaking (3) Key issues; overview and critique of published materials; practice in developing syllabi and other materials. Pre: 600 or consent.

SLS 614 Second Language Writing (3) Problems in teaching second language composition. Survey materials; use, modification, and development. Error analysis. Pre: 600 or consent.

SLS 620 Second Language Reading (3) Survey of research in reading process; teaching methodology; psycholinguistic investigations; comparison of reading in first and second languages. Pre: 600 or consent.

SLS 630 Second Language Program Development (3) Designing, implementing, and evaluating language programs; systems-based approach to program and curriculum development. Pre: 600 or consent.

SLS 640 English Syntax (3) English clause structure in relation to second language learning and teaching. Pre: 441 and 600 (or concurrent), or consent.

SLS 642 Comparative Grammar and Second Language Acquisition (3) Comparative study of structures of two or more languages; native speaking informants used. Consideration of language transfer in second language learning; role of typological features. Pre: 441, 460, or ENG 401.

SLS 650 Second Language Acquisition (3) Theory and research. A–F only. Pre: 490 and 600; or consent.

SLS 660 Sociolinguistics and Second Languages (3) Theoretical and practical aspects of language, culture, and society. A–F only. Pre: 600 or consent.

SLS 670 Second Language Quantitative Research (3) Quantitative research methods; design of research studies; techniques in collecting data; statistical inference; and analysis and interpretation of data. Pre: 490, 600, and graduate standing; or consent.

SLS 671 Research in Language Testing (3) Advanced issues in language testing research including recent developments in the following areas: language testing hypotheses, item analysis, reliability, dependability, and validity. Pre: 490 or consent.

SLS 672 Second Language Classroom Research (3) Survey of research on second language classrooms and analysis of methodological issues. Pre: 600.

SLS 673 Applied Psycholinguistics and Second Language Acquisition (3) Theory and research in psycholinguistics as related to second language perception, production, acquisition, and instruction. Pre: 441 or LING 422, and 600; or consent.

SLS 675 Second Language Interpretative Qualitative Research (3) Philosophical and theoretical aspects of second language interpretative qualitative research. Pre: 600 and 660 (or concurrent); or consent.

SLS 678 Microanalysis in Second Language Research (3) Discourse analysis and verbal report as qualitative approaches to second language research; their theories and methodologies; practical application. Pre: 600 or consent.

SLS 680 (Alpha) Topics in Second Language Acquisition (3) Variable topics in special areas of second language studies: (E) second language learning (Pre: 650); (N) second language analysis (Pre: 640); (P) second language pedagogy (Pre: 600 or consent); (R) second language research methodology (Pre: 670 or 675 or 678; or consent); (U) second language use (Pre: 660). Repeatable if different alpha.

SLS 690 ESL Teaching Practicum (3) Student teaching in ESL classroom. Pre: 600, advancement to candidacy, and consent.

SLS 699 Directed Reading/Research (V)

Individual reading in various fields of ESL. CR/NC only. Pre: consent of department chair and instructor.

SLS 700 Thesis Research (V) Thesis research for Plan A students.

SLS 710 Teaching Second Languages (3)

Analysis of methods; implications of recent and current research. A–F only. Pre: 650 and 660; or consent.

SLS 730 Seminar in Second Language Education (3)

Current issues and problems. Repeatable. Pre: 600 and advancement to candidacy; or consent.

SLS 750 Seminar in Second Language Acquisition (3)

Issues in theory and research in second language acquisition of child and adult. Pre: 650 or consent.

SLS 760 Seminar in Second Language Use (3)

Second language/dialect use in multilingual communities. Repeatable. Pre: 660 or consent.

SLS 775 Seminar in Second Language Qualitative Research: Methods (3)

Methodology of qualitative research in second language and multilingual contexts; data collection and analysis; ethics and style in research reporting. Pre: 675 or consent.

SLS 799 Apprenticeship in Teaching (V)

An experienced-based introduction to college-level teaching; doctoral students serve as student teachers to professors; responsibilities include supervised teaching, and participation in planning and evaluation. Repeatable. CR/NC only. Pre: graduate standing and consent.

Social Sciences (SOCS)

College of Social Sciences

Two kinds of courses are available directly from the College of Social Sciences: interdisciplinary courses and courses on tools, techniques, theories, and methods shared by the social science disciplines. The broader perspective and opportunity for cross-disciplinary interaction make these courses attractive.

SOCS 220 Computer Applications in Social Sciences (3)

Word processing, spreadsheets, database management, introductory statistics; other social sciences applications. Lab required.

SOCS 225 Statistical Analysis for Social Sciences (3)

Statistical reasoning in the analysis of social science data, including descriptive statistics, exploratory data analysis, inference measures of association, decomposition of variance, and regression analysis. Lab required. Pre: any 100 level social science course or consent. **DS**

SOCS 250 Social Science Enquiry (3)

Survey of enquiry methods in social sciences with an emphasis on the development of skills of enquiry, including critical thinking, evidence gathering and evaluation, reasoning, and argumentation. Pre: any 100-level social science course or consent. **DS**

SOCS 496 Social Studies for Teachers (3)

Integrates social sciences and history into a coherent framework for teaching middle and secondary school social studies courses on Hawai'i, the U. S., and the world. Repeatable one time. Pre: HIST 151 and 152; or consent. **DS**

SOCS 600 Social Science Theory (3) History and theory of social science.

SOCS 601 Topics in Teaching Innovations (3)

Examination and critical analysis of contemporary curriculum and instruction issues in social sciences. Concepts, theories, principles underlying active learning, critical thinking, values inquiry, assessment, and multidisciplinary approaches to integration of knowledge.

Social Work (SW)

School of Social Work

SW 402, 403, 440, 490, and 491 are open only to majors who complete 200 and all 300-level SW courses with a grade of C or better.

SW 200 The Field of Social Work (3)

Orientation to the profession of social work; historical development, values and philosophy, scope and aims.

SW 302 General Social Work Practice I (3)

Orientation to practice principles, concepts, values, knowledge base, and their application. Pre: majors only.

SW 303 General Social Work Practice II (3)

Introduction to practice skills with individuals, families, groups, and communities. Pre: majors only. Co-requisite: 391.

SW 325 History of Social Welfare (3)

Historical developments and implications of social welfare activities, institutions, and policies and European backgrounds; introduce social welfare developments in selected non-European countries. Recommended: 200.

SW 326 Social Welfare as a Social Institution (3)

Study of U.S. social welfare institutions and policies as an expression of societal response to human needs; interrelationship of American value system to goals, objectives, and policies of social security programs; focus on examination of Hawai'i's social service programs. Recommended: 200. **DS**

SW 360 Human Development and Behavior for Social Work Practice (3)

Examination of social and cultural variables such as human development and behavior; use of knowledge in these areas by social work practitioners. Recommended: 200. **DS**

SW 361 Sociocultural Content for Social Work Practice (3)

Examination of ethnicity, class, and sex statuses as these affect human development and behavior for social work practice. Recommended: 200. **DS**

SW 380 Topics in Social Welfare (V)

An examination of current trends in the field of social welfare. **DS**

SW 391 Junior Practicum (3)

Introduction to field instruction; application of social work knowledge, skills, and values to field experience. Pre: 302, majors only, junior standing, and completion of required sophomore and first-semester junior-level SW courses. Co-requisite: 303.

SW 402 General Social Work Practice III (3)

Use of problem-solving process in practice with individuals, families, groups, and communities. Pre: majors only, senior standing, completion of required sophomore- and junior-level SW courses. Co-requisite: 490.

SW 403 General Social Work Practice IV (3)

Examination of practice methods and interventive models; identification and analysis of issues related to practice. Pre: majors only, senior standing, completion of required sophomore- and junior-level SW courses. Co-requisite: 491.

SW 440 Research Development in Social Welfare (3)

Introduction to and application of language of research, theoretical concepts underlying advancement of knowledge, practical steps in research. Pre: senior standing. **DS**

SW 474 Social Work with Adult and Juvenile Offenders (3)

Problems, issues, developments in juvenile and criminal justice; effectiveness of current interventive techniques, preventive and correctional efforts. Pre: senior standing or consent.

SW 475 Social Services with Children (3)

Study of current social services for children in the U.S. with focus on familiarization of child welfare programs and services in Hawai'i. Pre: senior standing or consent.

SW 477 Social Welfare Concepts and Issues in Gerontology (3)

Aging and its effect on the individual, family groups, associations, and communities. Impact of aging on social service delivery systems, public policy and role of social work. Pre: senior standing or consent. **DS**

SW 480 Topics in Social Welfare (V)

An examination of current trends and issues in social work.

SW 490 Senior Practicum (4)

Field instruction, application, and integration of classroom knowledge with field experiences. Pre: majors only, senior standing, completion of required sophomore- and junior-level SW courses. Co-requisite: 402.

SW 491 Senior Practicum (4)

Field instruction, application, and integration of classroom knowledge with field experiences. Pre: majors only, senior standing, completion of required sophomore- and junior-level SW courses. Co-requisite: 403.

SW 499 Directed Reading and Research (V)

Planned individualized study or research in special area related to social work practice interest. Up to 3 credit hours. Pre: majors only, senior standing, and consent of program chair and faculty adviser.

SW 500 Master's Plan B/C Studies (1)**SW 606 Social Work Practice with Individuals (3)**

This beginning practice course introduces students to the basic processes of social work and the roles and skills needed for generalist practice. Relevant theories of social work practice with individuals are explored for the efficacy with various problems and for their applicability to practice with various ethnocultures, social classes, and oppressed populations. Interviewing and interpersonal skill development are incorporated. A-F only. Pre: admission to MSW program. Fall only.

SW 607 Social Work Practice with Families and Groups (3)

This practice course builds upon the generalist framework and foundation content presented in 606. Special emphasis is given on models for assessment, intervention, and evaluation of practice with families and groups. Relevant theories of groups and the principles of group dynamics and group work methods are examined in regard to task, therapeutic,

psychoeducational, and social development groups. Family content includes structural, behavioral, communication/experiential, and culturally-specific theories of intervention. Pre: 606.

SW 630 Social Welfare Policy and Services (3)

Examines in a historical and comparative framework the economic, social, political, organizational, and administrative factors influencing the development, formulation, and implementation of social welfare policies in the U.S. The course provides opportunity for the application of various models of social policy analysis in major areas of social welfare programming and service delivery. A-F only. Pre: graduate standing. Fall only.

SW 631 Social Work Practice in Communities and Organizations (3)

Community conceptualization; organized roles of developer, enabler, broker, mediator, and advocate; diagnostic and problem-solving technology; the special characteristics of the social worker as community organizer; matrix of structural objectives; sources and use of power; how to build an organization; and interorganizational negotiation. A-F only. Pre: 606, graduate standing, and consent. Spring only.

SW 632 Social Welfare Change through Legislation (3)

Introduction to the social worker's role as a change agent through the use of the legislative process. Includes a review of social needs and problems, the legislative process per se and study of basic skills necessary in making appropriate social work input into the legislative process for the enactment of social welfare legislation. Pre: graduate standing.

SW 633 Organization and Administration in Social Work (3)

Introduction to formal organization theory. Social service administration examined and implications for service delivery systems developed. Pre: graduate standing.

SW 640 Introduction to Scientific Methods and Principles in Social Work (3)

Understanding and interpreting results of nomothetic and idiographic research; design principles and statistical analyses and their relationship to practices; use of published research. A-F only. Pre: graduate standing. Fall only.

SW 642 Nomothetic Research in Social Work Practice (3)

Classical experimental and survey research methods specific to social work. Basic statistical techniques appropriate to those designs. Recommended for students planning to take 743. Pre: 640.

SW 650 Research Designs and Data Analyses for the Evaluation of Practice Effectiveness (3)

Extending the study of scientific methods introduced in 640. Covers the range of empirical research methods and data analytic procedures suitable for knowledge building and practice evaluation at all levels of intervention from case to program. A-F only. Pre: 640. Spring only.

SW 651 Introduction to Quantitative Methods (3)

Introduction to quantitative methods in the behavioral sciences. Review of elementary statistical methods. Introduction to the general linear model as principle of data analysis. Pre: 640 or consent.

SW 652 Computer Applications in the Behavioral Sciences (3)

Introduction to the use of computers and computer-related equipment in the management and analysis of data in the behavioral

sciences. Includes introduction to control language, use of SAS or SPSS routines, and interpretation of output. Emphasis on application through use of the University's computing facilities. Pre: 640 or 651. (Cross-listed as EDEP 602)

SW 653 Design and Analysis of Psychological Experiments (3)

Analysis of variance and other modes assessing results of experiments; relation of analysis to design. Pre: 651. (Cross-listed as PSY 611 and EDEP 603)

SW 654 Multiple Regression in Behavioral Research (3)

Advanced application of the general linear model to complex problems of data analysis. Relation of analysis of variance and co-variance to regression analysis. Pre: 651 or consent. (Cross-listed as PSY 612 and EDEP 604)

SW 655 Factor Analysis (3)

Theory and method of factor analysis and related methods of multivariate analysis. Pre: 654 or consent. (Cross-listed as PSY 613 and EDEP 605)

SW 656 Multivariate Methods (3)

Multivariate forms of analysis, variance, co-variance, discriminant analysis, canonical correlation, and principal components analysis. Pre: 654 or consent. (Cross-listed as PSY 614 and EDEP 606)

SW 657 Nonparametric Methods for the Behavioral Sciences (3)

Conditions for valid applications of nonparametric statistical techniques in the behavioral sciences presented from both theoretical and methodological perspectives. Pre: 651 or consent. (Cross-listed as PSY 615 and EDEP 607)

SW 658 Measurements and Evaluation (3)

Theory of measurement and evaluation; analysis of tests and scales emphasizing statistical and psychological analysis of experimental and standardized tests and scales. Special topics include measurement of attitude and mental health concepts and measurement issues in cross-cultural research. Pre: 651. (Cross-listed as PSY 616 and EDEP 616)

SW 659 Human Behavior in the Social Environment I (3)

An overview of social work's person-in-environment focus as it applies to human behavior in the context of families, groups, communities, and organizations. Using an ecological perspective, theories and evidence about human behavior are introduced and examined. A-F only. Pre: graduate standing. Fall only.

SW 660 Human Behavior in the Social Environment II (3)

This course uses social work's person-in-environment focus to organize knowledge development about biological, psychological, social, and cultural systems as they are affected by human behavior. It is designed to provide students with an overview of human behavior and healthy and unhealthy development over the life span. A-F only. Pre: 659. Spring only.

SW 661 Problems in Human Sexuality (3)

Problems associated with human sexuality, attitudes, culture, and range of individual differences and approaches to resolving these problems. Pre: graduate standing.

SW 662 HIV and the Human Condition (3)

An interdisciplinary look at HIV disease from the perspectives of public health, social work, medicine, and nursing. The course will provide an

overview of the major issues relating to HIV/AIDS. Pre: graduate standing.

SW 663 Treatment of Chemical Dependency (3)

Introduction to treatment of alcoholism and other chemical dependencies. Application of social work strategies in work with individuals and families in the disease and recovery process. Pre: graduate standing

SW 672 Child Welfare as a Field of Social Work (3)

Emphasis on the developments in child welfare; issues, concerns with regard to needs and rights, and the application of social work services to problems associated with needs for protection. Review of historical, theoretical, empirical, and legal findings for skill development in intervening in dysfunctional parent/child interaction. Pre: graduate standing.

SW 674 Community and Public Health Practice (2)

Community organization and development applicable to the delivery of health services. Understanding community dynamics, mobilizing community groups for effective health care practice and delivery. Pre: PH 647 or PH 737 or graduate standing; or consent. (Cross-listed as PH 671)

SW 677 Ethnic and Minority Content in Social Work (2)

Emphasis is on social work principles and concepts in relation to known information about various ethnic groups. The concepts "ethnicity" and "minority," defined within the context of the American culture, are discussed as horizontal and vertical paradigms with conflicting goals that contribute to social and cultural change. Pre: graduate standing.

SW 680 Topics in Social Welfare (V)

Current trends in field of social welfare. Recent courses have focused on child abuse and neglect, justice system, sexual assault and family violence, and gerontology. Meets seminar requirement. Pre: graduate standing.

SW 690 Practicum (3)

Field units are maintained by the school in public and voluntary welfare agencies, as well as in governmental programs. Students receive instruction related to their school experience with social problem situations and an opportunity to see the applicability and to experience the use of concepts and principles in actual practice. Pre: admission to MSW program.

SW 691 Practicum (3)

Field units are maintained by the school in public and voluntary welfare agencies, as well as in governmental programs. Students receive instruction related to their school experience with social problem situations and an opportunity to see the applicability and to experience the use of concepts and principles in actual practice. Pre: admission to MSW program.

SW 699 Directed Reading and Research (V)

Students, on the basis of special interest, select a faculty member to work with on a problem for which planned individualized study or research is deemed advisable. Pre: consent.

SW 700 Thesis Research (V)

Independent research under supervision of a thesis committee. Includes formal proposal and defense of finished research.

SW 706 Family Therapy (3)

Advanced knowledge and skills in the field of family therapy through both didactic and experiential teaching leading to systematic intervention in dysfunctional family systems. Pre: 606 or consent.

SW 707 Methods of Group Psychotherapy (3)

This course is designed specifically to train students in the theory and practice of leading psychotherapy groups; it includes historical developments, research, theories, and application of group psychotherapy, group techniques and exercises. Pre: 607 or consent.

SW 708 Social Work Practice with Peoples of Hawai'i (3)

The course places special emphasis on practice adaptations necessary in working with specific ethnic groups in Hawai'i. Thinking and belief patterns, feelings, and designs for living are considered in relation to differential treatment approaches. Pre: graduate standing.

SW 712 Social Work Practice and Sex-Related Problems (3)

SW 713 Social Work Practice with Sexually Oppressed Groups (2) Application of social work knowledge and skills to problems associated with sexually oppressed, e.g., women, homosexually oriented, aged, disabled, victims of rape. Meets seminar requirement. Pre: graduate standing.

SW 715 Therapeutic Strategies with the Older Adult (3) The course focuses on interdisciplinary strategies with older adults: individual, family, and group therapy; eclectic mental health approaches; case management; and environmental intervention. Emphasis placed on the use of these strategies as preventive, as well as supportive, measures for the well, transition, and frail elderly. Meets seminar requirement. Pre: graduate standing.

SW 717 Social Work Practice with Children and Families (3) An advanced practice course for students specializing in social work with children and families. It is designed to provide students with an in-depth understanding of both theoretical formulations and therapeutic techniques for practice in the field of family and child welfare. Emphasis placed on the development of specialized knowledge and skills for assessment, intervention, and evaluation of a variety of common child and family practice situations. Pre: completion of foundation courses.

SW 718 Seminar in Social Work Practice with Children and Families (3) This seminar is designed for students in the child and family concentration and builds upon past knowledge and skill development in practice classes and in the practicum. Students integrate, demonstrate, and extend earlier learning, acquire new knowledge, and learn and practice new skills. The course is organized around student case presentations in a consultation format. Meets seminar requirement. Pre: 717.

SW 722 Social Work Practice in Health Care (3)

Didactic and experiential learning activity focuses on the major role functions of the social worker in the health field including assessment, contracting, counseling, advocacy, case management, discharge planning, family group work, community and team building. Course content covers health care policy, research directions in practice and social work management issues. Pre: completion of foundation courses.

SW 723 Seminar in Social Work Practice in Health Care (3)

Through the use of case studies developed by the students, social work practice is examined in three areas of health care: primary care provided in health departments and medical groups, hospital-based services, and long-term care. Meets seminar requirement. Pre: 722.

SW 724 Seminar in Social Work Practice in Mental Health (3)

This course prepares students for social work practice in mental health settings. As the first course in the concentration, it focuses primarily on minor or short-term mental dysfunctioning (e.g., reactive depression, anxiety). The course is built on conceptual foundations including cultural implications of mental health, human ecology, life cycle/events, strengths assessments, and research. It includes a seminar component which involves student case presentations and consultations. Pre: completion of foundation courses.

SW 725 Social Work Practice in Mental Health (3)

This course prepares students to work with persons who are experiencing major mental disorders and to improve the systems of care that have been developed to serve this population. It reviews the history of the community mental health movement, discusses relevant policies and laws, and describes the current mental health system in the United States and Hawai'i. Pre: 724.

SW 726 Social Work Practice with the Aged (3)

This course is designed for social work students specializing in social work practice with the aged and their families. It examines normative and pathological aging and its impact on physical processes, intellectual functions, and personality. Emphasis is placed on the development of specialized knowledge and skills for assessment, intervention, and evaluation of a variety of issues and needs common in later life. Discussions on the applicability of certain interventions with the older adult and the family, along with ethnocultural and gender considerations. Pre: completion of foundation courses.

SW 727 Seminar in Social Work with the Aged (3)

This course, designed for social work students in the aged concentration, builds upon past knowledge and skill development from courses and practicum. Students examine micro and macro interventions used for a wide range of issues and problems encountered by older adults and their families through the use of both case presentation and case consultations assignments. Meets seminar requirement. Pre: 726.

SW 730 Social Planning (3)

Introduction to social planning with emphasis on planning within the social welfare sector. Overview of social planning perspectives; examination of alternative theoretical framework in social planning, particularly social development formulations; in-depth analysis of the social welfare planning sector including theoretical perspectives; value-factual premises in need definition, primary tasks (allocation-coordination), organizational contexts, planning strategies and instrumentation, and professional roles. Pre: 631 or consent.

SW 731 Social Policy Analysis (3) Students pursue in-depth a specific topic in the areas of social planning, social policy analysis, evaluation of social programs, administration, supervision, and consultation. Selectively a comparative perspective is introduced and case studies used to illustrate concepts, principles, and techniques, with implications for practice. Meets seminar requirement. Pre: 630 or consent.

SW 733 Program Development, Funding, and Evaluation (3)

Basic concepts in program planning and development; implementation strategies; grants administration—proposal

formulation and development, proposal negotiation, and project administration; evaluation of social services. Pre: graduate standing and consent.

SW 737 Social Work and the Law (3) Knowledge of judicial systems and law relevant to social work practice in corrections, child-family welfare, health, and mental health. Skills for effective participation in the legal process are acquired in moot court and in practice for testifying. Pre: graduate standing.

SW 741 Review of Research in Social Work (3)

In-depth study of research in a substantive area. Each seminar will be devoted to a particular topic: e.g., foster care of children, effectiveness of social work intervention, etc. Pre: 650.

SW 742 Review of Research in Social Work (3)

Continuation of 741.

SW 743 Individual or Group Research Project—Plan B (V)

Independent research (group of two to seven students or by an individual student) undertaken under the sponsorship of a faculty adviser. Elements are selection of a topic related to the practice of social work or knowledge relevant to that practice, utilization of empirical research methodology in collecting and analyzing original data, and preparation of a scholarly paper. Pre: 650.

SW 744 Individual or Group Research Project—Plan B (V)

Same as 743. Pre: 743.

SW 745 Social Work Research Seminar (2)

For students who will be conducting Plan A thesis or Plan B research project. Focus on conceptualizing, designing, and implementing an empirical study, measurement issues, and computer applications. Meets seminar requirement. Pre: 640.

SW 746 Individual or Group Research Project—Plan B (V)

Same as 743.

SW 750 Analysis and Development of Knowledge for Social Work (3)

Focuses on developing an understanding of philosophy of science, theory development, social work epistemology, and the analysis and development of knowledge for social work practice. Pre: PhD candidate in social welfare or consent.

SW 751 Research Design and Cross-Cultural Applications (3)

Empirical research methodology with emphasis on design principles and measurement theory; design and measurement issues and problems in cross-cultural research. Pre: PhD candidate in social welfare or consent.

SW 755 Specialization Integration Seminar (3)

Culminating experience in social welfare doctoral specialization; integration of PhD core and specialization course work. Pre: classified student in PhD in social welfare program or consent.

SW 759 Child and Family Violence (3)

Dynamics of child abuse and neglect and issues related to child maltreatment and family violence. Includes legal, cultural, and social perspectives.

SW 760 Interdisciplinary Perspectives in Child Abuse and Neglect (3)

Interdisciplinary approaches and collaborative methods for practice in child abuse and neglect. Includes legal, medical, educational, nursing, social work, public health, and psychological aspects. Meets seminar requirement. Pre: PH 735.

SW 772 Seminar in International Social Work (3)

Approaches to social problems and trends in the profession in international, cross-cultural

perspectives. Emphasis on developmental aspects of social work. Political, economic, social, and cultural forces shaping social welfare in national development. Meets seminar requirement. Pre: graduate standing or consent.

SW 774 Cultural Factors in Work with Hawaiians (3) Hawaiian culture, past and present. Explores and examines possible approaches to working with Hawaiians and part-Hawaiians. Special emphasis on supports in the Hawaiian system that may promote maximal functioning for those Hawaiians experiencing problems in today's society. Meets seminar requirement. A-F only. Pre: graduate standing.

SW 776 Seminar on Women and Health (3) Women's health and the role of women health professionals. Current literature and research regarding attitudes, roles, rights, and health care. Pre: graduate standing or consent. (Cross-listed as NURS 744)

SW 780 Seminar in Substantive Field (V) Current problems and issues in fields such as mental health, child welfare, institutional care, public welfare; possible solutions. Meets seminar requirement. Pre: graduate standing.

SW 790 Second-Year Practicum (V) Instruction in the field is continued. The practicum of the second year provides an opportunity for the student to test out concepts, principles, theories, and alternate approaches in actual practice settings. Pre: 691.

SW 791 Second-Year Practicum (V) Same as 790.

SW 800 Dissertation Research (V) Repeatable once.

Sociology (SOC)

College of Social Sciences

In addition to the prerequisites specified below, all 300-level courses have as a prerequisite SOC 100 or a 200-level sociology course, or consent. In addition to the prerequisites specified below, all 400-level courses require SOC 300 or consent.

SOC 100 Introduction to Sociology (3) Basic social relationships, social structures, and processes. **DS**

SOC 214 Introduction to Race and Ethnic Relations (3) Race and ethnic relations in world perspective; social, economic, and political problems associated with perception, existence, and accommodation of these groups within the wider society. **DS**

SOC 218 Introduction to Social Problems (3) Theoretical and substantive survey of the nature and causes of social problems; selected types: poverty, inequality, deviance, etc. **DS**

SOC 231 Introduction to Juvenile Delinquency (3) Forms of juvenile deviance; conditions and processes that result in alienation and deviance of youth. Juvenile corrections as institutionalized societal responses. **DS**

SOC 251 Introduction to Sociology of the Family (3) Family patterns, mate selection, parent-child interaction, socialization of roles, legal sanctions, trends in organization, functions. **DS**

SOC 300 Principles of Sociological Inquiry (3) (2 Lec, 2 50-min Lab) Basic methods of sociology for production and analysis of data. Foundations for understanding research and for advanced courses in methods and statistics. Pre: one of 100, 214, 218, 231, or 251; or consent. **DS**

SOC 301 Survey of Urban Sociology (3) The city in historical and comparative perspectives. Interplay of demographic, economic, and cultural factors in urban growth. Urban process, development, and interdependence. **DS**

SOC 311 Survey of Social Inequality and Stratification (3) Introduction to social stratification theory and research; definition and measurement of socioeconomic status; racial, ethnic and gender inequality; differences in lifestyles and life chances; social mobility. Pre: one of 100, 214, 218, 231, or 251; or consent. **DS**

SOC 313 Survey of Sociology of Work (3) Work from viewpoint of individuals; meaningfulness versus productivity; how work, economics, and the industrial system affect individual goals. **DS**

SOC 316 Survey of Social Change (3) Causes, processes, and effects of social change, using single- and multi-cause models in simple and complex industrialized societies. **DS**

SOC 317 Survey of Sociology of the Community (3) Definitions, models, and theories; classic studies with applications from participant/ members and sociologist/observers; intentionality in organizational work, communes, and social networks; special reference to local community. **DS**

SOC 318 Women and Social Policy (3) Social and economic policies affecting women in families, education, social services, government, health care, the economy; public policy implementation and development; policy impact on women. Pre: 100 or WS 151; or consent. (Cross-listed as WS 318) **DS**

SOC 321 Survey of Sociological Theory (3) Major theorists and their influences, from Comte to today. **DS**

SOC 332 Survey of Sociology Law (3) Law as a political enforcement of the social order; how it is organized and operates; determinants of effectiveness; ways it adapts to and facilitates changing social conditions. **DS**

SOC 333 Survey of Criminology (3) Concepts used in crime, law enforcement, criminal justice, and corrections. Types of criminal behavior; costs and effects of control. **DS**

SOC 335 Survey of Drugs and Society (3) Use of mood- and mind-altering drugs in America among adults, youth, and cross-culturally. Illicit drug culture, psychedelics, and perception; social norms and deviant behavior. **DS**

SOC 336 Deviant Behavior and Social Control (3) Interrelations of deviance, criminology, juvenile delinquency, corrections, social control, sociology of law. Key concepts, theories. **DS**

SOC 341 Survey of Social Psychology (3) Major principles; social attitudes, theories of conformity and change, person perception and attribution theory, social role, role conflict and role behavior, group structure, and behavior. **DS**

SOC 343 Survey of Total Institutions (3) Erving Goffman's concept of total institutions as applied

to prisons, mental hospitals, leprosaria, military establishments, ocean vessels, etc., and to "social self" and "social interaction." **DS**

SOC 352 Survey of Sociology of Education (3) Formal education as one aspect of socialization. Emphasis on American system; business, military, and religious institutions. **DS**

SOC 353 Survey of Sociology of Aging (3) Aging as a social phenomenon, including social impacts of growing elderly population and emerging social patterns among the elderly. Important theoretical perspectives and cross-national research. **DS**

SOC 354 Survey of Medical Sociology (3) Social factors in disease and treatment; illness behavior, roles of patients and healers; nature of healing professions; use of medical services; alternative systems of medical organization. **DS**

SOC 356 Sociology of China (3) Social institutions, family, community, education, stratification, government, economy; impact of modernization and revolution on their contemporary transformation. A-F only. **DS**

SOC 357 Sociology of Japan (3) Persistence and change in economy, policy, religion, education, family, and other institutions of modern Japan. **DS**

SOC 358 Sociology of Korea (3) Social institutions, family, education, religion, cultural values, social classes, economic development, social movements, gender relations, North-South relations, and unification issues. A-F only. **DS**

SOC 362 Sociology of Gender (3) Effect of sex and gender roles (both traditional and nontraditional) on attitudes and behavior within the family and educational, economic, and governmental systems. (Cross-listed as WS 362) **DS**

SOC 401 Analysis in Urban Sociology (3) Urbanization in developed and developing countries, the rural-urban continuum, structure and process of metropolitan regions, theories of urban location and growth, housing and urban renewal. **DS**

SOC 411 Analysis in Social Stratification (3) Approaches to research in social inequality: community studies; historical and cross-cultural analyses of poverty, working class, middle class, power structure, social mobility, etc. **DS**

SOC 412 Analysis in Population and Society (3) Global and U.S. patterns of population growth; composition and distribution, elementary demographic techniques; development issues and population policy. (Cross-listed as PPST 412) **DS**

SOC 413 Analysis in Economy and Society (3) Study of the dominant trend of economic change and its impact on society; globalization of economic activities and transformation of industrial society to postindustrial one; corporate restructuring and downsizing and their impact on employment and income distribution; gender relations in workplaces; the impact of globalization on the newly industrializing countries. Pre: 300 or consent. **DS**

SOC 415 Technology and Society (3) Nature of technology, social forces that affect its adoption; impact on society; innovation. **DS**

SOC 416 Analysis in Deliberate Social Change (3) Consequences, intended or not, of educational interventions, dispute settlement, community development, family assistance, housing, etc. Recommended: 316. **DS**

SOC 417 Comparative Study—Small Communities (3) Problems of studying the small community in various settings in non-Western societies; use of data as indicators of social change. **DS**

SOC 418 Women and Work (3) Gender division of labor nationally and internationally; sex differentials in labor supply, training, wages, working conditions, and unemployment; historical trends and future directions. Pre: one 300-level SOC or WS course. (Cross-listed as WS 418) **DS**

SOC 419 Analysis in Formal Organizations (3) Schools, hospitals, industries, prisons, and government agencies analyzed in terms of self-actualization, alienation, human relations, communication, leadership, organizational conflicts. **DS**

SOC 431 Criminology/Juvenile Delinquency (3) Research in systematic social deviation. Scaling and measurement of delinquents/criminals, official data, gangs, identification and measurement of delinquent/criminal value orientations, etc. **DS**

SOC 432 Analysis in Corrections (3) Behavioral assumptions of various correctional practices and modes of organization; current “in-community” approaches. **DS**

SOC 433 Analysis in Law and Social Change (3) Interrelationships between legal orders and other social institutions; use of “law” to change major status relationships, e.g., boss-worker, woman-man, child-adult. Recommended: 332. **DS**

SOC 435 Women and Crime (3) Women’s relations with the criminal justice system; types of women’s offenses; responses to women’s crime; women as victims; women as workers in the criminal justice system. Pre: one 100- or 200-level SOC or WS course. (Cross-listed as WS 435) **DS**

SOC 441 Social Structure and the Individual (3) Effects of social institutions on individuals. Role of socioeconomic status, cultural background, family structure, peer group, schools, and occupational roles in socialization. **DS**

SOC 446 Analysis in Rape and Sexual Abuse (3) Theories, methodologies, and research findings on rape victimization and treatment; sexual abuse of women and children in Hawai‘i. Pre: 300 or consent. (Cross-listed as WS 446) **DS**

SOC 451 Analysis in Marriage and the Family (3) Theory and methods of studying social interaction in marriage and the family; examination of marriage, mating, love, and choice. Empirical research emphasizing Hawai‘i. **DS**

SOC 452 Marriage and Family: A Feminist Perspective (3) Sex-role socialization, mate selection, motherhood, career-family conflicts. Alternative family structures in U.S. and other countries. Pre: 200-level SOC course or WS 351, and upper division social science major. (Cross-listed as WS 452) **DS**

SOC 453 Analysis in Sociology of Aging (3) Social and research issues significant to delivery of long-term care services to the elderly; cost, quality, availability of services, evaluation of programs, role of family, formal and informal care services. Pre: 353. **DS**

SOC 454 Analysis in Medical Sociology (3) Application of sociological theories and concepts to medical social situations and behavior; problems of obtaining data for research. **DS**

SOC 455 Sociology of Religion (3) Seminar in research on sociological aspects of religious sectarianism; attention to Hawai‘i. Pre: 300 or consent. (Cross-listed as REL 452) **DS**

SOC 456 Racism and Ethnicity in Hawai‘i (3) The historical and contemporary social processes involved in inter-ethnic relations in Hawai‘i. Pre: 300 or one Social Science core course; or consent. (Cross-listed as ES 456) **DS**

SOC 457 Sociology of the Arts (3) Relation of art to society; role of artist, audience, critic, patron, museum; Western and other societies; attitudes toward new styles. **DS**

SOC 459 Popular Culture (3) Popular culture as manifested in film, sports, TV, comics, magazines, etc.; relation to sociological theories and studies. **DS**

SOC 472 Modern Sociological Theory (3) Current theories such as functionalism, conflict theory, social exchange, and symbolic interaction in the works of Parsons, Merton, Mead, Homans, and others. **DS**

SOC 475 Analysis in Survey Research (3) Survey research design and analysis, including theory selection instrument construction, sampling techniques, data collection, computerized data analysis, and writing up research reports of the findings. Pre: 300 or consent. **DS**

SOC 476 Social Statistics (3) Common statistical procedures emphasizing univariate and bivariate description; some attention to multivariate techniques and statistical inference, within context of research procedures. **DS**

SOC 476L Social Statistics Laboratory (1) Required lab for computer applications for analysis of sociological data. CR/NC only. Co-requisite: 476.

SOC 478 Analysis in Field Research Methods (3) Techniques for collecting and analyzing qualitative data. Participant observation; small groups in natural settings; community studies. Grounded theory; theories of everyday life; reality construction. **DS**

SOC 479 Theories of Social Conflict (3) Classical and contemporary theories whose major dynamic element is conflict; theories that assign conflict lesser importance. **DS**

SOC 491 Discussion Group Leader—Freshman Seminar (6) Students lead a freshman seminar section of sociology and meet weekly with instructor for substantive background. Pre: senior standing and consent. **DS**

SOC 495 (Alpha) Topics in Sociology (3) Faculty projects normally limited to 10 students. Topics pre-announced each semester. Pre: 300 or consent. **DS**

SOC 495B Seminar: Tutoring and Testing (3) For students assisting in the self-study section of 100. Teaching, evaluating, test questions. Pre: consent.

SOC 496 Topics in Sociology: Student Projects (V) Students create their own study group and solicit an adviser from faculty. Consult department for assistance. **DS**

SOC 499 Directed Reading or Research (V)

All graduate courses in the department require classified graduate standing in sociology or consent. Additional prerequisites are specified below.

SOC 500 Master’s Plan B/C Studies (1) Enrollment for degree completion. Pre: master’s Plan B or C candidate and consent.

SOC 604 Methods of Research in Criminal Justice (3) Multidisciplinary perspective on methods and techniques of research in the correctional and remediating professions for practicing and potential correctional or social workers.

SOC 605 Seminar in Advanced Statistics (3) Multivariate analysis. Analysis of variance; multiple regression procedures; multiple classification analysis, stepwise regression, discriminant functional analysis, and path analysis. Pre: 476.

SOC 605L Advanced Statistics Laboratory (1) Required lab for computer applications for analysis of sociological data. CR/NC only. Pre: 476 or consent. Co-requisite: 605.

SOC 606 Research Methods and Design (3) Emphasis on theory selection, theory construction, and choice of research strategies.

SOC 608 Survey Research Design and Analysis (3) Survey study designs, survey sampling, questionnaire construction, interviewing, pre-tests, pilot studies, logic of measurement and association, table construction, and elaboration models. Pre: consent. (Cross-listed as EDEA 608)

SOC 609 Seminar Qualitative Research (3) Advanced seminar on conducting fieldwork in natural social settings with emphasis on qualitative techniques, political and ethical considerations, data management and assessment, interpretation and reflexive writing. Repeatable once only. Pre: 478 or consent.

SOC 611 Classical Sociological Theory (3) Seminar offers a critical overview of major perspectives and representative works in sociological theory from 19th-century to the 1960s, including intellectual contexts and historical development. A–F only. Pre: graduate standing. Fall only.

SOC 612 Contemporary Sociological Theory (3) Seminar offers a critical overview of major perspectives and representative works in sociology theory from the 1960s to the present, including intellectual contexts and historical development. A–F only. Pre: graduate standing. Spring only.

SOC 613 Organizational Analysis (3) Theoretical approaches to organizations; organizational structure and process; organizational pathologies and effectiveness; the organization and its environment. Pre: 419.

SOC 615 Sociology of Health Services (3) Utility of sociological concepts and social research methods for analyzing relationships among individuals’ social characteristics, health status and needs, and use of health services.

SOC 616 Seminar in Stress and Health (3) Analysis of current theory and empirical research on relationship of stress and health; sociological, psychological, and community psychiatry models and current issues.

SOC 631 Seminar in Criminology (3) Major current theories, history of their development, elaborations of typologies, implications for treatment modalities.

SOC 632 Criminal Justice System (3) Examination of the criminal justice system; the exercise of discretion and limits placed upon it. Pre: consent.

SOC 661 Demography of Human Fertility (3) Causes of variation in human fertility between and within societies and over time; role of economic and social factors. Implications of population policy. Pre: PPST 650 and PPST 691. (Cross-listed as PPST 661)

SOC 691 Methods of Demographic Analysis (3) Statistical evaluation and analysis of population data; data sources; population growth; composition; standardization of rates; mortality and the life table; nuptiality and fertility; distribution, migration, urbanization; projections and stable population theory. Pre: 476. (Cross-listed as PH 659 and PPST 691)

SOC 699 Directed Reading/Research (V)

SOC 700 Thesis Research (V) Research for master's thesis.

SOC 701 Seminar in Evaluation Research (3) Research design, data collection, field problems and analysis in the evaluation of social programs. Examples from criminal justice, corrections, drug treatment, mental health, and public health. Pre: statistics.

SOC 705 Multivariate Analysis (3) Application to population data. Multiple classification analysis, path analysis, logit and multinomial logit regression and hazard models. Repeatable once only. (Cross-listed as PPST 705)

SOC 706 Cultural Analysis (3) Contemporary issues in cultural sociology, covering key theoretical perspectives, analytic methods and substantive areas for empirical research. A-F only.

SOC 710 Seminar in Comparative Sociology (3) Conduct of comparative social research; special advantages and problems in theoretical development and research strategies. Substantive focus in Pacific rim. Pre: 605 and 606, or consent.

SOC 711 Seminar in Sociology of Knowledge (3) Sociological theory applied to bases of knowledge in everyday life, professional communities, and the sciences. Research and theory-building activities of sociologists; ethnomethodology; construction of social structure, culture, and consciousness. Repeatable once only.

SOC 715 Seminar in Current Issues in Sociology (3) Substantive areas that are of current interest and the focus of research, but not addressed in other courses. Repeatable once.

SOC 716 Seminar in Medical Sociology (3) Application of theoretical paradigms and methodologies to the examination of selected research topics in the field of medical sociology. Repeatable one time. Pre: 615 or consent.

SOC 720 Comparative Study of East Asia (3) Comparative analysis of social organization, social processes, and change of both capitalist and communist countries of East Asia, with each other and other areas of the world. Pre: 611 or consent.

SOC 721 Social Change—Pacific Islands (3) Analysis of social change; transformation from subsistence societies to commodified, wage-labor societies with participation in world economy.

SOC 722 Modern Japanese Society (3) Social and behavioral studies of Japanese values, social organization, and personality development. Problems of value conflict, political protest, world role, tradition, and social change. Repeatable once only.

SOC 723 (Alpha) Seminar in Modern Chinese Society (3) Developmental policies and social change and impact on modern Chinese social institutions. (B) political change. Focus on politics in China, Hong Kong, and Taiwan. Special emphasis on democracy movement and reunification themes; (C) social and demographic change. Focus on population, social stratification, gender, and family problems. Repeatable once in different area. Pre: 356 (or concurrent).

SOC 725 Seminar in Race Relations (3) Comparative view of how "races" and "ethnic" groups develop and function. Sociological theories of race relations, assimilation, acculturation, and pluralism.

SOC 735 Peace/Development Connection (3) Relationships between peace and development with special emphasis on hunger and militarism in Asia, the Pacific, and Africa. (Cross-listed as POLS 735)

SOC 741 Seminar in Social Structure and the Individual (3) Intensive study and individual research projects in a selected topic. Theoretical and methodological issues in relating social and individual levels of analysis. Recommended: 612.

SOC 750 Seminar in Social Movements (3) Study of sociology of social movements, plus independent student research. Repeatable one time. Pre: one year of graduate work in social sciences or consent.

SOC 751 Social Change in Developing Areas (3) Theories and available research methods examined for applicability to developing areas; specific examples from Asia. Repeatable once only. Pre: upper division course in research methods.

SOC 752 Seminar in Demography (3) Recent literature and materials for measurement of population change in developing countries in Asia. Determinants and consequences of policy and population change. Pre: PPST 650.

SOC 753 Urban Sociology (3) Demographic trends in urban growth: nature and dimensions of urbanization and urbanism; ancient, American, and Third World cities; ecological theories of urban growth; lifestyles.

SOC 754 Seminar in Social Stratification (3) Classical theories of social class, contemporary developments; crucial research issues, appropriate methodologies. Repeatable once only. Pre: classified graduate standing or consent.

SOC 800 Dissertation Research (V) Research for doctoral dissertation.

Soil Science (SOIL)

College of Tropical Agriculture and Human Resources, Natural Resources and Environmental Management (NREM) or Tropical Plant and Soil Sciences (TPSS)

SP

See Speech

SPA

See Speech Pathology and Audiology

Spanish (SPAN)

College of Languages, Linguistics and Literature

All courses are conducted in Spanish.

SPAN 101 Elementary Spanish (3) Conversation, grammar, reading. Pre: consent. **HSL**

SPAN 102 Elementary Spanish (3) Conversation, grammar, reading. Pre: consent. **HSL**

SPAN 103 Intensive Elementary Spanish (6) Course content of SPAN 101 and 102 covered in one semester. Three two-hour sessions per week plus laboratory practice. **HSL**

SPAN 105 Accelerated Elementary Spanish (3) Course content of SPAN 101 and 102 covered in one semester. Three one-hour sessions per week plus laboratory practice. For students with two or three years of prior study of Spanish. Satisfactory placement score required.

SPAN 201 Intermediate Spanish (3) Continuation of oral practice and grammar study; increasing emphasis on reading and written composition. Laboratory drill. Pre: 102. **HSL**

SPAN 201A Intermediate Spanish (3) Continuation of oral practice and grammar study; increasing emphasis on reading and written composition. Laboratory drill. Pre: 102. **HSL**

SPAN 202 Intermediate Spanish (3) Continuation of 201. Pre: 201. **HSL**

SPAN 202A Intermediate Spanish (3) Continuation of 201A. Pre: 201A. **HSL**

SPAN 203 Intensive Second-Year Spanish (6) Course content of SPAN 201 and 202 covered in one semester. Three two-hour sessions per week plus laboratory practice. Pre: 102 or 103. **HSL**

SPAN 204 Spanish: Business/TIM (3) Continuation of 102. Specific aspects of Spanish language and culture for the purpose of meeting social demands and working requirements in business and TIM. Pre: 102 or consent. **HSL**

SPAN 205 Spanish: Business/TIM (3) Continuation of 204. Pre: 204 or consent. **HSL**

SPAN 210 Intensive Reading (3) Intensive reading and vocabulary development. Pre: 202 (or concurrent) or consent. Recommended for majors.

SPAN 258 Intermediate Spanish Abroad (3) Intensive course of full-time formal instruction on the second-year level in Spanish language and culture in a Spanish-speaking country. Pre: 102. **HSL**

SPAN 259 Intermediate Spanish Abroad (3) Continuation of 258. **HSL**

SPAN 260 Intensive Intermediate Spanish Abroad (V) Intensive course of formal instruction on the second-year level in Spanish language and culture in a Spanish-speaking country. For semester programs only. Pre: 102. **HSL**

SPAN 300 Reading in Spanish (3) Development of language skills through reading of literary and cultural texts. Pre: 202 or placement exam or consent.

SPAN 301 Grammar and Composition (3) Selected grammar review and intensive practice in effective use of the written language. Pre: 202 or consent.

SPAN 302 Grammar and Composition (3) Selected grammar review and intensive practice in effective use of the written language. Pre: 202 or consent.

SPAN 303 Conversation I (3) Intensive practice in spoken Spanish. Pre: 303 (or concurrent), or consent.

SPAN 304 Conversation II (3) Continuation of 301. Pre: 301 or consent.

SPAN 305 Introduction to Spanish-English Translation (3) A practical introduction to Spanish-English translation with translations of texts from Spanish to English and the reverse. Pre: 303 and/or 304, concurrently; or consent.

SPAN 306 Commercial Spanish (3) Language as used in business communication; commercial terminology. Pre: 202 or consent.

SPAN 330 Phonetics and Pronunciation Practice (3) Analysis of the Spanish phonological system, in contrast with English. Practice in pronunciation; laboratory drill. Pre: 202.

SPAN 351 Spanish Cultural Perspectives (3) Survey of the history and cultures of Spain. Pre: 202 or consent. **DH**

SPAN 352 (Alpha) Latin American Cultural Perspectives (3) Survey of the history and cultures of Latin America. (B) Pre-Columbian and Colonial periods; (C) Independence, nationhood and current issues. Repeatable for other topics, but not for the same topic. Pre: 202 or consent. **DH**

SPAN 358 Third-Level Spanish Abroad (3) Intensive course of full-time formal instruction on the third-year level in Spanish language and culture in a Spanish-speaking country. Pre: 202 or 259 or equivalent.

SPAN 359 Third-Level Spanish Abroad (3) Continuation of 358.

SPAN 360 Intensive Third-Level Spanish Abroad (V) Intensive course of formal instruction on the third-year level in Spanish language and culture in a Spanish-speaking country. For semester programs only. Pre: 202 or 260 or equivalent.

SPAN 361 Masterworks of Spanish Literature (3) Reading and discussion of representative works of Spanish literature: origins to 18th century. Pre: 303 or consent. **DL**

SPAN 362 Masterworks of Spanish Literature (3) Reading and discussion of representative works of Spanish literature: 18th century to present. Pre: 303 or consent. **DL**

SPAN 371 Spanish-American Literature (3) Reading and discussion of representative works of Spanish-American literature: Colonial period through Romanticism. Pre: 303 or consent. **DL**

SPAN 372 Spanish-American Literature (3) Reading and discussion of representative works of Spanish-American literature: Modernism to the present. Pre: 303 or consent. **DL**

SPAN 403 Advanced Composition and Conversation (3) Advanced practice; emphasis on building active vocabulary. Pre: 304 or consent.

SPAN 405 Spanish-English Translation (3) Factors in the art of translation. Practice in translating material from Spanish to English and the reverse. Pre: 304 or consent.

SPAN 451 Introduction to Spanish Linguistics (3) Evolution of Spanish from Latin; modern social and geographical dialects. Pre: 330.

SPAN 452 The Structure of Spanish (3) Analysis of morphology, syntax, and semantics. Pre: 304, 330, and one of 361, 362, 371, or 372; or consent.

SPAN 458 Fourth-Level Spanish Abroad (3) Intensive course of full-time formal instruction on the fourth-year level in Spanish linguistics, civilization, culture, and literature in a Spanish-speaking country. Pre: any two of 301, 303, 304, 358, 359; or 6 hours of 360.

SPAN 459 Fourth-Level Spanish Abroad (3) Continuation of 458.

SPAN 460 Intensive Fourth-Level Spanish Abroad (V) Intensive course of formal instruction on the fourth-year level in Spanish language and culture in a Spanish-speaking country. For semester programs only. Pre: 360 or equivalent.

SPAN 461 Spanish Neoclassicism/Romanticism (3) Representative works from Spanish Neoclassicism (18th century) and Romanticism (19th century). Genres: theater, poetry, essay, novel. Pre: 361, 362, or consent. **DL**

SPAN 477 U.S. Latino Literature (3) A study of the literature of U.S. Hispanics written in Spanish or bilingually. Pre: 371 or 372 or consent. **DL**

SPAN 478 Hispanic Women's Literature (3) The feminine experience in Western literary and cultural traditions as seen by women in Spain and Latin America. Pre: one of 361, 362, 371 or 372; or consent. **DL**

SPAN 480 Hispanic Theater (3) Study of representative authors and plays from Spain and Latin America. Repeatable once. Pre: one of 361, 362, 371, or 372; or consent. **DL**

SPAN 495 (Alpha) Topics in Hispanic Scholarship (3) Hispanic authors, periods, or themes. (B) literature and society, **DL**; (C) Hispanic poetry, **DL**; (D) literature and film, **DH**. Repeatable for other topics, but not for the same topic. Pre: one of 361, 362, 371, or 372; or consent.

SPAN 506 Spanish for Reading Proficiency (3) Reading of scholarly and technical Spanish for graduate students; open to undergraduates with consent from department chair. Not applicable to undergraduate language requirement. CR/NC only. Repeatable once only.

SPAN 625 Stylistics and Advanced Composition (3) Analysis of representative prose with variations in style: colloquial, informal, formal expository, poetic, epistolary, etc. Practice in writing in those styles. Pre: graduate standing or consent.

SPAN 658 Seminar in Spanish Linguistics (3) Repeatable. Pre: graduate standing or consent.

SPAN 660 Medieval Spanish Literature (3) Representative readings in prose and poetry, from origins through 15th century. Pre: graduate standing or consent.

SPAN 665 (Alpha) Golden Age Literature (3) Spanish literature from the 16th and 17th centuries. (B) theater; (C) prose; (D) poetry; (E) Cervantes. Pre: graduate standing.

SPAN 669 19th-Century Spanish Realism (3) Nineteenth-century Spanish realism in the novel. Authors include Galdós, Clarín, Alarcón, Pardo Bazán, Blasco-Ibáñez, Valera. Pre: graduate standing or consent.

SPAN 670 (Alpha) 20th-Century Spanish Literature (3) Representative works from 20th-century literature. Genres: poetry, theater, essay, novel. (B) generation of 1898; (C) pre-Civil War; (D) post-Civil War. Pre: graduate standing or consent.

SPAN 680 Spanish-American Novel (3) Critical analysis of major Spanish-American novels. Pre: graduate standing or consent.

SPAN 681 Colonial Spanish-American Literature (3) Spanish-American literature from period of discovery to independence. Representative authors such as Sor Juana, Bernal Díaz del Castillo. Pre: graduate standing or consent.

SPAN 682 Spanish-American Poetry (3) Study of representative poets from all periods: Martí, Darío, Mistral, Guillén, Neruda, Paz, etc. Pre: graduate standing or consent.

SPAN 683 Spanish-American Short Story and Essay (3) Study of representative writers from various periods: Sor Juana, Palma, Quiroga, Reyes, Borges, etc. Pre: graduate standing or consent.

SPAN 695 Seminar in Hispanic Literature (3) A period, author, genre, or region. Repeatable. Pre: graduate standing or consent.

SPAN 699 Directed Research (V) Pre: consent of department chair.

Special Education (SPED)

College of Education

SPED 404, 461, 462, and 485 are prerequisites for the graduate program in special education. Current TB clearance is a requisite for 390, 400, 490, 491, 626, 627, 628, and courses requiring practicum experiences.

SPED 390 Student Teaching: Elementary/Secondary and Special Education (5) Full-time supervised experience in school. Repeatable two times. A-F only. Pre: 400 and requirements for registration listed under "student teaching." Co-requisite: 391.

SPED 391 Seminar for Student Teachers: Elementary/Secondary and Special Education (1) Seminar relating current educational theories with experiences in student teaching. Repeatable two times. A-F only. Pre: requirements for registration listed under "student teaching." Co-requisite: 390.

SPED 400 Field Training in Special Education (3) Students spend approximately nine hours per week in settings appropriate to concurrently enrolled courses; supervision provided by participating teacher and college supervisor. Repeatable four times. A-F only. Pre: 404 (or concurrent) or consent. Co-requisite: one of 461, 462, or 485.

SPED 404 Foundations of Inclusive Schooling (3) Exceptionality examined from life-cycle perspective. Survey of characteristics, causes, prevalence, assessment, and intervention related to individuals who differ in cognitive, sensory, physical, communicative, emotional/behavioral, or social areas. Focus on educating students with disabilities in inclusive classrooms. Requires three hours/week field experience.

SPED 414 Education of Gifted Students (3) Characteristics and educational provisions for gifted children and youth with particular attention to psychological aspects of creativity.

SPED 415 Education Program for the Gifted/Talented (3) Utilization and evaluation of teaching/learning models for gifted/talented students, including consideration of roles, expectancies for learning, and organizational procedures. Pre: 414 or consent.

SPED 421 Strategies for Reading Difficulties (3) Overview of methods, programs, and strategies for reading instruction designed to improve the performance of elementary students, grades K-6, who experience difficulties in reading acquisition, fluency, and comprehension. A-F only.

SPED 425 Partnerships with Families and Professionals (3) Knowledge and skills for relating effectively with families and professionals on behalf of the children and youth with and without disabilities. Coverage of the context in which family members and school personnel interact. A-F only.

SPED 443 Physical Education for Students with Disabilities (3) Basics of various disabilities, assessment of physical and motor skill status, individualized activity programs for children and youth with disabilities; relationships among school/community/agency providing special programs and services. Pre: 404 and KLS 353, or consent. (Cross-listed as KLS 443)

SPED 444 Educating Exceptional Students in Regular Classrooms—Elementary (3) Teaching elementary students with disabilities and those who are gifted/talented. Meeting academic/social needs, classroom management, motivation, peer interaction. Collaboration between special and regular educators. (Cross-listed as TECS 444)

SPED 445 Educating Exceptional Students in Regular Classrooms—Secondary (3) Teaching secondary students with disabilities and those who are gifted/talented. Meeting academic/social needs, classroom management, motivation, peer interaction. Collaboration between special and regular educators. (Cross-listed as TECS 445)

SPED 446 Seminar in Special Education (3) Study of issues, trends, and research into special education programming and service delivery. Repeatable. Pre: consent.

SPED 451 Programs for Infants/Toddlers (3) Examination of current theory, research, issues, and models in programs for infants and toddlers including criteria for evaluation and planning. Pre: FAMR 230 (or concurrent) and FAMR 331 (or concurrent), or consent. (Cross-listed as EDCI 451)

SPED 452 Preschool Children—Special Needs (3) Examination of application of current research and practices for serving preschool children with special needs. Pre: FAMR 230 (or concurrent) or FAMR 231 (or concurrent); or consent.

SPED 461 Assessment, Planning, and Instruction for Students with Mild/Moderate Disabilities (3) Techniques in the assessment, planning, and instructional process appropriate for students with mild/moderate disabilities. Stress on program development to facilitate inclusion of students with disabilities into general education environment. Pre: 400 (or concurrent), 404, and 485; or consent.

SPED 462 Assessment, Planning, and Instruction for Students with Severe Disabilities (3) Techniques in the assessment, planning, and instructional process appropriate for students with severe disabilities. Focus on program development to facilitate the inclusion of students with disabilities into general education settings. Pre: 400 (or concurrent), 404, and 485; or consent.

SPED 480 Technology for Children with Disabilities (3) Overview of technologies for children with disabilities, highlighting battery operated toys, low and high tech augmentative communication systems, software, computers and alternative input devices (keyboards, switches, trackballs, touch windows), and multimedia technologies to promote discovery and independence for children with disabilities and their families.

SPED 485 Classroom Organization and Management (3) Knowledge and skills related to basic organizational management of an inclusive classroom, including scheduling, grouping, and stress and time management; techniques of applied behavior management, emphasizing behavior change and practical implementation of learning principles. Co-requisite: 400.

SPED 486 Theoretical Basis for Teaching Special-Needs Students (3) Survey of biophysical, behavioral, social/ecological, psychodynamic/psychoeducational, cognitive/developmental, counter-theoretical approaches to teaching exceptional students. Opportunity for the development and/or strengthening of one's own theoretical frame of reference.

SPED 487 Characteristics/Strategies for Teaching At-Risk Students (3) Survey of educational, behavioral, and emotional characteristics of students who are at-risk for school failure and strategies to work with such students.

SPED 490 Internship in Special Education-Post Baccalaureate Programs (3) Supervised teaching experience instructing students with special needs (i.e., students with mental retardation, emotional/behavioral disorders, learning disabilities, severe multiple disabilities) in on-the-job K-12 educational settings. Repeatable two times. Restricted to students employed in special education settings and who are enrolled in either the PBCSE and SpEd dual prep or PBCSpEd programs; must enroll for two consecutive semesters. A-F only. Pre: 400 (6 crs) and consent.

SPED 491 Student Teaching in Special Education-Post Baccalaureated Programs (6) Supervised teaching experience instructing students with special needs (i.e., students with mental retardation, emotional/behavioral disorders, learning disabilities, severe multiple disabilities) in K-12 educational settings under a master teacher. Restricted to students who are enrolled in either the PBCSE and SpEd dual prep or PBCSpEd programs completing a traditional one-semester student teaching experience. A-F only. Pre: 400 (6 crs) and consent.

SPED 499 Directed Reading/Research (V) Individual reading, research, and/or projects under direct supervision of instructors. Repeatable. Pre: consent of instructor or department chair.

SPED 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B candidate and consent.

SPED 581 (Alpha) Practicum in Special Education (1) For in-service school/community personnel to present new ideas, approaches, instructional methods, materials for teaching exceptional individuals. (B-E) general SPED; (F-G) secondary programming/SPED; (H-I) bilingual/multicultural/special needs; (J-K) severe disabilities; (M-N) early childhood/special needs; (O-P) career/vocational/special needs; (Q-R) computer/special needs; (S-T) arts/special needs; (U-W) computer training/special needs; (X-Y) consultant skills/special needs; (Z) Ho'okoho. Repeatable. CR/NC only. Pre: teaching or related work experience.

SPED 582 (Alpha) Practicum in Special Education (2) For in-service school/community personnel to present new ideas, approaches, instructional methods, materials for teaching exceptional individuals. (B-E) general SPED; (F-G) secondary programming/SPED; (H-I) bilingual/multicultural/special needs; (J-K) severe disabilities; (M-N) early childhood/special needs; (O-P) career/vocational/special needs; (Q-R) computer/special needs; (S-T) arts/special needs; (U-W) computer training/special needs; (X-Y) consultant skills/special needs; (Z) Ho'okoho. Repeatable. CR/NC only. Pre: teaching or related work experience.

SPED 583 (Alpha) Practicum in Special Education (3) For in-service school/community personnel to present new ideas, approaches, instructional methods, materials for teaching exceptional individuals. (B-E) general SPED; (F-G) secondary programming/SPED; (H-I) bilingual/multicultural/special needs; (J-K) severe disabilities; (M-N) early childhood/special needs; (O-P) career/vocational/special needs; (Q-R) computer/special needs; (S-T) arts/special needs; (U-W) computer training/special needs; (X-Y) consultant skills/special needs; (Z) Ho'okoho. Repeatable. CR/NC only. Pre: teaching or related work experience.

SPED 590 Internship, Special Education (6) Supervised field activities involving the programming and instruction of special-needs students within training programs in Hawai'i and the Pacific Basin. Pre: consent.

SPED 600 Foundations of Exceptionality (3) Theoretical, legal and multicultural foundations for assessing, teaching and developing individual service plans across the lifespan for persons with disabilities. Pre: 404 or consent.

SPED 601 (Alpha) Review/Design of SPED Microcomputer Programs (3) Uses of microcomputer in student's areas of specialization. Skills developed in hands-on use of computer in practicum setting; writing specifications for a computer program to be used in a specialty setting. (B) mild/moderate; (C) severe. Pre: one of 480, ETEC 414, or ETEC 442.

SPED 603 Principles of Behavior (3) Principles and laws governing behavior and methods that can be used to accomplish educationally relevant

changes in student performance. Emphasis on the conceptual basis for changing behavior and use of technologies for changing behavior in school and community settings. Pre: 485 or consent.

SPED 605 Collaboration in School and Community Settings (3) Collaboration skills necessary to function as team members and to ensure the success of students with disabilities in inclusive school and community settings. Pre: consent.

SPED 611 Advanced Methods and Strategies for Students with Mild/Moderate Disabilities (3) Techniques for providing effective instruction including: best instructional practice, lesson planning, teacher-directed and student-mediated instructional strategies, and curricular approaches for working with students with mild/moderate disabilities. A–F only. Pre: 404, 461, and 485; or consent. Co-requisite: 626.

SPED 612 Individuals with Severe Disabilities (3) Etiology, characteristics, and developmental concerns among individuals with severe disabilities; historical, philosophical, theoretical, and legal issues affecting individuals with severe disabilities; multicultural, family, and consumer issues; professional and ethical issues providing services. Pre: 404 or consent.

SPED 613 Advanced Assessment and Curriculum Development (3) Assessment methods and techniques that emphasize the bond between curriculum-based assessment and curriculum-based programming. Planning and cyclical instruction across content areas based on ongoing diagnostic assessment. Pre: 461 or consent. Co-requisite: 626

SPED 614 Assessment and Instruction—Severe Disabilities (3) Basic principles of assessment, instruction, and curriculum development; application of formal and informal assessment procedures for goal selection, formulating instructional strategies, and adapting instructional materials to accommodate learning needs of students with severe disabilities. Pre: consent.

SPED 618 Adaptations and Special Procedures—Students/Severe Disabilities (6) Adaptations and special intervention procedures to support the participation of individuals with severe motor, communication, and/or adaptive behavior disabilities in inclusive school and community settings. Includes lab work. Pre: 614 or consent.

SPED 620 Strategies Across Content Area (3) Strategies for teaching math, science, and social sciences to students of all ages with mild/moderate disabilities; selection of appropriate materials, teaching techniques, curriculum development. Pre: 611 or consent.

SPED 621 Language Arts Strategies: Students with Mild/Moderate Disabilities (3) Basic concepts related to language, language development, and recognition of language-related learning problems of students with mild/moderate disabilities; strategies for teaching language arts curricula (listening, speaking, reading, writing) to students of all ages with learning problems. Pre: 611 or consent.

SPED 625 Teaching Skills for Social Competence (3) Issues in social development, self-determination, and social skills competence training for children and youth with disabilities; experience in group social skills training and

development of individualized programs. Pre: either 485 or 630, and either 611 or 614; or consent.

SPED 626 Field Experiences in Special Education (3) Students spend a minimum of nine hours per week in settings appropriate to concurrently enrolled courses; supervision provided by participating teacher and college supervisor. Repeatable. Co-requisite: one of 611, 613, 614, or 618. Pre: consent.

SPED 627 Advanced Practicum (6) Supervised education/community experiences; minimum of 20 hours weekly with special-needs population (MR, LD, SED, SMH); pre-school through postsecondary settings (public/private). Related seminar or equivalent and completion of SPED core required. Pre: consent.

SPED 628 Internship (3) Supervised education/community experiences with special needs populations (MR, LD, SED, SMH), preschool through postsecondary settings. Completion of SPED core required; must enroll for two consecutive semesters. A–F only. Repeatable one time. Pre: 626 and consent.

SPED 630 Positive Behavioral Support (3) Principles and laws governing human behavior and methods that can be used in educational settings to change behavior. Emphasis on the functions of behavior, experimental techniques for documenting behavior change, and the use of technologies for changing behavior in school and community settings. Pre: 485 or consent.

SPED 631 Early Intervention for Special Populations (3) Issues important to early childhood special education. Early screening and assessment, working with families, curriculum options/models, program evaluation. Pre: 404 or consent.

SPED 632 Language/Communication Intervention Special Education (3) Current research in normal language learning, assessment, planning, implementation, evaluation of language delayed/disordered children. Procedures for attaining language/functional communication objectives using ongoing routines/activities. Pre: 404 or consent.

SPED 633 Motor Development/Intervention for Students with Severe Disabilities (3) Normal/abnormal motor development; description/etiology of physically disabling conditions influencing motor development; analysis/application of assessment/intervention strategies to promote motor development; positioning and handling skills. Pre: 614 (or concurrent) or consent.

SPED 634 Adapted Physical Education (3) Factors essential to practice of adapted physical education; disabilities, problems, and needs of physically disabled pupils with emphasis on accepted procedures for meeting these needs. Pre: one of HPER 353, HPER 354, HPER 463, or consent. (Cross-listed as HPER 634)

SPED 635 Curriculum Design for Preschool Children with Disabilities (3) Assessment and intervention strategies to promote behavior change with young children with disabilities. Promoting child skill gains and integrated programming options. Pre: 631 or consent of instructor.

SPED 640 Seminar on Mild/Moderate Disabilities (3) Study of issues, research, program development in the area of mild/moderate disabilities. Repeatable. Pre: consent.

SPED 641 Seminar on Issues in Special Education (3) Study of issues, research, and program development in special education. Repeatable. Pre: consent.

SPED 642 Seminar on Applied Research/Special Education (3) Study and development of applied research topics in special education. Repeatable. Pre: consent.

SPED 643 Seminar on the Gifted (3) Study of issues, research, and program development for the gifted. Pre: 414 and 415, or consent.

SPED 644 Seminar on Severe/Multiple Disabilities (3) Research, program development trends/issues in the area of severe/multiple disabilities (birth through adulthood). Pre: consent.

SPED 645 Seminar in Early Childhood Special Education (3) Study of issues/trends. Research and program development in early childhood special education. Repeatable. Pre: 631 and 635, or consent.

SPED 646 Advanced Seminar in Special Education (3) Advanced study of issues, trends, research, and curricular considerations in special education; designed for practitioners. Repeatable. Pre: consent.

SPED 652 Transition/Supported Employment (3) Transition planning for youth with disabilities in preparation for employment as adults in private and public sector businesses. Pre: consent.

SPED 653 Seminar in Career/Vocational Special Needs (3) Issues, research, programs, and trends in career/vocational education for special-needs learners. Pre: consent.

SPED 699 Directed Reading/Research (V) Individual reading/research. Pre: consent of instructor and department chair.

SPED 700 Thesis Research (V) Research for master's thesis.

SPED 705 Seminar in Exceptionalities (3) Current and historical topics, issues, and trends in the field of exceptionalities. Repeatable with different content. Pre: consent.

SPED 706 Doctoral Internship (6) Supervised internship (minimum 18 hours per week) in program development and administration or research in the student's area of emphasis. Pre: consent.

SPED 740 Single-Case Experimental Design (3) Advanced single-case experimental design; examines the logic of internal and external validity of small "N" design and its functionalist foundations. Pre: consent.

SPED 760 Grant Development/Procurement (3) Overview of grant development and procurement processes related to special education personnel preparation and research and demonstration programs. Students design a grant proposal related to a particular problem or need within their employment settings. Pre: consent.

Speech (SP)

College of Arts and Humanities

SP 151 Personal and Public Speech (3) (1 Lec, 2 1-hr Lab) Provides students with both the knowledge and experience necessary to develop the communication skills necessary to function effectively in today's society. Students will enhance their communication skills in one-on-one situations, public speaking, and small groups. The course is ideal for nonmajors as well as new majors. **DA**

SP 170 Introduction to Nonverbal Communication (3) Beginning course on the fundamental components of nonverbal communication. Aspects of body movements, facial expressions, eye behavior, physical appearance, voice, touch, space, smell, time, and environmental features will be examined in a lecture/discussion format. Extensive practice in skills.

SP 181 Introduction to Interpersonal Communication (3) Introduction to basic principles of interaction between two people. Emphasis is on enhancement of skills in a variety of interpersonal contexts.

SP 185 Multicultural Communication Skills (3) This course will expose students to practical skills needed for effective intercultural communication. This course will offer guidelines for improvement in diverse cultural settings such as business, education, counseling, and healthcare.

SP 200 Speaking Skills for Prospective Teachers (3) Theory and activities for competence in speaking skills used in classroom; interview, discussion, lecture, etc.

SP 201 Introduction to Speech Communication Theories (3) Introduction to the theoretical perspectives that are the foundations of the speech communication discipline.

SP 231 Performance of Literature (3) Introduction to the study of literature through performance. Practice in rhetorical and literary analysis culminating in solo performance of literary selections for an audience. The nature of performance criticism. **DA**

SP 251 Principles of Effective Public Speaking (3) Combined lecture/laboratory course providing extensive practice in preparing and presenting effective public speeches with special emphasis on organization, outlining, audience analysis, analytical reasoning, and delivery skills. **DA**

SP 251A Principles of Effective Public Speaking (3) Combined lecture/laboratory course providing extensive practice in preparing and presenting effective public speeches with special emphasis on organization, outlining, audience analysis, analytical reasoning, and delivery skills.

SP 252 Voice, Diction, and Phonetics (3) Speech mechanism, phonetics, and voice production. Techniques to enhance voice and diction for effective speaking.

SP 253 Argumentation and Debate (3) Adapting communication theory to forensic strategies for social action. Practice in formal argument. Pre: one of 151, 170, 181, 185, 201, or 251; or consent.

SP 280 Interviewing (3) Principles and practice; training in informational, persuasive, employment, appraisal, and research interviewing. Pre: one of 151, 170, 181, 185, 201, or 251; or consent.

SP 302 Research Methods (3) Introduction to methods of inquiry in the field of speech. Topics include research design and problem formulation, sampling, analytic and observational techniques, and data interpretation. Pre: 200-level speech course (or concurrent).

SP 321 Speech for Classroom Teachers (3) Analysis of and practice in using major models of speech communication in the classroom. Role of speech in various academic disciplines as needed by teachers. Pre: one of 151, 170, 181, 185, 200, 201, or 251; or consent.

SP 333 Storytelling (3) Aesthetic communication through storytelling for entertainment and education. Oral tradition; analysis of story types; techniques of preparation and presentation; performance. Pre: one of 151, 170, 181, 185, 201, 231, or 251; or consent. **DA**

SP 335 Story Theater (3) Techniques and procedures for staging and performing narrative fiction. Pre: one of 151, 170, 181, 185, 201, 231, or 251; or consent. **DA**

SP 351 Professional Presentations (3) Extends application of public speaking skills to various complex rhetorical situations. Emphasis on persuasion, motivational performance, and criticism of speeches. Pre: 251 or consent.

SP 352 Group Decision-Making and Leadership (3) Study of decision-making within the small group. Effects of organization, leadership, membership, and goals on achieving group purposes. Pre: one of 151, 170, 181, 185, 201, or 251; or consent.

SP 353 Public Advocacy of Current Issues (1) Students prepare speeches for and are required to speak to various community audiences on economic and social issues. Repeatable for 3 credit hours total. Pre: 253 or consent. **DS**

SP 361 Leadership Skills (3) Principles and practices of organizational speech and its relationship to networks, leadership, power, conflict, cultures, and other contemporary views of organizational work, change, and development. Pre: one of 151, 170, 181, 185, 201, or 251; or consent.

SP 364 Persuasion (3) Theories, concepts, strategies, and processes of persuasion and social influence in contemporary society. Focus on analyzing, developing, and resisting persuasive messages. Pre: one of 151, 170, 181, 185, 201, or 251; or consent. **DS**

SP 370 Verbal Communication (3) Roles of language: perception and assumption in human relationships; relation of language symbols to emotion and attitudes. Pre: upper division standing or consent.

SP 380 Family Communication (3) Focuses on the role of interaction patterns (both constructive and destructive) in the evolution of family communications. The impact of family dynamics upon these interaction patterns is given equal attention. Pre: one of 151, 170, 181, 185, 201, or 251; or consent.

SP 381 Interpersonal Relations (3) Theory and research on the development, maintenance, and termination of interpersonal relationships. Pre: one of 151, 170, 181, 185, 201, or 251; or consent.

SP 385 Culture and Communication (3) Survey of major factors affecting interpersonal communication between members of different cultures.

Emphasis upon interaction between U.S. and Asian-Pacific peoples. Pre: one of 151, 170, 181, 185, 201, or 251; or consent. **DS**

SP 386 Culture and Communication: Japan and U.S. (3) Cultural interaction between persons from Japan and U.S.; cultural variables shaping speech events; interpersonal relations. Pre: one of 151, 170, 181, 185, 201, or 251; or consent. **DS**

SP 390 Interrogation and Interviewing (3) Survey of theory and research on the communicative demands of obtaining reliable information from others. Obstacles faced and strategies used by professionals in law enforcement, legal settings, journalism, counseling/therapy, and patient diagnosis. Pre: one of 151, 170, 181, 185, 201, or 251; or consent.

SP 395 Research on Speech Behavior (3) Survey of research on speech behavior. Verbal and nonverbal data collection; analysis of research data. Students design and implement a research project. Repeatable. Pre: 201 and 302.

SP 431 Advanced Interpretative Reading (3) Problems in selected literary forms; development and arrangement of programs; individual and group performances. Pre: 231 and sophomore literature. **DA**

SP 432 Readers Theater (3) Origins and concepts; performing art for the classroom and the public; techniques for the participant and the director; creative projects and performance. Pre: one of 231, 333, 335, or consent. **DA**

SP 455 Conflict Management (3) Examination of the theories, assumptions, practices, models, and techniques of managing interpersonal conflicts. Pre: one of 151, 170, 181, 185, 201, 251, or 381.

SP 464 Analysis of Public Communication (3) Analysis of communication in public settings; perspectives on the study of argumentative strategy and structure in public messages (debates, political or public service ads). Pre: 364 or consent.

SP 470 Nonverbal Communication (3) Understanding communication beyond the words themselves. Review of theory and research on gestures, facial expressions, touch, personal space, and physical appearance. Pre: 151, 170, 181, 185, or 251; or consent.

SP 486 Relational Management (3) Survey and critical discussion of current theory and research in relational management literature. Focus on conversation management, deception, jealousy, privacy, communication of emotions. Pre: 201, 302 (or concurrent), or 381.

SP 490 The Helping Relationship (3) Theory and application of personal and interpersonal elements affecting communication of human-service professionals. Supervised practice, video lab. Pre: one of 151, 201, or 251. (Cross-listed as PSY 477) **DS**

SP 493 Teaching Speech (6) For speech majors who lead, under supervision, a freshman seminar section of speech. Pre: senior standing and consent.

SP 495 Health Communication (3) Course is designed to develop understanding of how speech communication functions to facilitate or inhibit the delivery of health care in a variety of contexts. Focus on compliance process, physician-patient interaction, nurse-physician interaction. Pre: 364 or 381, or consent.

SP 499 Directed Reading (V) Pre: consent of department chair and instructor.

SP 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B candidate and consent.

SP 601 Theories in Speech Communication (3) Major theoretical foundations; humanistic and social scientific perspectives. Examination of the research and the development of different models of human communication.

SP 602 Research Methods in Speech (3) Design and analysis of quantitative research in speech. Focus on measurement issues, research design, descriptive and inferential statistics. Pre: one of 302, ECON 321 (or concurrent), PSY 210, or consent.

SP 620 Practicum for Instructional Communication (V) Combined seminar and lecture/discussion format on techniques and procedures for teaching speech skills and their related components in a laboratory setting. CR/NC only. Repeatable one time. Pre: consent.

SP 621 Approaches to Instructional Communication (3) Speech communication theories and models in instructional environment; emphasis on development training in educational settings. Pre: 601, 602 (or concurrent), or consent.

SP 622 Researching Relational Communication (3) Methodological and analytical demands of research on relational and nonverbal communication. Focus on repeated measures, multivariate analysis, longitudinal analysis, and reliability and validity issues. Pre: 602 or consent.

SP 643 Rhetorical Criticism (3) Methods of rhetorical criticism; comparison of different critical approaches to rhetoric; critical analysis of local and contemporary speeches. Pre: 601, 602 (or concurrent), or consent.

SP 652 Group Decision-Making (3) Theory, concepts, research, and application of small group interaction and decision-making. Pre: 601, 602 (or concurrent), and 352; or consent.

SP 654 Persuasion and Social Influence (3) Cross-situational attempts to persuade and induce resistance to persuasion; theories of persuasion and resistance; assessment of attitudes and measurement of change. Pre: 601, 602 (or concurrent), and 364; or consent.

SP 660 Business Communication (3) Analysis of communication issues in business through discussion of verbal/nonverbal messages, interpersonal relationships, conflict, and persuasion. Focus on interviewing, group communication, and public speaking skills. Pre: graduate standing or consent.

SP 673 Message Processing (3) Theories of human message processing. Effects of verbal and nonverbal codes, channels, and message forms on encoding and decoding. Pre: 601 and 602 (or concurrent), or consent.

SP 681 Relational Communication (3) Major models and theories of interpersonal speech communication; research on interpersonal relationships; interaction and functions of human discourse. Pre: 601 (or concurrent) and 602 (or concurrent), or consent.

SP 683 Issues in Message Processing (3) Contemporary research in verbal and nonverbal message processing. Repeatable. Pre: 602 (or concurrent) or consent.

SP 699 Directed Research (V)

SP 700 Thesis Research (V)

SP 764 Seminar in Persuasion and Influence (3) Contemporary research in persuasion and influence. Repeatable. Pre: 654 (or concurrent) or consent.

SP 781 Seminar in Relational Communication (3) Contemporary research in interpersonal relations. Repeatable. Pre: 681 or consent.

SP 785 Research on Intercultural Communication (3) Functional approach to the study of speech communication in intercultural settings. Examination of culture-based variables and their impact on social influence, relational management, and message processing. Repeatable. Pre: 654, 673, or 681; or consent.

SP 795 Seminar in Health Communication Research (3) Contemporary interpersonal and/or public communication issues in health communication research. Topics include speech communication functions such as information management, interpersonal influence, relational management, emotional management, social influence. Repeatable. Pre: 654, 673, or 681; or consent.

Speech Pathology and Audiology (SPA)

School of Medicine

Junior standing or consent is prerequisite to all 300-level courses except as noted.

SPA 300 Introduction to Speech-Language Pathology (3) Survey of field of speech-language pathology. Pre: consent.

SPA 301 Introduction to Audiology (3) Basic concepts; acoustics and psychoacoustics; anatomy and physiology; measurement of hearing. Pre: consent.

SPA 302 Introduction to Clinical Intervention (3) Guided application of theory to intervention introduces scientific, legal, professional, and multicultural basis for practice; specifies learning principles, interviewing, programming, and service delivery models. Includes supervised observations. A-F only. Pre: 300 and consent.

SPA 303 Testing of Hearing (3) Screening and testing procedures; conventional and special tests of hearing; interpretation of results. Pre: 301 and consent.

SPA 320 Anatomy/Physiology and Neuroanatomy of Speech and Language (4) Structure and function of the respiratory, phonatory, and articulatory systems related to speech production; neurological development and physiology related to speech and language. Pre: 300 (or concurrent); or consent.

SPA 321 Acoustics and Psychoacoustics—Speech and Hearing (3) Acoustic and psychoacoustic aspects of speech and hearing. Pre: consent.

SPA 402 Applications of Phonological Theory (3) Introduction to the fundamentals of speech sound development and production. Phonological

developments and models; cultural variations; analysis, interpretation, and other considerations related to management of phonological disorders. Pre: 300, 302, and LING 410; or consent.

SPA 404 Developmental Aspects of Language (3) Language development; infancy through school-age. Theoretical perspectives relating to speech-language pathology and processing of language. Cognitive, linguistic, and social aspects including learning strategies, play, context, conversation, and multicultural issues are discussed. Pre: 300 and 302; or consent.

SPA 412 Clinical Observation and Participation (2) Provides observation and discussion of the clinical management of individuals with communication disorders, and practical experience related to clinical procedures and requirements. Pre: 300, 302, 402, and consent.

SPA 414 Organic and Neurogenic Disorders (3) Communication impairments from CNS, oral and laryngeal systems disorders, and impaired sensory systems are presented across the lifespan. Information includes multiple disabilities, and medical fragile children. Models of appropriate intervention are presented and discussed. Pre: 320, 402, and 404; or consent.

SPA 415 Hearing Habilitation and Rehabilitation (3) Principles and methods of habilitation and rehabilitation of children and adults with hearing problems. Pre: 301, 303, 321, and consent.

SPA 420 Clinical Instrumentation (3) The use of electronic instrumentation in the clinic as an aid in the diagnosis and treatment of clinical problems. Pre: 321 and consent.

SPA 421 Practicum in Audiology I (1) Clinical practice in diagnostic procedures in pure-tone threshold, speech threshold and discrimination, and immittance testing at various age levels. Pre: 301, 303, 415, and consent.

SPA 423 Practicum in Audiology II (2) Clinical practice in diagnostic procedures in pure-tone threshold, speech threshold and discrimination, immittance and electrophysiological testing at various age levels. Pre: 301, 303, 415, 421, and consent.

SPA 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

SPA 600 Research Methods (3) Research methods applicable to the field of speech-language pathology and audiology; analysis and reporting of data. Required of all SPA graduate students. Pre: EDEP 429 or PSY 311, and consent.

SPA 602 Assessment of Child Language Disorders (3) Study of methods, test, and instruments employed in the diagnosis of language disorders in children. Co-requisite: 616. Pre: consent.

SPA 603 Advanced Audiology (3) Instrumentation; special tests of hearing. Pre: 301, 303, 415, and consent.

SPA 604 Seminar in Motor Speech Disorders and Dysphagia (3) This seminar provides an in-depth examination of various motor speech disorders, including apraxia of speech, dysarthria, and dysphagia. Emphasis is on assessment and treatment of these diagnoses. Review of current treatment literature, anatomy and physiology, and practical exercises in treatment planning. A-F only. Pre: consent.

SPA 610 Disorders of Phonology and Articulation (3) Study of the etiology, assessment, and remediation of disorders and articulation. Pre: LING 410 and consent.

SPA 612 Child Language Disorders (3) Study of the etiology, behavioral characteristics, and treatment methods for various child language disorders. Includes identifying specific language deficits and writing intervention goals. Pre: consent.

SPA 613 Language Development for Children with Hearing Deficiencies (3) Language acquisition by hard-of-hearing and deaf children; methods of stimulating growth. Pre: 415 and consent.

SPA 616 Advanced Practicum in Speech Pathology I (1) Clinical practice in diagnostic and therapeutic procedures with various types of speech and language problems in different clinical settings. Repeatable. Pre: 412 and consent.

SPA 617 Advanced Practicum in Audiology I (3) Clinical practice in administering tests, interpreting results; counseling of individuals with impaired hearing; use of various rehabilitation techniques. Repeatable. Pre: 421, 423, or 603, and consent.

SPA 620 Voice Disorders (3) Contemporary development and theoretical issues in the diagnosis, evaluation, and treatment of vocal system disorders in children and adults; current literature and clinical practice issues are addressed. Pre: consent.

SPA 622 Aphasia and the Dementias (3) Study of acquired aphasia in adults and the characteristics and progression of disorders of dementia. Procedures for clinical intervention, current literature review, and related professional issues. Pre: consent.

SPA 695 Research—Speech Pathology (3) Required of all SPA graduate students following the non-thesis (Plan B) program and emphasizing speech-language pathology. Pre: 600 and consent.

SPA 696 Research—Audiology (3) Required of all SPA graduate students following the non-thesis (Plan B) program and emphasizing audiology. Pre: 600 and consent.

SPA 699 (Alpha) Directed Study (3) To allow student and faculty adviser to design research/study units outside existing academic structure in specialized area. Repeatable. (B) language pathology; (C) audiology. Pre: 402 and 602 for (B); 603 for (C).

SPA 700 Thesis Research (V) Pre: consent.

SPA 701 Amplification: Assessment and Applications (3) Comprehensive study of amplification. Assessment, fitting, evaluation, electroacoustic evaluation, dispensing. Personal instruments and instructional-educational systems. Pre: 603 and consent.

SPA 702 Disorders of Fluency (3) Contemporary developments and theoretical issues in diagnosis, evaluation, and treatment of disorders of fluency such as stuttering in both children and adults. Pre: 602 and consent.

SPA 703 Electrophysiologic Audiometry (3) Study of early, middle, and late auditory evoked potentials with emphasis on the auditory brainstem response. Pre: 603 or consent.

SPA 705 Central Auditory Dysfunction: Testing and Remediation (3) Study of disorders and dysfunctions of the central auditory system. Emphasis on normal system and diagnosis and on evaluation of lesions and non-site-specific disorders. Pre: 603 and consent.

SPA 708 Seminar in Right Hemisphere Brain Damage and Traumatic Brain Injury (3) Traumatic brain injury and right hemisphere communicative disorders are explored with emphasis on assessment and treatment of individuals with these diagnoses. Review of current treatment literature, communication and cognitive theories, and practical exercises in treatment planning. Pre: consent.

SPA 710 (Alpha) Special Topics in Audiology and Speech-Language Pathology (3) (B) study of contemporary developments in speech/language pathology; (C) study of contemporary developments in audiology. Repeatable. Pre: 602 for (B); 603 for (C).

SPA 716 Advanced Practicum in Speech Pathology II (2) Clinical practice in diagnostic and therapeutic procedures with various types of speech and language problems in different clinical settings. Repeatable. Pre: 412 and consent.

SPA 717 Advanced Practicum in Audiology II (2) Clinical practice in administering tests and interpreting results; counseling individuals with impaired hearing; use of various rehabilitation techniques. Repeatable. Pre: 421 or 423, 603, and consent.

SPA 718 Advanced Practicum in Speech-Language Pathology in the Schools (3) Clinical practice in diagnostic and therapeutic procedures with children in the public schools who have speech and/or language problems. Repeatable. Pre: 602, 716, and consent.

SPA 721 Seminar in Audiology—Diagnostic Procedures (3) Study of diagnostic procedures as reflected in current literature. Pre: 603 and consent.

SPA 723 Seminar in Audiology—Rehabilitative Procedures (3) Procedures and philosophies presented in recent literature dealing with rehabilitative phases of audiology. Pre: 415 and consent.

SPA 724 Advanced Practicum in Speech Pathology III (3) Clinical practice in diagnostic and therapeutic procedure with various types of speech and language problems in different clinical settings. Repeatable. Pre: 412, 602, and consent.

SPA 725 Advanced Practicum in Audiology III (3) Clinical practice in administering tests and interpreting results, counseling of individuals with impaired hearing; use of various rehabilitation techniques. Repeatable. Pre: 421, 603, and consent.

Surgery (SURG)

School of Medicine

SURG 531 Surgery Clerkship I, II (10) A 7-week clinical experience in an acute care hospital which teaches the diagnosis, treatment, and operative care of diseases treated by general surgeons. Repeatable once. CR/NC only. Pre: BIOM 555 and third-year standing.

SURG 532 Surgery Longitudinal Clerkship—Outpatient (5) Part of a year-long surgical clerkship, this half is based in an ambulatory setting. One half day per week is spent in a surgery clinic with emphasis on continuity of care and on surgical evaluation skills and decision making. Repeatable once. CR/NC only. Pre: BIOM 555. Co-requisite: FPCH 532, MED 532, OBGN 532, PED 532, and PSTY 532.

SURG 533 Surgery Longitudinal Clerkship—Inpatient (5) Part of a year-long surgical clerkship, this component is based in the hospital setting. Four weeks are spent on an inpatient service learning evaluation, diagnosis. Repeatable once. CR/NC only. Pre: BIOM 555. Co-requisite: MED 533, OBGN 533, and PSTY 533.

SURG 541 Emergency Medical Care (6) Clinical experiences in management of medical, surgical, and psychiatric problems requiring urgent care. Pre: 531 and fourth-year standing.

SURG 545 (Alpha) Unit VII Electives in Surgery (V) Advanced clinical experience in general surgery, surgical specialties, and radiology. (B) urology; (C) ophthalmology; (D) otolaryngology; (E) plastic surgery; (F) neurosurgery; (G) orthopaedics; (H) anesthesia; (I) surgical intensive care; (J) subinternship—general surgery; (K) subinternship—pediatric surgery; (M) radiology-diagnostic; (N) radiology-oncology; (O) emergency medicine; (P) unit 7 electives in surgery; (Q) subinternship—cardiovascular surgery; (R) surgical research; (S) surgical anatomy. Repeatable one time for (B), (C), (D), (E), (F), (G), (H), (I), (J), (K), (M), (N), (O), (P), and (Q). CR/NC only. Pre: 531 or 532 for (B), (C), (D), (E), (F), (G), (H), (I), (J), (K), (M), (N), (O), (P), and (Q); consent for (R); 531 or 532/533; ANAT 512B, 513, or 514E; or consent for (S). Spring only for (S).

SURG 599 Directed Reading/Research (V) Pre: consent of department chair.

SW

See Social Work

Tahitian (TAHT)

College of Languages, Linguistics and Literature

TAHT 101 Elementary Tahitian (4) Listening, speaking, reading, writing. Structural points introduced inductively. Meets five hours weekly; daily lab work. HSL

TAHT 102 Elementary Tahitian (4) Continuation of 101. HSL

TAHT 103 First Year Tahitian (3) Basic core skills of listening, speaking and grammar of spoken Tahitian in a condensed format. Meets three 50-minute sessions weekly.

TAHT 104 First Year Tahitian (3) Basic core skills of listening, speaking and grammar of spoken Tahitian in a condensed format. Meets three 50-minute sessions weekly. Pre: 103 or consent.

TAHT 201 Intermediate Tahitian (4) Continuation of 102. Meets five hours weekly; daily lab work. Pre: 102 or equivalent. HSL

TAHT 202 Intermediate Tahitian (4) Continuation of 201. HSL

TAHT 203 Second Year Tahitian (3) Intermediate core skills of listening, speaking and knowledge of grammar for spoken Tahitian in a condensed format. Meets three 50-minute sessions weekly. Pre: 104.

TAHT 204 Second Year Tahitian (3) Intermediate core skills of listening, speaking and knowledge of grammar for spoken Tahitian in a condensed format. Meets three 50-minute sessions weekly. Pre: 203 or consent.

TAHT 301 Third-Level Tahitian (3) Continuation of 202. Conversation, advanced reading, composition. Pre: 202 or equivalent.

TAHT 302 Third-Level Tahitian (3) Continuation of 301.

TAHT 358 Third-Level Tahitian Abroad (3) Full-time formal instruction at the French University of the Pacific in Tahiti. Third-year level in Tahitian language and culture. Pre: 202 and consent.

TAHT 359 Third-Level Tahitian Abroad (3) Continuation of 358. Pre: 301 or 358; and consent.

TAHT 401 Fourth-Level Tahitian (3) Continuation of 302. Advanced conversation, reading, and writing with focus on modern formal and colloquial Tahitian styles. The language in the realms of storytelling, radio, folklore, traditional and modern writing. Survey of modern and classical language. Pre: 302 or consent.

TAHT 402 Fourth-Level Tahitian (3) Continuation of 401. Pre: 401 or consent.

TAHT 458 Fourth-Level Tahitian Abroad (3) Full-time formal instruction at the French University of the Pacific in Tahiti. Fourth-year level in Tahitian language and culture. Pre: 302 and consent.

TAHT 459 Fourth-Level Tahitian Abroad (3) Continuation of 458. Pre: 401 or 458; and consent.

Teacher Education and Curriculum Studies (TECS)

College of Education

TECS 312 (Alpha) Foundations in Curriculum and Instruction (3) Objectives and organization of school curriculum; methods, materials, and evaluation in instruction. Weekly observation and participation in classroom. (C) elementary education; (D) secondary education. Co-requisite: 317 for (C) only; 316 for (D) only.

TECS 313 Literacy and Literature I (3) Teaching strategies based on current theories of language will be modeled within an integrated whole language curriculum appropriate for multicultural classrooms. Repeatable. Co-requisite: 317. DL

TECS 314 Literacy and Literature II (3) Teaching strategies based on current theories of language will be modeled within an integrated whole language curriculum appropriate for multicultural classrooms. Pre: 313. Co-requisite: 317. DL

TECS 315 Field Experience (1) Supervised field experience in schools. Minimum of 4 hours per week in conjunction with professional education courses. Repeatable. CR/NC only.

TECS 316 Field Experience (2) Supervised field experience in schools. Minimum of 8 hours per week in conjunction with professional education courses. Repeatable. CR/NC only.

TECS 317 Field Experience (3) Supervised field experience in schools. Minimum of 12 hours per week in conjunction with professional education courses. Repeatable. CR/NC only.

TECS 318 Physical Education, Elementary (3) Experience in using various methodologies and techniques, planning units and lessons, selecting resources for elementary physical education. Practical laboratory experience. Pre: KLS 333.

TECS 319 Children's Literature (2) Acquaintance with wide range of children's books; criteria for evaluation literature; using literature in the classroom. DL

TECS 322 Social Studies, Elementary (3) Purposes, methods, materials, and evaluation in teaching social studies, particular emphasis on developing children's knowledge, skills, self-concept, citizenship, inquiry/thinking, and values. Co-requisite: 317.

TECS 323 Science, Elementary (3) Science education in elementary school; methods and materials; laboratory activities selected from new science curricula. Co-requisite: 317.

TECS 324 Mathematics, Elementary (3) Inquiry-based approach to concepts and algorithms of whole numbers and introduction to geometry/measurement. Laboratory experiences on appropriate manipulatives. Pre: MATH 100 or consent. Co-requisite: 317.

TECS 325 Mathematics, Elementary II (3) Inquiry-based approach to concepts and algorithms of fractions, decimals, graphing, and probability and statistics. Laboratory experiences on appropriate manipulatives. Pre: 324 or consent.

TECS 326 Creative Art, Elementary (3) Scope and organization of art in elementary school curriculum, creative use of art media through laboratory experiences.

TECS 329 Creative Expression in Elementary Education (2) Development of communication skills through creative dramatics, rhythmic movement, related arts.

TECS 330 Language Arts, Secondary (3) Teaching techniques and curriculum design in speaking, reading, writing, and other areas of secondary language arts. Pre: 312D. Co-requisite: 316.

TECS 332 Social Studies, Secondary (3) Introduction to teaching methods, instructional materials, and curriculum organization for secondary social studies. Pre: 312D. Co-requisite: 316.

TECS 333 Science, Secondary (3) Purposes and procedures; development of scientific attitude; review of major generalizations of biological and physical sciences. Pre: 312D. Co-requisite: 316.

TECS 334 Mathematics, Secondary (3) Purposes and procedures; development of basic mathematical concepts. Pre: 312D and MATH 311, MATH 351, or MATH 352. Co-requisite: 316.

TECS 335 Foreign Languages, Secondary (3) Methods, techniques, and materials; aims, procedures, tests; motivation, infusion of cultures in foreign language in secondary schools. Pre: 312D. Co-requisite: 316.

TECS 336 Art, Secondary (3) Purposes and procedures; the arts in relating to other curriculum areas. Pre: 312D. Co-requisite: 316.

TECS 338 Secondary Career Guidance (3) Teaching methods, materials, and curriculum design in secondary career guidance. Pre: 312D and basic or professional secondary teaching certificate or BEd and 12 credit hours in teaching concentration including EDCG 402 and EDCG 613. Co-requisite: 316.

TECS 339 Speech-Communication, Secondary (3) Objectives, materials, procedures for teaching speech-communication; speech modification, development; selected speech activities. Pre: 312D. Co-requisite: 316.

TECS 343 Personal and Social K-6 Health Skills (3) Experiences for elementary classroom teachers in creating interactive learning opportunities to teach personal and social responsibility for health through integration with other subject areas of school curriculum. Focus on National and Hawai'i Health Education Standards. A-F only.

TECS 344 Methods and Techniques in Health Education (3) Methods and techniques in teaching health education in secondary schools; student-oriented and teacher-centered methods; common problems in secondary health teaching. Skills, curriculum designs, and their implications for methods and techniques. Pre: 312D and KLS 202, or consent. Co-requisite: 316.

TECS 346 Methods of Instruction, Industrial/Agricultural Education (3) Techniques of individual and group instruction in laboratory and related classes, evaluation of various methods. Pre: 312D. Co-requisite: 316.

TECS 347 Management of Industrial/Agricultural Facilities (3) Organization of instruction; handling supplies; maintaining equipment and tools; purchasing materials; keeping records; making inventories. Pre: 312D. Co-requisite: 316.

TECS 348 Teaching Business and Office Education (3) Theory and methods of teaching business and office education courses. Pre: 312D, ACC 201, ACC 202, and ICS 160. Co-requisite: 316.

TECS 349 Teaching Marketing and Distribution (3) Theory and methods of teaching marketing and distribution courses. Pre: 312D, MKT 300, MKT 315, MKT 341, or MKT 351. Co-requisite: 316.

TECS 353 Music in the Elementary School (2) Goals, concepts, literature, materials, procedures, and evaluation for teaching music in grades K-6. For students in elementary education. Not intended for elementary music majors. Pre: 312C (or concurrent) and MUS 108.

TECS 354 Music Education: Elementary (2) Required for K-6 music specialists. Scope and nature of music in children's lives; planning, teaching, learning, and evaluating music in elementary curriculum. Not open to those with credit in 353. Pre: 312C (or concurrent), MUS 150, and MUS 286; or consent.

TECS 355 Music: Secondary Instrumental (2) Objectives, materials, procedures of instrumental music in secondary school. Pre: 312D (or concurrent), MUS 151-152, MUS 153-154, MUS 155-156, MUS 326 (or concurrent), and MUS 354; or consent.

TECS 356 Music: Secondary Vocal/General (2) Objectives, materials, procedures of general and choral music in secondary school. Pre: 312D (or concurrent), MUS 121B, and MUS 150; or consent.

TECS 360 Introduction to Multicultural Education (2) Concepts and methods to develop sensitivity and awareness of cultural influences on behavior as these relate to the schooling process. Field experience is an integral part of course. (Cross-listed as EDEF 360)

TECS 371 Home Economics Education (3) Curriculum design. Current educational philosophies and practices in home economics education. Teaching materials and techniques.

TECS 380 Managing Classrooms (3) Analysis of the factors that contribute to learning in the classroom and the development of teacher behaviors that promote such learning.

TECS 390 (Alpha) Student Teaching (V) Full-time supervised experience in school. (C) elementary; (D) secondary; (E) community college; (S) elementary/secondary regular education (for dual certification majors only). Pre: requirements for registration listed under "student teaching." Co-requisite: 391. Repeatable. CR/NC only.

TECS 391 (Alpha) Seminar for Student Teaching (V) Seminar relating current educational theories with experience in student teaching. (C) elementary; (D) secondary; (E) community college; (S) elementary/secondary regular education (for dual certification majors only). Pre: requirements for registration listed under "student teaching." Co-requisite: 390. Repeatable. CR/NC only.

TECS 392 (Alpha) Student Teaching Modified (6) Modified student teaching for individuals who have had prior extensive teaching experience or wish to repeat student teaching. CR/NC only. (C) elementary; (D) secondary. Pre: extensive teaching experience; requirements listed under "student teaching"; approval of review committee; consent. Co-requisite: 391.

TECS 399 Directed Reading (V) Individual reading or research. Pre: senior standing, major with a minimum cumulative GPA of 2.7 or a minimum GPA in education of 3.0, and consent.

TECS 410 Supervision of the Observation-Participation Student (2) Basic guidelines for developing effective team relationships between the professional teacher and the observation-participation student. Pre: two years' teaching experience and consent.

TECS 415 Early Childhood: Foundations and Curriculum (3) Two-course sequence of theory, methods, and materials for teaching young children (2½ to 5 years). Emphasizes foundations, observation skills, and the design of learning environment. Pre: 312C.

TECS 415L Early Childhood: Foundations and Curriculum Lab (3) Direct experience with children in early childhood settings in order to apply concepts from 415 and develop skills in observation, teaching, and classroom management. Co-requisite: 415.

TECS 416 Early Childhood: Foundations and Curriculum (3) Continuation of 415: focuses on appropriate curriculum for young children. Pre: 415.

TECS 416L Early Childhood: Foundations and Curriculum Lab (3) Continuation of 415L. Co-requisite: 416.

TECS 417 Developmentally Appropriate Practice: Ages 3–8 (3) How to plan developmentally appropriate programs for young children, including the design of the learning environment; integrated, thematic planning; child guidance; assessment; and parent involvement. Pre: 312C.

TECS 420 Supervision of Student Teaching (3) Principles and methods; role of supervisor; human resources supervision in student teaching. Open to teachers interested in pre-service teacher education. Pre: three years teaching experience and consent.

TECS 425 Working with Parents (3) Knowledge and skills for relating effectively with families on behalf of the child; context in which families and schools interact; communication, problem solving, and increasing parental competence in settings for both normal and handicapped children. Pre: FAMR 341 or consent. (Cross-listed as FAMR 425 and SPED 425)

TECS 427 Classroom Teaching Models in Affective Education (3) Different approaches to affective education within conceptual framework useful to teachers. Teaching models include non-directed, self-concept, consciousness expansion, group communication, moral and value development, human relations training. Conceptual framework includes theoretical orientation and major theorists, activities and classroom applications, teacher's role, application to curriculum. Pre: observation/participation, and student teaching or teaching experience; or consent.

TECS 430 Advanced Supervision of Student Teaching (3) Advanced principles and methods: clinical supervision, observation recording, analysis, interpretation of classroom teaching; human resources supervision in student teaching. Pre: 420, successful supervision of two or more student teachers, and consent.

TECS 431 Collaborative Language and Learning (3) Examination of language (talking, reading, and writing) processes within a collaborative teaching framework in the secondary curriculum. Field experience may be required.

TECS 432 Adolescent Literature and Literacy (3) Selection and interpretation of young adult literature, including multicultural literature for middle level and high school students. Theory and teaching strategies for integrating literacy instruction in the literature program for diverse student populations. A-F only. Pre: 312D (or concurrent) or consent. DL

TECS 433 Interdisciplinary Science Curriculum (3) Fundamental science concepts from the viewpoints of physical, biological, and Earth sciences; integrative processes and conceptual schemes; methods, tools, and models of different disciplines. Pre: introductory courses in various sciences.

TECS 436 Cooperative Vocational Education (3) Planned work-experience program for special areas of vocational technical education. Acceptable type of wage-earning employment. Minimum of six 40-hour weeks or 240 work hours required. Repeatable. Pre: consent.

TECS 438 Foundations of Vocational Education (3) Historical and philosophical foundations of vocational technical education,

overview of federal and state legislation and contemporary practices. Special emphasis on vocational education program in Hawai'i.

TECS 439 Office and Marketing Technology (3) Understanding and use of word processing, spreadsheet, and database software for business applications. Explore software across the office and marketing content areas.

TECS 440 Curriculum Implications of Multicultural Education (3) Examination of trends, issues, school practices, and program in multicultural education and its related area of study—bilingual-bicultural education.

TECS 441 Hawaiian Studies, Methods (3) Examination of issues in Hawaiian and U.S. views of education and their application to the teaching of Hawaiian studies. Field experience required. A–F only. Pre: 312C, 312D, or consent. Co-requisite for BEd students: 317.

TECS 444 Education of Exceptional Children in Regular Classroom (3) Practices that facilitate teaching special needs students in regular classrooms. Techniques for meeting academic needs, managing behavior, motivating students, increasing peer interactions, communication between special and regular educators. (Cross-listed as SPED 444)

TECS 445 Educating Exceptional Students in Regular Classrooms, Secondary (3) Teaching secondary students with disabilities and those who are gifted/talented. Meeting academic/social needs, classroom management, motivation, peer interaction. Collaboration between special and regular educators. (Cross-listed as SPED 445)

TECS 450 Lab Methods and Materials in Science (3) Selecting and using lab methods and materials, demonstrations and simulations, open-ended experimentation, inquiry and discovery, task analysis, measurement tools and techniques, activities from various curricula, opportunity for individualized goals and projects. Pre: 323, 333, teaching experience, or consent.

TECS 451 Programs for Infants/Toddlers (3) Examination of current theory, research, issues, and models in programs for infants and toddlers, including criteria for evaluation and planning. Pre: FAMR 230 (or concurrent), FAMR 331 (or concurrent), or consent. (Cross-listed as SPED 451)

TECS 453 Gender Issues in Education (3) Examination of current and historical issues in education and how they are impacted upon by gender, with particular reference to gender as it intersects with ethnicity and class, locally and globally. Pre: WS 151 or junior standing, or consent. (Cross-listed as EDEF 453 and WS 453) DS

TECS 457 Asian and Pacific Music in Education (2) Musical concepts in songs, dances, and instrumental music of Asia, Hawai'i, and other Pacific Islands, appropriate for K–12. Pre: 353, 354, or 355 and 356. (Cross-listed as MUS 457) DA

TECS 471 Special Problems in Home Economics Education (2) Individual and group problems selected according to interests and needs of fourth- and fifth-year students in home economics education. Development of teaching materials.

- TECS 480 Issues in Computer Education (3)** Integration of microcomputers into school curriculum and key issues related to microcomputer use in education. Pre: ETEC 442 or consent.
- TECS 494 Problem Solving in Mathematics Education (3)** Experiencing and learning to teach heuristics of solving mathematical problems; designing curricula, classroom organization, evaluative measures for problem solving. Pre: 324 or 334, and teaching experience in mathematics; or consent.
- TECS 495 Difficulties in Learning Mathematics (3)** Identification, analysis, and remediation of difficulties in learning mathematics. Pre: 324 or 334.
- TECS 499 Directed Activity (V)** Individual work supervised by instructor. May consist of reading, research, teaching, and/or projects. Pre: consent of division director.
- TECS 550 Newspaper in the Classroom (2)**
- TECS 563 (Alpha) Practicum in Curriculum Development: Bilingual/Bicultural (1)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 564 (Alpha) Practicum in Curriculum Development: Bilingual/Bicultural (2)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 565 (Alpha) Practicum in Curriculum Development: Bilingual/Bicultural (3)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 566 (Alpha) Practicum in Curriculum Development: Career Education (1)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 567 (Alpha) Practicum in Curriculum Development: Career Education (2)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 568 (Alpha) Practicum in Curriculum Development: Career Education (3)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 569 (Alpha) Practicum in Curriculum Development: Computer Science (1)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 570 (Alpha) Practicum in Curriculum Development: Computer Science (2)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 571 (Alpha) Practicum in Curriculum Development: Computer Science (3)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 572 (Alpha) Practicum in Curriculum Development: Humanities (1)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 573 (Alpha) Practicum in Curriculum Development: Humanities (2)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 574 (Alpha) Practicum in Curriculum Development: Humanities (3)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 575 (Alpha) Practicum in Curriculum Development: Language Arts (1)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 576 (Alpha) Practicum in Curriculum Development: Language Arts (2)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 577 (Alpha) Practicum in Curriculum Development: Language Arts (3)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 578 (Alpha) Practicum in Curriculum Development: Mathematics (1)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 579 (Alpha) Practicum in Curriculum Development: Mathematics (2)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 580 (Alpha) Practicum in Curriculum Development: Mathematics (3)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 581 (Alpha) Practicum in Curriculum Development: Natural Science (1)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 582 (Alpha) Practicum in Curriculum Development: Natural Science (2)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 583 (Alpha) Practicum in Curriculum Development: Natural Science (3)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 584 (Alpha) Practicum in Curriculum Development: Occupational Development (1)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. CR/NC only. Repeatable. Pre: teaching experience.
- TECS 585 (Alpha) Practicum in Curriculum Development: Occupational Development (2)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. CR/NC only. Repeatable. Pre: teaching experience.
- TECS 586 (Alpha) Practicum in Curriculum Development: Occupational Development (3)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. CR/NC only. Repeatable. Pre: teaching experience.
- TECS 587 (Alpha) Practicum in Curriculum Development: Social Science (1)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 588 (Alpha) Practicum in Curriculum Development: Social Science (2)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 589 (Alpha) Practicum in Curriculum Development: Social Science (3)** For in-service teachers to upgrade subject matter and develop teaching methods and materials for instruction. Repeatable. CR/NC only. Pre: teaching experience.
- TECS 600 Language, Learning and Teaching (3)** Examines the role that language plays in the social construction of knowledge within various disciplines, K–adult. Collaborative group learning strategies will be modeled. A-F only. Pre: student teaching or teaching experience or consent.
- TECS 601 Advanced Topics in Reading (3)** Current theories and teaching strategies of reading throughout the life span within various social contexts. Topics include emergent literacy, critical comprehension, meta-linguistic awareness, monolingual-bilingual literacy, evaluation. Must have had student teaching or teaching experience. Pre: undergraduate course in reading.
- TECS 602 Advanced Topics in Writing and Oral Language (3)** Examines language and literacy learning in the context of an integrated language arts approach to curriculum and instruction. Emphasis on oral and written language. Must have student teaching or teaching experience. Pre: undergraduate course in language arts.
- TECS 603 Children's Literature in the Elementary Curriculum (3)** In-depth examination of traditional and modern literature for children, with emphasis upon genre, historical development, research, curriculum development. Pre: undergraduate course in reading.
- TECS 618 Early Childhood Education: Advanced Topics (3)** Analysis and practical application of selected early childhood education program and/or instructional materials. Restricted to majors. Repeatable. Pre: TECS 415 and 416, or consent.

TECS 622 (Alpha) School Curriculum (3) Development and improvement of curriculum. (B) early childhood; (C) elementary; (D) middle school; (E) secondary; (F) community college. Pre: TECS 312 or equivalent, and teaching experience; for (F) only: EDEA 657, EDEF 657, or community college teaching experience; and consent.

TECS 623 Elementary Science Curriculum (3) Application of recent developments in science, curriculum construction, and learning theory to elementary school. Science content and methodology stressed. Pre: teaching experience.

TECS 624 (Alpha) School Mathematics Curriculum (3) Analysis of research related to teaching and learning school mathematics, application of research to classroom practices. Appraisal of recent curriculum trends; critical examination of assumptions underlying proposed curriculum changes. (C) elementary; (D) middle; (E) secondary. Pre: teaching experience or consent.

TECS 625 Elementary Social Studies Curriculum (3) Examination and evaluation of social science content, societal values and research findings as basis for development and revision of social studies materials, texts, curriculum guides, methodology. Pre: TECS 322 or equivalent, or social studies teaching experience.

TECS 626 Art in Elementary Education (3) Principles of and problems in teaching art in elementary school; curriculum development and current approaches in art education; laboratory experiences in art media. Pre: student teaching or teaching experience.

TECS 628 Function of Play in Early Childhood Education (3) Review of research and theory illuminating the nature, purposes, and meanings of play as a critical aspect of early childhood education. Restricted to majors. Pre: TECS 415 and 416, or consent.

TECS 630 Cultural Diversity and Education (3) Examines issues, theories, perspectives and practices in multicultural education and promotes awareness, encourages knowledgeable reflection and develops skills necessary for multicultural practitioners. A-F only. (Cross-listed as EDEF 630)

TECS 632 Qualitative Research Methods (3) Methods of qualitative research in education or related social science from an interdisciplinary framework.

TECS 637 Art in Secondary Education (3) Principles of and problems in teaching art in secondary school; current approaches in teaching art. Pre: consent.

TECS 639 Business and Marketing Education Curriculum (3) Theory, philosophy, objectives, and development of business and marketing education curriculum. Pre: TECS 390D or consent.

TECS 640 (Alpha) Seminar in Teaching Field (3) Study in trends, research, and problems of implementation in teaching field. (B) business and marketing education; (C) English; (F) home economics; (G) industrial education; (H) mathematics; (I) reading; (J) science; (K) social studies; (M) interdisciplinary education; (N) art; (O) physical education; (P) health education. Pre: teaching experience or consent, and undergraduate special methods course in appropriate teaching field; for (B) only: 390D or consent; for (O) only: KLS 390, KLS 391, KLS 643, and teaching experience; or consent.

TECS 641 (Alpha) Seminar in Foreign Language (3) Study in trends, research, and problems of implementation of language education instruction. (B) French; (C) German; (D) Japanese; (F) Spanish. Pre: TECS 335, teaching experience, and consent.

TECS 642 Seminar in Issues in Multicultural Middle Level Education (1) Examination of principles of multicultural and middle-level education. Restricted to middle-level related area of master's in Secondary Education. Repeatable. Pre: consent.

TECS 643 Public School Curriculum for Physical Education (3) Detailed examination of contents of adequate curriculum for physical education in public schools, K–12. Pre: KLS 343, TECS 390, and TECS 391; or consent. (Cross-listed as KLS 643)

TECS 646 Reading Difficulties (3) Causes, prevention, and correction. Evaluation and remedial practices useful to classroom teacher. Pre: course in teaching reading and teaching experience.

TECS 645 Seminar In Multicultural Literacy (3) Interdisciplinary examination of research and issues in the teaching and learning of literacy in diverse multicultural settings. A-F only. Pre: Course in teaching language arts of multicultural education, teaching experience, or consent.

TECS 647 Clinical Procedures in Reading (3) Diagnosis; methods and materials for improvement of an individual's reading ability. Repeatable. Pre: 646, consent, and teaching experience.

TECS 649 Theory/Practice in Cooperative Occupational Education (3) Theory and practices of coordinating cooperative education in high school and community college. Pre: teaching experience or consent.

TECS 653 (Alpha) Mathematics in the Schools (3) School mathematics, K-12 content, curricula, pedagogy, and standards; trends and issues; theory and research. (B) number and operation; (C) pattern in algebra; (D) geometry and measurement; (E) probability and statistics; (F) integrated math content. Each alpha represents a different K-12 content area. Pre: teaching experience or consent.

TECS 655 Music in Childhood Education (3) Principles and programs in teaching music to children in early childhood settings and elementary school. Curriculum development, analysis of research, and current approaches. Pre: MUS 353 or MUS 354, teaching experience, and graduate standing. (Cross-listed as MUS 655)

TECS 667 (Alpha) Seminar in Curriculum (3) Curriculum trends and issues related to school organization, program, administration, faculty. Required for Plan B MEd candidates in their final semester or summer session. Repeatable once. (B) early childhood; (C) elementary; (D) middle-level; (E) secondary. Pre: teaching experience, 622, or consent.

TECS 677 Curriculum Design in Early Childhood Education (3) Designed to help classroom teacher understand sources and principles of curriculum in early childhood education and to provide experience in evaluating, selecting, and developing appropriate curriculum for young children.

TECS 699 Directed Reading and/or Research (V) Individual reading and/or research. Pre: written consent.

TECS 732 Qualitative Data Analysis (3) Advanced seminar in qualitative research methods with an emphasis upon qualitative data analysis, theory construction, data presentation and reporting. Pre: 632, a course in introduction to qualitative research methods, or consent.

TECS 737 Foundations in Art Education (3) Advanced study in development and growth of art in secondary education. Pre: student teaching or teaching experience. Recommended: PHIL 420.

TECS 760 Research on Teaching and Teacher Education (3) Examination of alternative approaches and multidisciplinary perspectives on research on teaching and learning in and out of school, on educational change, and on teacher education and professional development. Pre: classified PhD student or consent.

TECS 767 Issues and Trends in Curriculum (3) Uses problem-centered approach and field experiences. Topics include historical review of curriculum development since 1900, examination of current curriculum practices at all levels of education, and prediction of future directions in curriculum theory and design. Pre: classified PhD student or written consent of graduate field chair.

TECS 768 Seminar in Curriculum and Instructional Theories (3) Analysis and critical examination of models and curriculum theory and theories of instruction leading to generation of theories by seminar members. Pre: classified PhD student or consent. Recommended: EDEP 408 and EDEF 673.

TECS 769 Curriculum Evaluation (3) Analysis and critical examination of theoretical positions on curriculum evaluation and of models of the process of curriculum evaluation. Pre: consent. Recommended: EDEA 602, EDEP 408, or EDEP 608.

Textiles and Clothing (TXCL)

See Apparel Product Design and Merchandising

Thai (THAI)

College of Languages, Linguistics and Literature

THAI 101 Elementary Thai (4) Listening, speaking, reading, writing. Structural points introduced inductively. Meets one hour daily, Monday–Friday; four out of five hours devoted to directed drill and practice; daily lab work. **HSL**

THAI 102 Elementary Thai (4) Continuation of 101. **HSL**

THAI 112 Intensive Elementary Thai (10) HSL

THAI 201 Intermediate Thai (4) Continuation of 102. Meets one hour daily, Monday–Friday; three out of five hours devoted to directed drill and practice; daily lab work. Pre: 102 or equivalent. **HSL**

THAI 202 Intermediate Thai (4) Continuation of 201. **HSL**

THAI 212 Intensive Intermediate Thai (10) HSL

THAI 301 Third-Level Thai (3) Continuation of 202. Advanced conversation and reading, emphasis on modern written texts. Lab work. Pre: 202 or equivalent or consent.

THAI 302 Third-Level Thai (3) Continuation of 301. Pre: 301 or equivalent.

THAI 303 Accelerated Third-Level Thai (6) Continuation of 202. Meets six hours a week. Advanced conversation and reading; emphasis on modern written texts. Lab work. Pre: 202 or equivalent.

THAI 401 Fourth-Level Thai (3) Continuation of 302/303. Advanced conversation and reading of specialized, scholarly texts. Pre: 302 or 303 or equivalent.

THAI 402 Fourth-Level Thai (3) Continuation of 401. Pre: 401.

THAI 404 Accelerated Fourth-Level Thai (6) Continuation of 303. Meets six hours a week. Advanced conversation and reading of specialized, scholarly texts. Pre: 303.

THAI 451 Structure of Thai (3) Standard language and regional and social variants. Pre: LING 320 and one Southeast Asian language. **DH**

THAI 452 Structure of Thai (3) Continuation of 451. **DH**

Theater (THEA)

College of Arts and Humanities

THEA 101 Introduction to Drama and Theatre (3) (2 Lec, 1 1-hr Lab) Survey of major forms of World drama; introduction to theatrical production. Choice of lab emphasis: dramatic literature or play production. **DA**

THEA 200 (Alpha) Beginning Theater Practicum (1) Beginning workshop experience in the practical application of theater skills. Repeatable once per alpha. No more than 6 credit hours in total may be earned. One credit hour each may be earned in (B) acting; (C) stagecraft; (D) costume; (E) theater management. Pre: for 200B, audition and performance of role in a Department of Theatre and Dance production; for 200E, theatre majors only. **DA**

THEA 201 Introduction to the Art of the Film (3) Introduction to the aesthetics of silent and sound movies. Technical subjects analyzed only as they relate to theme and style. **DH**

THEA 214 Development of the Sound Film (3) Growth and changes in aesthetics of the sound film from 1929 to present; films by Renoir, Welles, Eisenstein, etc. Pre: 201. (Alt. years) **DH**

THEA 220 Voice and Speech for the Actor (3) Training in voice and speech techniques for clear and resonant projection in performance. Repeatable with consent. Pre: consent. **DA**

THEA 221 Acting I: Introduction to Performance (3) Concentration on voice, relaxation, body awareness, and freedom from self-consciousness through theater games, improvisations, monologues, and exercises. Emphasis on ensemble work. Repeatable once with consent. **DA**

THEA 222 Acting II: Basic Scene Study (3) Basic character study and understanding of creation of roles through working on scenes from major modern and contemporary plays. Repeatable once with consent. Pre: 221. **DA**

THEA 240 Introduction to Theater Production (3) (3 Lec, 1 3-hr Lab) Workshop introducing basic tools, materials, and skills of technical theater: stagecraft, lighting, costume, makeup, painting, and drafting. Required of all majors. **DA**

THEA 311 World Theater I: Myth to Drama (3) Myth and ritual into drama, 1000 B.C.–1500 A.D. Development of Western and Asian secular drama from sacred and ritual beginnings. Required of all majors. Pre: 101 or consent. (Alt. years) **DL**

THEA 312 World Theater II: Elite–Popular (3) Court and marketplace, 1500–1700. Contrast between elitist and popular forms in Western and Asian theater. Required of all majors. Pre: 311 or consent. (Alt. years) **DL**

THEA 318 Playwriting (3) One-act plays; practice in writing in dramatic form. Pre: grade of B or better in composition or consent. **DA**

THEA 319 Screenplay Writing (3) Characterization, structure, theme, image, and other components of writing for film. Pre: 201 and grade of B or better in composition, or consent. (Alt. years) **DA**

THEA 321 Acting III: Monologue/Audition Techniques (3) Focus on the individual student: preparation of material from all genres and styles with emphasis on line reading and responsiveness to direction. Repeatable once with consent. Pre: 222 and consent. **DA**

THEA 322 Acting IV: Method Acting (3) Further exploration of character development through exercises and scene study. Class presentation of scenes for criticism and review. Repeatable once with consent. Pre: 222 and consent. **DA**

THEA 323 Film/TV Acting (3) Acting techniques for film and TV production. Students appear in scenes from TV and film scripts. Repeatable one time. Pre: 101 or 221 or COM 201 or consent. **DA**

THEA 324 Advanced Film/TV Acting (3) Advanced acting techniques for film and TV production. Taping/filming of scenes and full-length scripts. Repeatable one time. Pre: 323 and consent. **DA**

THEA 325 Asian Acting for Western Actors (3) Principles of acting based on traditional Asian models. Voice, movement exercises. Pre: 222. **DA**

THEA 334 Taiji (T'ai Chi) for Actors I (3) Basic Taijiquan (T'ai Chi Ch'uan) movement training. Repeatable one time. Pre: 221 and 222, or consent. (Cross-listed as DNCE 334) **DA**

THEA 343 Stagecraft (3) Workshop in principles and techniques of contemporary stagecraft. Practical production work. Pre: 240. (Alt. years) **DA**

THEA 353 Introduction to Scenic Design (3) Workshop introducing the basic principles and techniques of designing scenery for the theater. Pre: 240 or consent. **DA**

THEA 354 Introduction to Costume Construction (4) Workshop introducing basic principles and techniques of theatrical costume construction, and a survey of theatrical-related resource materials. **DA**

THEA 356 Costume for the Stage (3) Survey of historical costume; workshop in translation of historical styles into theatrical form. Repeatable one time. Pre: 240 or consent. **DA**

THEA 357 Stage Makeup Workshop (3) Theory and practice; corrective and three-dimensional makeup, modeling with paint; beards, mustaches. Repeatable one time. Pre: 240 or consent. **DA**

THEA 380 Beginning Directing (3) Basic practical course in how to direct a play. Students will direct scenes. Pre: upper division theater majors or consent. **DA**

THEA 400 (Alpha) Advanced Theater Practicum (1) Advanced workshop experience in the practical application of theater skills. Repeatable once per alpha. No more than 6 credit hours in total may be earned. One credit hour each may be earned in (B) acting; (C) stagecraft; (D) costume; (E) theater management. Pre: for 400B, audition and performance of role in a Department of Theatre and Dance production; for 400C and 400D consent; for 400E theatre majors only or consent. **DA**

THEA 411 World Theater III: Realism (3) The rise of realism, 1700–1918. Development of romantic and regional forms of drama and theater, and the impact of realism. Required of all majors. Pre: 312 or consent. (Alt. years) **DL**

THEA 412 World Theater IV: Modern (3) Pluralism in modern theater, 1918–present. Reactions to realism and current Western and Asian alternative theater forms. Required of all majors. Pre: 411 or consent. (Alt. years) **DL**

THEA 413 (Alpha) Approaches to Dramatic Texts (3) Intensive analysis and discussion of dramatic texts from a variety of authors. Understanding trends and variations in dramatic form and content. (B) contemporary British and American drama; (C) political drama in the West; (D) early to modern American drama; (E) modern European drama. Pre: one of 311, 312, 411, 412, or consent. **DL**

THEA 414 Women in Drama and Theater (3) The role of women and their presentation in theater from ancient Greece to the present; focus on sociopolitical status of women. Pre: 311. (Cross-listed as WS 414) **DH**

THEA 418 Advanced Playwriting (3) Workshop in experimental writing in dramatic form; full-length plays. Repeatable. Pre: 318. **DA**

THEA 420 Intermediate Voice for the Actor (3) Training in proper and dynamic use of the speaking voice for the actor. Repeatable. Pre: 220 or consent. **DA**

THEA 421 Acting V: Musical Comedy (3) Training in skills required to perform in musicals. Students present scenes from musical comedies for criticism and review. Repeatable twice with consent. Pre: one of 321, 322, MUS 231B, or consent; and/or audition. (Cross-listed as MUS 421) **DA**

THEA 422 Acting VI: Period Styles (3)
Presentational acting in comedy and tragedy; emphasis on performance styles in Elizabethan, Restoration, and 18th-century drama. Repeatable once with consent. Pre: 321 and 322, or consent. **DA**

THEA 426 South/Southeast Asian Acting Workshop (3) Training in skills and techniques for selected traditional south and southeast Asian theater forms. Emphasis on movement and vocal techniques. Repeatable one time. A-F only. Pre: 222 or consent. (Alt. years) **DA**

THEA 427 Chinese Acting Workshop (V)
Training in skills and techniques for selected traditional Chinese theater forms. Emphasis on movement and vocal technique. Repeatable to 6 credit hours total. Pre: 222 or consent. (Alt. years) **DA**

THEA 428 Japanese Acting Workshop (V)
Training in skills and techniques for selected traditional Japanese theater forms. Emphasis on movement and vocal technique. Repeatable to 6 credit hours total. Pre: 222 or consent. (Alt. years) **DA**

THEA 429 Contemporary Performance Practices (3) Focus on individual training in the skills and techniques of contemporary experimental theater including acting, directing, and self-scripting. Repeatable. Pre: one of 222, 318, 380, or consent. **DA**

THEA 433 Movement Workshop (V) Special workshops in movement relating to specific departmental theatrical productions beyond the scope of movement taught in 437 and 438. Repeatable one time. Pre: one of 435, DNCE 435, or consent. (Cross-listed as DNCE 433) (Alt. years) **DA**

THEA 434 Taiji (T'ai Chi) for Actors II (3)
Intermediate-level Taijiquan (T'ai Chi Ch'uan) movement training. Repeatable one time. Pre: one of 334, DNCE 373, or consent. (Cross-listed as DNCE 434) **DA**

THEA 435 Movement for Actors (3) Training actors to discover experientially the sources of movement; to teach skills for analyzing movement for its mechanical, anatomical, spatial, and dynamic content; and then to apply these skills in a role. Pre: 222 or DNCE 221. (Cross-listed as DNCE 435) **DA**

THEA 436 Advanced Movement for Actors (3)
Detailed development of material presented in 435. Focus on Bartenieff fundamentals and movement analysis as it applies to the physical interpretation of theatrical roles. Pre: one of 435, DNCE 435, or consent. (Cross-listed as DNCE 436) **DA**

THEA 437 Period Movement Styles, 1450–1650 (3) Movement styles and social deportment of European societies in the Renaissance and early Baroque periods. Pre: one of 435, DNCE 435, or one semester of a 100-level dance technique class. (Cross-listed as DNCE 437) (Alt. years) **DA**

THEA 438 Period Movement Styles, 1650–1800 (3) Movement styles and social deportment of the Baroque and pre-Romantic periods in Europe and the American Colonies. Pre: one of 435, DNCE 435, one semester of a 100-level dance technique class, or consent. (Cross-listed as DNCE 438) (Alt. years) **DA**

THEA 439 Musical Theater Dance Forms (3)
Theatrical dance forms used in 20th-century musical theater. Pre: one of 421, DNCE 221, DNCE 231, or consent. (Cross-listed as DNCE 439) (Alt. years) **DA**

THEA 445 Stage Lighting (3) Workshop in stage lighting with equipment and techniques of the modern theater; emphasis on design process. Pre: 240 and 353. **DA**

THEA 446 Topics in Costume Construction (3) In-depth exploration of costume production techniques; construction, crafts, and new materials; Western and Asian. Repeatable. Pre: 356 or consent. **DA**

THEA 447 Theater Management (3) Business organization, management, and public relations in professional, university, community, and secondary school theaters. Pre: junior standing or consent. **DA**

THEA 453 Scenic Design (3) Workshop in advanced techniques and skills of scenic design; model making, rendering, and drafting. Pre: 353 or consent. **DA**

THEA 456 Costume Design (3) Advanced techniques and skills in design; intensive work on design problems in plays from various periods. Repeatable. Pre: 356 or consent. **DA**

THEA 462 Drama and Theater of Oceania (3)
Survey of the contemporary drama and theater of Oceania that combines island and Western traditions. Includes Papua New Guinea, Hawai'i, Fiji, Samoa, Australia, New Zealand. Pre: 101 or ANTH 350, or consent. (Cross-listed as PACS 462) **DH**

THEA 464 Drama and Theater of Southeast Asia and India (3) Court, folk, popular traditions, and the manner of their production. Pre: consent. **DH**

THEA 465 Drama and Theater of China (3)
Yuan, southern, spoken drama; Beijing opera and the manner of their production. Pre: consent.

THEA 466 Drama and Theater of Japan (3)
No, Kyogen, Bunraku, Kabuki, modern drama, and the manner of their production. Pre: consent.

THEA 470 Creative Drama (3) Dramatic activities for young people. For teachers, group workers, recreation majors, and others dealing with children. Supervised field activities. Pre: junior standing or consent. **DA**

THEA 474 Theater for Children (3) Theories and principles of formal theater for children. Study of selection, direction, and production of plays. Pre: consent. **DA**

THEA 475 Puppetry for Young Children (3)
Methods of constructing puppets and stages with and for children 3 to 8 years of age. Use of puppets in the creative arts. Fieldwork. Pre: experience in early childhood education or consent. **DA**

THEA 476 Puppetry (3) History and scope of puppetry. Construction and presentation of puppets for adult and child audiences. Repeatable. **DA**

THEA 477 Masks and Giant Puppets (3)
History, construction, and performance techniques for masks and large puppets. For teachers, recreation directors, and others working with students aged 10 to 18 and adults. **DA**

THEA 480 Intermediate Directing (3)
Workshop; students direct one-act plays. Repeatable with consent. Pre: 380 and consent. (Alt. years) **DA**

THEA 490 Experimental Theater Studio (3)
Working collectively, students research, write, design, develop, and perform a full-length production. Pre: 6 credits above the 200 level in acting, directing, playwriting, dancing; or consent. **DA**

THEA 492 (Alpha) Topics in Drama and Theater (3) (B) Qigong (Ch'i Kung) for actors; (C) Shakespeare in performance. Repeatable once for (B). Pre: 221 and 222, or consent for (B); consent for (C). **DA**

THEA 499 Directed Work (V) Individual projects; tutorial. Pre: consent.

THEA 500 Master's Plan B/C Studies (1)
Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

THEA 600 Seminar in Theater Research (3)
Bibliography and research methods; preparation for thesis and dissertation writing. Required of all graduate theater majors.

THEA 611 Seminar in Major Dramatic Theory (3) Major theories of Western drama from Aristotle to Roland Barthes. Repeatable once with consent. Pre: 412 or consent. (Alt. years)

THEA 612 History of Western Theater I (3)
Theater as a cultural and social institution in the West, from ancient Greece to Restoration England. Pre: one of 311, 312, 411, 412, or consent. (Alt. years)

THEA 613 History of Western Theater II (3)
Theater as a cultural and social institution in the West, from the 18th century to the present. Pre: one of 311, 312, 411, 412, or consent. (Alt. years)

THEA 615 (Alpha) Topics in Theory and Criticism (3) (B) performance theory. Pre: 311, 312, 411, and 412; or consent. (Alt. years)

THEA 616 Script Analysis (3) Study of dramatic texts in a seminar format; analysis of Western and Asian classical to post-modern plays. Pre: 312 or consent.

THEA 617 Seminar in Theater History (3)
Study of such selected topics as theatrical forms, commedia dell'arte, theater architecture, scenes and machines. Repeatable for credit when topic changes. Pre: consent.

THEA 618 Digital Multimedia Tools for Performance Research (3) Dance, Theatre, Music Majors only. A-F only. Repeatable one time. Pre: consent. (Cross-listed as DNCE 618)

THEA 619 Advanced Topics: Playwriting and Dramatic Theory (3) Readings, research, writing, and seminar discussions. Repeatable twice with consent. Pre: 418, 611, and consent.

THEA 620 Advanced Voice for the Actor (3)
Training at advanced level in speaking and vocal skills and techniques in preparation for a solo performance. Repeatable. A-F only. Pre: 420 or consent. (Alt. years)

THEA 621 Acting VII: Great Roles (3) Great roles from the Western theater repertory; focus on the individual actor and performance styles. Repeatable once with consent. Pre: 422 and consent.

THEA 625 Experimental Asian Acting (3)
Advanced principles of Asia-based multicultural acting. Integration of traditional Asian movement/vocal technique and Western dramatic text. Repeatable. Pre: 325 or consent. (Alt. years)

THEA 634 Taiji Weapons for Actors (3)
Advanced level Taijiquan (T'ai Chi Ch'uan) weapons training. Pre: 334 and 434; or consent.

THEA 640 Problems in Stagecraft and Lighting (3)
Special topics in staging and lighting, and in planning and use of various types of modern theaters. Repeatable once with consent. Pre: 343 and 445, or consent.

THEA 653 Problems in Scenic Design (3)
Workshop dealing with special topics in scenic design, related skills, and portfolio preparation. Repeatable twice with consent. Pre: 453 or consent. (Alt. years)

THEA 656 Problems in Costume Design (3)
Workshop dealing with special topics in costume design and related skills. Repeatable. Pre: 456 or consent.

THEA 657 Seminar in Design (3) Research, design, and discussion exploring collaborative design problems and solutions. Pre: 445, 453, 456, and consent.

THEA 660 Asian Theater Field Research (3)
Goals and methods. Interview, questionnaire, observation, and performance study as research techniques. Practical application by designing a research project. Pre: 600.

THEA 663 (Alpha) Topics in Asian Theater (3)
Comparative and cross-cultural examination. (B) origins; (C) theories and systems; (D) modern Asian drama. Repeatable. Pre: consent.

THEA 678 (Alpha) Topics in Child Drama (3)
Creative movement/drama, puppetry, and theater/dance. (B) production concepts. Repeatable when topics change. Pre: one of 470, 474, 476, or consent.

THEA 680 Directing Asian Theater (3)
Directing traditional Asian theater pieces and Western plays performed with Asian techniques; development of new performance styles based on Asian examples; directing of scenes and one-act plays. Repeatable once with consent. Pre: 380 and one Asian theater course.

THEA 681 Seminar in Directing (3) Directorial analysis of plays; preparing promptbooks. Pre: 480.

THEA 682 Graduate Workshop in Directing (3)
Direction of scenes and major one-act plays. Pre-thesis production. Repeatable once with consent. Pre: 681 or consent.

THEA 683 Workshop in Directing Process (3)
Methods class in theater production for the director. Covers organization and techniques such as rehearsal planning, scheduling, and execution.

THEA 684 Theatre Governance (3) Covers the economic and managerial skills for starting a professional and/or non-profit theatre company or performing arts organization: artistic directorship, board development, non-profit legalities, season planning, fundraising, budgeting, publicity, international activities, etc. Pre: 600 or consent. (Cross-listed as DNCE 684)

THEA 690 Graduate Theater Workshop (V)
Practical and supervisory theater work pertinent to professional degree objectives on productions being

done in Kennedy Theatre or in other venues, by approval. Repeatable up to 6 credit hours. Pre: consent.

THEA 691 Seminar in Teaching Dance/Theater (3)
Pedagogy and classroom experience in teaching technique and theory. (Cross-listed as DNCE 691) (Alt. years)

THEA 693 Internship: Youth Theater/Dance (V)
Supervised leadership experiences in theater/dance program with children. Students spend nine hours per week in supervised setting and three hours in weekly class meeting. Pre: one of 470, 476, or DNCE 490; or consent. (Cross-listed as DNCE 693)

THEA 695 Creative Projects (V) MFA play or dance productions, design projects, original full-length plays.

THEA 699 Directed Research (V) Reading or research in theater theory or history; reading and practice in particular areas of dramatic production. Pre: consent.

THEA 700 Thesis Research (V)

THEA 705 Seminar in Western Drama and Theater (3) Special topics. Repeatable when topics change. Pre: consent.

THEA 763 (Alpha) Seminar in Asian Theater (3) (B) Southeast Asia and India; (C) China; (D) Japan. Repeatable. Pre: one of 464, 465, 466, or consent.

THEA 778 Issues in Youth Theater/Dance (3)
Examination of current issues, problems, and future directions in curriculum theory and design as it applies to theater and dance education. Pre: one of 470, 474, DNCE 490, or consent. (Cross-listed as DNCE 790)

THEA 779 Seminar in Theater/Dance for Children (3) Theories and methods applied in theatrical experiences with and for children: creative movement/drama, puppetry, and theater/dance. Pre: one of 470, 474, 476, or DNCE 390. (Cross-listed as DNCE 692)

THEA 800 Dissertation Research (V)

Tibetan (TIB)

College of Languages, Linguistics and Literature

TIB 181 Elementary Classical Tibetan (3)
Introduction to classical Tibetan grammar; reading and analysis of progressively difficult classical texts. Meets three hours weekly.

TIB 182 Elementary Classical Tibetan (3)
Continuation of 181.

Travel Industry Management (TIM)

School of Travel Industry Management

TIM 099 International Exchange Programs (V)
UHM School of Travel Industry Management majors participating in approved international exchange programs. CR/NC only.

TIM 100 Internship I (2) Introduction to travel industry. Discussion of job search strategies, TIM internship requirements, career and academic planning. CR/NC only.

TIM 101 Introduction to Travel Industry Management (3) Overview of travel industry and related major business components. Analysis of links between hotel, food, transportation, recreation, and other industries comprising tourism. Includes lectures by industry leaders.

TIM 184 Principles of Food Preparation (3)
Scientific principles of food preparation and their application in home and institutions. Nutrient content of foods, food product quality standards, food selection and menu planning, and food safety and handling.

TIM 200 Internship II (2) Four hundred hours of travel industry experience. Comprehensive report by student and performance evaluation from employer required. CR/NC only. Pre: TIM major, 100, and 101.

TIM 240 Hospitality Operations (3) Introduction to hospitality operations. Operational departments and logical functions in the operation of various types of hospitality enterprises. Includes: operational practices and techniques; organizational structure, international standards and practice decision-making and policy formulation. A-F only. Pre: 101 or consent.

TIM 242 Managerial Accounting for Travel Industry (3) Principles of managerial accounting applied to travel industry enterprises. Topics include: financial statements, forecasting methods, budgeting, internal controls and accounting ethics. Pre: ACC 201 or consent.

TIM 300 Internship III (2) Four hundred hours of travel industry experience. Position must be different from TIM 200 position and of a more responsible nature or in a different organization. Comprehensive report by student and performance evaluation from employer required. CR/NC only. Pre: TIM major and 200.

TIM 301 Legal Environment of Travel Industry (3) Origin, development, and principles of common, statutory, constitutional, international, and maritime law relating to hospitality industry. A-F only.

TIM 302 Information Systems Technology (3)
Computer applications in the travel industry; operation and evaluation of specific travel industry systems and applied business systems. Pre: 101, ICS 101, and ICS 101L.

TIM 303 Management of Service Enterprises (3) Principles and philosophies of management with special emphasis on those principles and theories that are most relevant to management in service-based industries. Students may not earn credit for 303 and BUS 315. Pre: 101 or consent.

TIM 304 Principles of Travel Industry Marketing (3) Concepts, problems, processes of marketing within the travel industry; development of marketing strategies including product, place, promotion, and price for travel institutions. Students may not earn credit for 304 and BUS 312. Pre: 101 and either ECON 120 or ECON 130 or consent.

TIM 305 Financial Management for the Travel Industry (3) Cash flow determination and management strategies for financing hospitality ventures and expansion. Determining the financial viability of proposed and existing operations through traditional and state-of-the-art techniques. Pre: 242 or consent.

TIM 306 Human Resource Management: Travel Industry (3) Principles of human resource management applied to contemporary theories and practices in the travel industry; employee productivity, recruitment, and retention. Pre: 101.

TIM 310 Institutional Purchasing (3) Procurement responsibilities in hospitality management. Emphasis on institutions supplying hospitality operations and legislation which controls standards of industrial supplies and goods. Pre: 184 and 240, or consent.

TIM 311 Club Management (3) Introduction to club and institutional management, including operations, services, and facilities. A-F only. Pre: 184.

TIM 312 Quantity Food Production (3) Principles of food and beverage management applied to quantity food production operations; consideration of system components including marketing, menu planning, logistical support, production, and control. Pre: 184. (Cross-listed as FSHN 312)

TIM 316 Special Events Management I (1) Application of special events management concepts. Includes planning, marketing, staffing, producing, and fiscal and quality control. Repeatable once. CR/NC only. Instructor's approval required to enroll.

TIM 317 Special Events Management II (2) Continuation of 316. Repeatable once. CR/NC only. Pre: 316 and instructor's approval to enroll.

TIM 320 Introduction to Tourism Economics (3) This course examines tourism from an economic perspective. Topics include: the determinants of consumer demand for leisure travel, structure of competition among suppliers of tourism services, benefits and costs of tourism development to the host community, government's role in the taxation, subsidy, regulation and protection of the tourism industry, tourism's impact on the environment, and sustainable tourism development. A-F only. Pre: ECON 120 or ECON 130 or consent. (Cross-listed as ECON 320)

TIM 321 Sociocultural Issues in Tourism (3) Positive and negative impacts of tourism on society, social change, culture, residents, developing countries, and environment. Role of social planning. Pre 101. DS

TIM 324 Geography of Global Tourism (3) Tourism and the use of land resources, spatial patterns of supply and demand, impacts of tourism development, models of tourist space. Comparison of flows between major world regions. (Alt. years) (Cross-listed as GEOG 324) DS

TIM 325 Tourism Development: Hawai'i and Asia Pacific (3) Tourism development in Hawai'i and other Asia Pacific destinations. Analysis of key factors essential to stages of development, travel trends, and structural changes. Pre: 101.

TIM 327 Travel Agency Management (3) Agency organization and operations; development of retail, wholesale, and group operations; providing services to individuals, tour groups, conventions, incentive groups; special purpose travel. Pre: 101 and either 303 or BUS 315.

TIM 333 Hotel Design, Engineering, and Maintenance (3) Manager's role in architectural design, engineering, and maintenance problems in hotels and resorts, including food service facilities. Pre: 184 or consent.

TIM 334 Hotel and Convention Sales (3) Functions, methods, and problems of hotel, convention, and restaurant sales. Needs of different classifications of properties; market segmentation and the sale of services vs. products. A-F only. Pre: 101.

TIM 350 Principles of Transportation (3) Significance and economic structure of primary modes of transportation. Government promotional and regulatory activities in transportation. Emphasis on managerial issues for transportation carriers serving the United States and Hawai'i.

TIM 351 Principles of Logistics (3) Management of logistics systems: inventory control, warehousing, materials management, physical distribution, transportation. Emphasis on Hawai'i's location and unique problems. Pre: one of 304, 350 or BUS 312.

TIM 353 Air Travel Management (3) Strategic problems—current and future—confronting airport executives; domestic environment in which air transportation functions; methods of analysis and decision-making employed by U.S. air transportation managers. Pre: 350.

TIM 354 Surface Passenger Transportation Management (3) Management of surface passenger transportation and its relationship to total passenger transportation system. Includes marketing, ownership and financing, operations, regulation and promotion, human resources. Pre: 350.

TIM 365 Economics in Travel Industry (3) Microeconomic theory of consumer behavior and demand production cost analysis, market structure and pricing in travel companies. Economic impact of tourism. Students may not earn credit for 365 and BUS 313. Pre: either ECON 120 or ECON 130, and one of AREC 310, BUS 310, ECON 321, or SOCS 225.

TIM 368 TIM Study Abroad (V) Study abroad instructional experience emphasizing international travel, tourism and hospitality-related topics at equivalent, accredited programs. Course content varies depending on locus of instruction and instructor. Course qualifies as either a TIM or general elective with pre-approval or department. Repeatable. Pre: consent.

TIM 369 (Alpha) Current Topics in Travel Industry Management (V) (B) resort development; (C) advanced logistics; (D) transportation and public policy; (E) management by cultural values; (F) travel industry management; (G) hospitality management; (H) hotel management; (I) restaurant management; (J) tourism management; (K) recreation management; (M) leisure management; (N) transportation management; (O) travel industry management education; (P) travel industry management technology; (Q) meetings, incentives, conventions, and exhibition management. Repeatable five times with consent.

TIM 399 Directed Reading and Research (V) Reading and research into problems in hotel, restaurant, transportation or tourism sectors of the travel industry. Pre: junior standing or above, a

minimum cumulative GPA of 2.5 and consent of dean's office and instructor based upon student's written proposal of content and objectives of course program.

TIM 400 (Alpha) Internship IV (2) (B) executive internship; (C) community service internship. Restricted to majors. CR/NC only. Pre: 200 and consent.

TIM 410 Food Service Systems Management (3) Current types of food service systems and components; managerial methods applied to produce effective systems. Systems approach to food service management, planning, and decision-making. Pre: 311 and senior standing. (Cross-listed as FSHN 410)

TIM 421 Tourism Policy and Planning (3) Formulation of tourism policies and plans. Development of national tourism organizations; relationships between public and private sector. Pre: 101, 304, and senior standing.

TIM 431 Advanced Management and Policy in the Hospitality Industry (3) Complex management problems and issues in the hospitality industry that require policy-making. Policy and decision-making assisted by systems analysis, data processing, and other internal controls. Case study analysis, discussion and written reports. A-F only. Pre: 240 and graduating senior.

TIM 442 International Transportation (3) International air and marine transportation of goods and people; problems on competing with foreign carriers, international public and private ownership, interface with domestic carriers. Pre: 350 and senior standing.

TIM 469 (Alpha) Advanced Topics in Travel Industry Management (V) (B) sustainable tourism; (C) advanced travel industry management; (D) advanced hospitality management; (E) advanced hotel management; (F) advanced restaurant management; (G) advanced tourism management; (H) advanced recreation management; (I) advanced leisure management; (J) advanced transportation management; (K) advanced travel industry management education; (L) advanced travel industry management technology; (M) advanced meetings, incentives, conventions, and exhibition management. Repeatable five times with consent.

TIM 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate with consent.

TIM 602 Strategic Travel Marketing (3) In-depth study of marketing principles and problems related to travel industry organizations. Emphasis on strategic marketing. Research applications, international and domestic marketing of travel industry services. Pre: one of 304, BUS 312, or BUS 615.

TIM 603 Information Technology, E-Commerce, and Travel Industry (3) Planning, implementation, management, evaluation, and impact of information and electronic communication technologies, including e-commerce applications in the travel industry. Analysis of new information technology use as an area of research and strategic application. Pre: ICS 101 and ICS 101L, or consent.

TIM 604 Managerial Accounting for Travel Industry (3) Advanced study of management accounting within travel industry: responsibility

accounting, pricing decisions, concepts and application of central systems, financial planning, price level impacts, performance evaluation. Pre: ACC 202 or BUS 614.

TIM 605 International Hospitality Management (3) Advanced human relations and operating issues; use of accounting, behavioral, financial, marketing, and informational systems in managing hospitality organizations. Pre: 303 or BUS 315.

TIM 606 Transportation Systems Management (3) Advanced study analysis of the management of passenger transportation systems serving the travel industry. Emphasis on topics such as government policy, marketing and management, and the relationships between transportation systems and tourism development. A-F only. Pre: 304 or BUS 312; or consent.

TIM 607 Global Tourism Analysis (3) Applications of financial analysis to both the domestic and international travel industry. A-F only. Pre: 604 and BUS 314.

TIM 610 Research Applications in Travel Industry Management (3) Analysis of methodologies appropriate for research in travel industry management. Survey of the literature of applied techniques and approaches including exploratory approaches. Familiarization with research design and implementation of development of research proposals. A-F only.

TIM 640 Financial Management for the Travel Industry (3) Applications of financial analysis to both the domestic and international travel industry. A-F only. Pre: 604 and BUS 314.

TIM 645 Tourism Field Studies (3) Integration of concepts and application of knowledge and skills from other courses to a selected field study project. Pre: any two 600-level TIM courses completed and a third concurrent; or consent.

TIM 693 Advanced Tourism Analysis (3) International trade theory and regional analysis methodologies applied to tourism and service industry, including travel balance account, interregional transactions flow, economic impacts, environmental economics, demand theory and forecasting. Pre: ECON 120 or ECON 130.

TIM 694 Plan B Paper (3) Independent project or paper under faculty supervision in lieu of Plan A, TIM 700 thesis. Requires proposal approved by supervisor and graduate chair prior to registration. A-F only. Pre: three 600-level TIM courses completed or consent.

TIM 695 Seminar: Travel Industry Management Policy (3) Integration of learning through analysis of policy issues, trends, and problems in the travel industry. A-F only. Pre: three 600-level TIM courses completed or consent.

TIM 699 Directed Reading (V) Independent study of approved, advanced reading with faculty supervision. Requires proposal prepared by student and approved by supervisor and graduate chair before registration.

TIM 700 Thesis Research (V) Independent supervised research. Formal and oral written presentation of research findings.

Tropical Medicine and Medical Microbiology (TRMD)

School of Medicine

TRMD 431 Medical Parasitology (3) Diagnosis of parasitic diseases by lab methods: outstanding features of life cycles, classification and medical significance of parasites. Pre: MICR 351 or consent. (Cross-listed as MEDT 431) **DB**

TRMD 499 Reading and Research (V) Directed reading and research in laboratory; diagnostic aspects of bacterial, parasitic, and viral infections. Pre: consent.

TRMD 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

TRMD 512 Unit II Concurrent Elective (1) Elective course for first-year medical students. CR/NC only. Pre: BIOM 551 and consent.

TRMD 513 Unit III Concurrent Elective (1) Elective course for first-year medical students. CR/NC only. Pre: BIOM 551 and consent.

TRMD 514 Unit IV Concurrent Elective (1) Elective course for second-year medical students. CR/NC only. Pre: BIOM 551 and consent.

TRMD 515 Unit V Concurrent Elective (1) Elective course for second-year medical students. CR/NC only. Pre: BIOM 551 and consent.

TRMD 525 Unit V Block Elective (1) Required elective for second-year medical students; objectives to be determined by contract. One option is a review of USMLE step. CR/NC only. Pre: BIOM 551.

TRMD 545 Topics in Tropical Medicine (V) Elective for fourth-year medical students for advanced study of selected topics within the field of tropical medicine and medical microbiology. Pre: fourth-year standing.

TRMD 604 Infectious Disease Micro I (3) Pathogenesis, epidemiology, immunobiology of infectious diseases caused by bacterial and fungal pathogens; principles of host-pathogen interactions; public health aspects of infectious diseases. Repeatable one time. A-F only. Pre: MICR 351 or consent. (Cross-listed as PH 665)

TRMD 605 Infectious Disease Micro II (3) Pathogenesis, epidemiology, immunobiology of infectious diseases caused by viruses and parasites; principles of host-pathogen interactions; public health aspects of infectious diseases. Repeatable one time. A-F only. Pre: MICR 351 and TRMD 604; or consent. (Cross-listed as PH 667)

TRMD 606 Tropical Medicine and Microbiology Lab (3) Laboratory projects in infectious diseases microbiology; practical experience in use of instruments, equipment, and procedures used in public health and diagnostic microbiology, and research on infectious diseases. Pre: 605 and 609 (or concurrent), or consent. (Cross-listed as PH 668)

TRMD 609 Advances In Medical Immunology (2) Presentations/discussions of current literature concerning recent advances in immunology relevant to disease and to disease processes. Pre: consent. (Alt. years: spring)

TRMD 669 Lab Aspects of Parasitic Diseases (2) Lectures and practical training in lab techniques relating to parasitological diseases with special reference to the Pacific Basin. Pre: consent. (Cross-listed as PH 669)

TRMD 671 Advanced Medical Parasitology (2) Consideration of ultrastructure, physiology, biochemistry, in-vitro cultivation and host-parasite relationship of parasites of medical importance. A-F only. Pre: MICR 445 or equivalent, or consent. (Alt. years: fall)

TRMD 672 Advanced Medical Virology (2) In-depth study of the major groups of viruses pathogenic for human; virus replication, host range, pathogenesis, immunology, and epidemiology. Pre: 605 or equivalent, or consent. (Alt. years: fall)

TRMD 673 Advanced Medical Bacteriology (2) Role of bacteria in infectious diseases, with emphasis on clinical aspects and identification of etiological agents. Pre: 605 or equivalent, or consent.

TRMD 690 Seminar in Tropical Medicine and Public Health (1) Weekly discussion and reports on current advances in tropical medicine and public health. (Cross-listed as PH 755)

TRMD 699 Directed Research (V) Directed research in medical microbiology (bacteriology, parasitology, virology). Pre: consent.

TRMD 700 Thesis Research (V) Research for master's thesis. Approval of department faculty required.

TRMD 705 Special Topics in Tropical Medicine (1) Advanced instruction in frontiers of tropical medicine and public health. Repeatable. (Cross-listed as PH 756)

TRMD 800 Dissertation Research (V) Research for doctoral thesis. Approval of department faculty is required.

Tropical Plant and Soil Sciences (TPSS)

College of Tropical Agriculture and Human Resources

TPSS 120 (Alpha) Plants for People (1) The origins: social, cultural, and ceremonial traditions; culture; food and nutritional properties. Processing of a variety of tropical horticultural plants are presented, with tasting sessions and optional field trips. Topics will rotate among (B) beverage crops (eg. coffee, tea, chocolate, kava, fruit juices); (C) herbs, spices, and flavoring (selection of examples to be determined); (D) tropical fruits (assortment offered depends on availability during semester); (E) ornamental plants (flowers, houseplants, popular landscape plants, bonsai, ethnic ornamentals). Does not count towards TPSS major. Pre: consent. **DB**

TPSS 200 Tropical Crop Science (3) Relation of plants, nutrients, environment, cultural practices to tropical crop production. Pre: BIOL 172 or BOT 101, and CHEM 151 (or concurrent). **DB**

TPSS 300 Tropical Production Systems (4) (3 Lec, 1 3-hr Lab) Comparisons and contrasts of crop management systems, techniques, and technologies in protected and open field production of tropical crops. Pre: 200 or consent. **DB**

TPSS 304 Fundamentals of Soil Science (4) (3 Lec, 1 3-hr Lab) Origin, development, properties, management of tropical soils; classification of Hawaiian soils. Pre: CHEM 151 or CHEM 171. (Cross-listed as NREM 304) **DP**

TPSS 322 Marketing Perishable Products (3) Problems, agencies, functions, costs, prices, regulations affecting marketing; proposed improvements. Pre: introductory course in economics or consent. (Alt. years) (Cross-listed as FSHN 322) **DS**

TPSS 350 Tropical Landscape Practices (3) (2 Lec, 1 3-hr Lab) Concepts and techniques of landscape installation and management in the tropics. Pre: 200 and 369; or consent. **DB**

TPSS 351 Enterprise Management (3) Overview of financial tools essential for developing new enterprises, analyzing business performance, obtaining bank financing, improving profitability, and reducing risk. Other topics: personnel management, taxation, and business plans. Students will become proficient with Excel. Pre: upper division or graduate status or consent. (Cross-listed as NREM 351) **DS**

TPSS 364 Horticultural Practices (2) (1 Lec, 1 3-hr Lab) Techniques of culture and management of horticulture crops. Pre: 200 (or concurrent). **DB**

TPSS 369 Ornamental Plant Materials (3) (2 Lec, 1 3-hr Lab) Identification, origin, use, and cultural requirement of trees, shrubs, vines, and groundcovers used in Hawaiian landscapes. Pre: 200 or consent. **DB**

TPSS 401 Vegetable Crop Production (3) (2 Lec, 1 3-hr Lab) Crop biology, requirements, and production techniques for commercial vegetable production in Hawai'i will be stressed. Pre: 300 or consent. **DB**

TPSS 402 Flower Crop Production (3) Biology and production of cut flowers and blooming potted plants under field and protected cultivation in Hawai'i and globally. Pre: 300 or consent. **DB**

TPSS 403 Tropical Fruit Production (3) (2 Lec, 1 3-hr Lab) Botanical aspects and horticultural management practices of selected tropical and subtropical fruit crops, with emphasis on small scale commercial production in Hawai'i. Pre: 300 or consent. **DB**

TPSS 404 Tropical Foliage Production (3) (2 Lec, 1 3-hr Lab) Combined lecture-lab course on foliage crop production in Hawai'i. Crop biology, requirements and production techniques. Pre: 300 or consent. **DB**

TPSS 405 Turfgrass Management (3) (2 Lec, 1 3-hr Lab) Adaptability and selection, establishment, and cultural practices of grasses for various types of turf. Pre: 200 or consent. **DB**

TPSS 409 Cultural Biogeography (3) Coevolution of human societies and plants over the last 10,000 years. Foraging, farming and urban societies economies; spread and modification of selected plants; issues of preservation of genetic resources and traditional plant knowledge. The form and function of gardens. Pre: GEOG 101. (Cross-listed as GEOG 409) **DS**

TPSS 420 Plant Propagation (3) (2 Lec, 1 3-hr Lab) Theoretical and applied aspects of seed and vegetative propagation technology involving fruits, flowers, vegetables, and landscape plants. Pre: 200 or consent. **DB**

TPSS 421 Tropical Seed Science (2) (1 Lec, 1 3-hr Lab) Principles of seed science, seed physiology, seed production, and genetic modification. Hawai'i's seed industry and biotechnology. A-F only. Pre: 200 or consent. **DB**

TPSS 430 Nursery Management (3) (2 Lec, 1 3-hr Lab) Management practices in production and operations of commercial nurseries in Hawai'i. Pre: 200 and 364; or consent. **DB**

TPSS 431 Cropping Systems (3) Schemes for managing sequences and combinations of crops and crop production activities. Ecosystem and social determinants. Multiple cropping. Analysis of alternative cropping systems. Pre: 200 or consent. **DB**

TPSS 435 Environmental Soil Chemistry (3) Study of soil chemical processes such as weathering, adsorption, precipitation, and ion exchange; causes of soil acidity, alkalinity, and salinity; reactions between soils and fertilizers, pesticides, or heavy metals. Management strategies to minimize environmental contamination by nitrate, phosphate, and trace elements such as As, Pb, and Se. A-F only. Pre: 304 or consent. Fall only. **DB**

TPSS 440 Tissue Culture/Transformation (3) (2 Lec, 1 3-hr Lab) Application of plant tissue culture for plant scientists; study of the growth and development of plant tissues in culture as influenced by chemical and environmental factors, and the regeneration of plants following plant transformation by biolistics and other molecular approaches. Pre: 420 or consent. Recommended: BOT 410. **DB**

TPSS 450 Nutrient Mgmt Soils & Plants (4) (3 Lec, 1 3-hr Lab) Principles and mechanisms governing the availability of plant nutrients in soil and nutrient management for enhanced plant productivity and maintenance for environmental and soil quality. Pre: 304 and CHEM 161, or consent. **DB**

TPSS 453 Plant Breeding and Genetics (3) (2 Lec, 1 3-hr Lab) Unique aspects of plant genetics and applications to crop improvement, with emphasis on breeding plants in Hawai'i. Pre: BIOL 375 (or concurrent); or consent. **DB**

TPSS 460 Soil Plant Environment (3) (2 Lec, 1 3-hr Lab) Bio-physical processes in the soil-plant-atmosphere continuum that influence crop growth and development. Methods to estimate the impact of soil and climate on crop performance. Use of crop models to simulate effects of planting date, plant spacing and density, fertilizer rate, rainfall or irrigation, and daily weather on crop yield and farm income. Pre: 304 and either PHYS 151 or PHYS 170; or consent. **DB**

TPSS 470 Plant Physiology (3) Integration of form and function from cellular to whole plant levels in processes from seed germination, through photosynthesis, growth, and morphogenesis, to flowering and senescence. A-F only. Pre: BIOL 171 and CHEM 152; or consent. Co-requisite: 470L. (Cross-listed as BOT 470) **DB**

TPSS 470L Principles of Plant Physiology Lab (1) (1 3-hr Lab) Principles of experimentation in plant physiology, includes individual investigations. A-F only. Pre: consent. Co-requisite: 470. (Cross-listed as BOT 470L) **DY**

TPSS 473 Post-Harvest Physiology (3) Comparative physiological and biochemical processes during growth, maturation, ripening,

and senescence in fruits, vegetables, and flowers related to changes in quality and storage life. Tropical commodities emphasized. A-F only. Pre: 200, BIOL 171, or BOT 201; CHEM 152; or consent. **DB**

TPSS 481 Weed Science (3) (2 Lec, 1 3-hr Lab) Weed classification, identification, adaptations for weediness; principles of weed control; properties, uses, and action of herbicides. Lab: pesticide application equipment and techniques, no-till farming, greenhouse and field experiments. A-F only. Pre: 200 and CHEM 152. Fall only. (Cross-listed as PEPS 481) **DB**

TPSS 491 Experimental Topics (V) Study and discussion of significant topics, problems. Offered by visiting faculty and/or for extension programs. Repeatable. Pre: consent.

TPSS 492 Internship (4) Integration and application of academic knowledge and critical skills emphasizing professional development. Placement with an approved cooperating supervisor/employer. Pre: consent. (Cross-listed as NREM 492)

TPSS 499 Directed Studies (V) Supervised individual instruction in field laboratory and library. Repeatable. CR/NC only. Pre: 364 or consent.

TPSS 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate or consent.

TPSS 601 Crop Modeling (3) (2 Lec, 1 3-hr Lab) Principles of modeling crop growth and development, model types, techniques, simulation. Modeling influence of climate/environment on phenology, growth, development of horticultural crops. Pre: NREM 310 and BOT 470; or consent. Recommended: NREM 210 or MATH 205.

TPSS 603 Experimental Design (4) (3 Lec, 1 3-hr Lab) Design of experiments and variance analyses in biological and agricultural research. Pre: NREM 310 or ZOOL 631. Recommended: ZOOL 632. (Cross-listed as ANSC 603)

TPSS 604 Advanced Soil Microbiology (4) (3 Lec, 1 3-hr Lab) Study of biochemical and biogeochemical transformations mediated by soil microorganisms, emphasis on processes important to plant growth productivity and environmental quality. Pre: 304 and MICR 351, or consent.

TPSS 607 Advanced Food Science I (3) Advanced topics in chemical and physical characteristics of foods as well as their role in human nutrition. Repeatable one time. A-F only. Pre: graduate student status with undergraduate courses in organic chemistry, microbiology, additional biological science, physics, and biochemistry. Basic knowledge of food science is expected; or consent. Fall only. (Cross-listed as FSHN 607 and MBBE 607)

TPSS 608 Advanced Food Science II (3) Advances in sensory quality and evaluation, deterioration of foods and food safety, as well as food processing technology. Repeatable one time. A-F only. Pre: graduate student status with undergraduate courses in organic chemistry, microbiology, additional biological sciences, physics, and biochemistry. Basic knowledge of food science is expected; or consent. Spring only. (Cross-listed as FSHN 608 and MBBE 608)

TPSS 609 Advanced Food Safety (3) Real and perceived food hazards, their ethical issues and implications, advanced emerging topics in food safety, and controls, including laws and regulations of food safety issues and public perception of food safety will be discussed. Repeatable one time. A-F only. Pre: graduate student status with undergraduate courses in biochemistry, microbiology, food processing, physics and organic chemistry. Basic food science knowledge is required; or consent. Spring only. (Cross-listed as FSHN 609 and MBBE 609)

TPSS 610 Nutrition of Tropical Crops (3) (1 2-hr Lec, 1 3-hr Lab) Mineral nutrition of plants in relation to plant metabolism, mechanisms of ion uptake, long-distance transport of solutes, and interactions at the root-soil interface. Special emphasis on problems associated with tropical crops. Pre: 450 and 470; or consent. (Alt. years)

TPSS 614 Molecular Genetics of Crops (3) (2 Lec, 1 3-hr Lab) Applications of molecular genetics to crop improvement. Pre: 453 and MBBE 402; or consent.

TPSS 615 Quantitative Genetics (3) Applications of quantitative genetics to crop and animal improvement. Pre: 453 and 603; or consent.

TPSS 630 Advanced Perishables Marketing (3) Organization and market analysis encompassing several approaches, including structure, conduct and performance, contestable markets, and transactions costs. Emphasis on efficiency, productivity, vertical coordination, and equity. Focus is on food systems, marketing institutions and research issues. Pre: AREC 634 and ECON 608, or consent.

TPSS 640 Advanced Soil Chemistry (3) (2 Lec, 1 3-hr Lab) Physio-chemical processes in soils and soil solutions, with emphasis on ionic equilibria, mineral stability, organic complexation, and surface sorption of major plant nutrients and heavy metals. A-F only. Pre: 435 and CHEM 351, or consent.

TPSS 650 Soil Plant Nutrient Relations (4) (2 Lec, 2 3-hr Lab) Soil-plant interactions, emphasis on characteristics of tropical soils and plants influencing nutrient uptake by plants. Diagnostic methods to identify nutrient deficiencies and element toxicity. Pre: 450 or consent.

TPSS 654 Communications in the Sciences (2) (3-hr Lec/Lab combination) Laboratory-type course for improving communication abilities in the sciences and engineering. Presentations to lay audiences are emphasized. Hands-on experience in techniques and methods is provided.

TPSS 664 Orchidology (3) (2 Lec, 1 3-hr Lab) Classification, culture, cytogenetics, breeding of orchids. Pre: consent. Recommended: 200 and 402.

TPSS 667 Graduate Seminar (1) Presentation of research reports; reviews of current literature in plant and soil sciences. Pre: graduate standing or consent.

TPSS 670 Agrarian Systems Analysis (3) Comparative analysis of philosophy and process of interdisciplinary and participatory approaches to sustainable development and rural resource management including farming systems research and extension (FSRandE), agroecosystem analysis (AEA), participatory action research (PAR), and rapid rural appraisal (RRA). Repeatable. Pre: consent. (Cross-listed as NREM 670)

TPSS 674 Plant Growth and Development (3) Contemporary literature is used as the basis for understanding the physiology for whole plant growth and development. Aspects covered include vegetative and reproductive development, seed dormancy, senescence, abscission, and relevant biochemical and molecular processes. Pre: 470 and MBBE 402; or consent.

TPSS 699 Directed Research (V) In-depth study of specialized problems. CR/NC only. Pre: consent.

TPSS 700 Thesis Research (V) CR/NC only. Pre: consent.

TPSS 701 Topics in Food Science (1) Advanced topics in food science and technology, from basic to applied research, including current issues in food science and technology and critical analysis of current research literature. Repeatable one time. A-F only. Pre: graduate standing or consent. Spring only. (Cross-listed as FSHN 701 and MBBE 701)

TPSS 711 Special Topics (V) Specialized topics from various areas of plant and soil research such as experimental techniques, growth regulation, morphogenesis, genetics and breeding, culture and nutrition of tropical crops. A-F only. Pre: consent.

TPSS 800 Dissertation Research (V) CR/NC only. Pre: consent.

Urban and Regional Planning (PLAN)

College of Social Sciences

PLAN 310 Introduction to Planning (3) Perspectives on planning; planning tools and methods; specific Hawai'i planning-research problems from a multidisciplinary approach. Pre: junior standing or consent. (Cross-listed as ARCH 341) DS

PLAN 399 Directed Reading in Planning (V) Independent research on topics in urban and regional planning. Pre: 310.

PLAN 495 Land and Housing Economics (3) Microeconomics explains urban land housing phenomena and analyzes selected land and housing issues relevant to Honolulu. Pre: ECON 301, and ECON 321. (Cross-listed as ECON 495) DS

PLAN 500 Master's Plan B/C Studies (1)

PLAN 600 Theories of Planning and Public Policy (3) Planning as an approach to public decision-making and implementation. Pre: consent.

PLAN 601 Planning Methods (3) Basic methods in planning including problem definition, research design, survey research, statistics and computer applications. Repeatable once. Pre: one of ECON 321, GEOG 380, SOC 476, or PSY 210.

PLAN 602 Spatial Planning Theory (3) History and theory of settlement planning and urbanization. Evolution of urban and regional systems. Internal structure and spatial organization of cities. Community planning and design. Repeatable once. Pre: graduate standing and consent.

PLAN 603 Economic Analysis for Urban Planning and Policy (3) Reviews and builds skills in applying basic theories and principles of urban and regional economics in contemporary U.S., Hawai'i and Asia-Pacific. Repeatable one time. Pre: consent. (Cross-listed as GEOG 635)

PLAN 605 Planning Models (3) Allocation, decision, derivation, and forecasting models used in the analysis of demographic, economic, land use, and transportation phenomena in urban and regional planning. Repeatable once. Pre: one of ECON 321, GEOG 380, PSY 210, or SOC 476; or consent.

ENVIRONMENTAL PLANNING AND RESOURCE MANAGEMENT

PLAN 610 Community Planning and Social Policy (3) Social issues and conditions; consequences of social policies experienced by different groups; community social plans and programs organized by various kinds of agencies and organizations. Pre: 600 (or concurrent) or consent.

PLAN 615 Housing (3) Housing delivery systems as an aspect of urban and regional planning. Pre: 610 or consent.

PLAN 616 Community-Based Planning (3) Planning and programmatic aspects of community-based development projects. East-West and local planning perspectives on participatory development and intentional communities. Pre: 600 (or concurrent).

PLAN 617 Urban Public Services (3) Problems in financing urban government and delivering of urban public services: crime control, education, health care, recreation, etc. Pre: microeconomic theory, ECON 301, or graduate standing in economics or urban and regional planning.

PLAN 618 Community Economic Development (3) Community-based economic development approaches and methods explored with an emphasis on low income communities. Repeatable. Recommended: 616. Pre: consent.

PLAN 619 Multiculturalism in Planning and Policy (3) This graduate seminar focuses on issues of governance, policy and planning in diverse multicultural societies. Differences in backgrounds, languages, privilege, preferences and values are often expressed in planning and policy controversies such as affirmative action and land use planning. The course will examine these controversies and explore theories of governance in a multicultural setting. Pre: 600 or consent.

PLAN 620 Environmental Planning (3) Natural environmental processes and their interaction with social processes; role of planning intervention to promote viability of social and natural systems. Pre: 600 and 601 (or concurrent).

PLAN 625 Environmental Policies and Programs (3) Principles, strategies, issues, and problems in formulation and implementation. Pre: 620 or consent.

PLAN 626 Energy Planning (3) Energy policy and planning; strategies that shift energy consumption from fossil fuels to renewable resources and sustain human activities with minimal disruption of physical, ecological, and social process. Pre: 605 (or concurrent) or consent.

PLAN 627 Negotiation and Mediation in Planning (3) Applicability and limitations of selected approaches; role of planners; impact on planning. Pre: 600 or consent.

REGIONAL DEVELOPMENT PLANNING

PLAN 630 Urban and Regional Planning in Asia (3) Key issues and policies in urban planning, rural-urban relations, rural regional planning, and frontier settlement in Asia and the Pacific. Repeatable. Pre: 603 or consent. (Cross-listed as GEOG 631 and ASAN 630)

PLAN 632 Planning in Hawai'i and Pacific Islands (3) Urban and regional planning in island settings. Experiences in Hawai'i, Polynesia, Melanesia, and Micronesia. Pre: graduate standing.

PLAN 633 Globalization and Urban Policy (3) Urbanization and urban policies in the Asia and Pacific region with focus on the international dimension of national and local spatial restructuring. Pre: 630 or consent. (Cross-listed as GEOG 633)

PLAN 634 Shelter and Services in Asia (3) Examines government and non-government organizations' responses to urban and rural shelter issues and services in Asia. Pre: 630 (or concurrent) or consent.

PLAN 635 East Asian Development: Policy and Planning Issues (3) East Asian industrializing economies: China, Japan, South Korea, Taiwan, Hong Kong, and Singapore. Theoretical review: modernization, dualism, colonialism, dependency, state socialism, transnationalism. Issues: industrialization, human resource, settlement and housing, urbanization, state and society, democratization. Pre: one of 630, 633, ASAN 312, or ASAN 600. (Cross-listed as ASAN 635).

PLAN 636 Culture and Urban Form in Asia (3) Cultural and historical impact on urban form, contention of tradition and modernity in urban space, spatial expression of state and society, perception and utilization of urban design, evolution of urban form in selected Asian capitals. Pre: 310, 600, or ASAN 312. (Cross-listed as ASAN 636 and ARCH 687)

PLAN 637 Environment and Development (3) Theories and practice of development; how changing development paradigms shape different ideas concerning the environment and the management of natural resources; emerging debates in development and environment in post-modern era. (Cross-listed as GEOG 637)

PLAN 638 China's Economic and Regional Development (3) A review of contemporary China's economic and regional development, examining the changing plans, policies and performances in the Socialist Development and Market Transition eras, and the implications on spatial patterns. Pre: 630 or GEOG 353; or consent. (Cross-listed as GEOG 638)

PLAN 639 Planning for Rural Development (3) Rural development theories, policies, and practices in Asia. Covers theories of Agrarian transformation, rural development policies and regional planning. Examines issues of land reform, extension services, non-farm employment, gender, community development, agribusiness, and environment. Pre: 630 or consent. (Cross-listed as GEOG 639 and ASAN 639)

LAND USE AND INFRASTRUCTURE PLANNING

PLAN 640 Land Use Planning (3) Theory and practice; selected modes of land use analysis; growth management strategies. Pre: 600 and 601, or consent. (Cross-listed as ARCH 641)

PLAN 641 Neighborhood and Community Land Use Planning (3) Land use planning for urban neighborhoods and small towns. Theory and practice of neighborhood planning. Neighborhood and community dynamics, reinvestment, and stabilization. Pre: 640 (or concurrent) or consent.

PLAN 642 Planning Urban Infrastructure (3) Capital budgeting, project planning, and financing for large-scale urban infrastructure. Pre: 600, 601, and consent.

PLAN 645 Land Use Policies and Programs (3) Evolution, practices, methods of plan preparation, implementation, and conflict resolution. Analysis of specific guidance mechanisms. Critique of state and county plans and practices. Pre: 640 or consent.

PLAN 646 Urban Forms (3) City spatial organization; principles of neighborhood, town and city design and planning; spatial dimension of buildings and land use. Pre: 640 or consent. (Cross-listed as ARCH 640)

PLAN 648 Urban Transportation Planning (3) Theory and practice of urban transportation planning in developed and developing countries with an emphasis on the U.S., Asia, and Pacific region. Pre: 600 and 605, or consent.

RESEARCH AND PLANNING METHODS

PLAN 650 Research Design Seminar (3) Research design and preparation of thesis proposal. Normally taken after admission to candidacy in MURP. Pre: consent.

PLAN 652 Policy Implementation and Program Evaluation (3) Implementation and evaluation in public policy analysis; philosophical and methodological issues; impact of policies and plans; use of evaluation research in program implementation. Pre: 601 or consent.

PLAN 653 Social Impact Assessment (3) Philosophy and methods; relation to comprehensive planning; application to facility and services projects and policies in Hawai'i. Pre: 600 and 601, or consent.

PLAN 655 Advanced Planning Methods and Models (3) Advanced methods and deterministic and stochastic models used in urban and regional planning. Pre: 601, 605, or consent.

PLAN 661 Collaboration Between Sectors (3) Examine theories and practices of multisector collaboration (public, private, nonprofit). The use of collaboration as an alternative way of solving public problems. (Cross-listed as PUBA 661)

PLAN 675 Preservation: Theory and Practice (3) History and philosophy of historic preservation movement. Analysis of values and assumptions, methodologies and tactics, implications for society and public policy. (Cross-listed as AMST 675 and ARCH 628)

PLAN 676 Recording Historic Resources (3) Techniques in recording and evaluation of historic buildings and other resources, with an emphasis on

field recordings and state and federal registration procedures. Pre: AMST 675 or ARCH 628, or consent. (Cross-listed as AMST 676)

PLAN 671 Urban Economic Analysis (3) Microeconomic explanation of urban phenomena and evaluation of government policies; land use, location theory, speculation, housing, environmental pollution, transportation, etc. Pre: 495 or consent.

PLAN 677 Community Preservation (3) Local-level historic preservation, with an emphasis on historic districts, design guidelines, regulatory controls, and community consensus-building. (Cross-listed as AMST 677)

PLAN 683 Housing and Community Development Practicum (V) Laboratory and field testing of selected topics related to housing design and technology; site development and infrastructure; social, health and economic community development; and housing implementation strategies. Repeatable. Pre: ARCH 680 (or concurrent) or ARCH 681 (or concurrent). (Cross-listed as ARCH 683)

PLAN 684 Community Practicum for Developing Countries (V) Laboratory and field testing of experimental designs for housing sites and community-scale infrastructure; development of social, health, and economic techniques in community settlement and resettlement planning. Pre: 637, ARCH 680, or consent. (Cross-listed as ARCH 684)

PLAN 685 Community Development (3) Social, physical, ecological, and economic problems of communities in the Pacific basin; examination of solutions emphasizing the application of community organization and services, environmental management and appropriate technology to communities. Pre: graduate standing or consent of dean. (Cross-listed as ARCH 680)

PLAN 686 Housing and Community Services in Asia and Pacific (3) Application of analysis and construction technology to problems associated with physical development of suburban and neighborhood communities. Development of design and construction programs. Emphasis on low and intermediate technology solutions. Open to non-majors. Pre: ARCH 680. (Cross-listed as ARCH 681)

PLAN 699 Directed Reading and Research (V) Repeatable. Pre: consent of instructor and department chair.

PLAN 700 Thesis Research (V) Limited to MURP students under Plan A. Pre: consent.

SEMINARS AND PRACTICE

PLAN 740 Seminar in Planning Theory (3) Special topics in theory, history, analysis. Pre: 600 or consent.

PLAN 741 Seminar in Planning Practice (3) Project planning, programming, and similar topics. Pre: 600 and 601, or consent.

PLAN 751 Planning Practicum (6) Team experience in defining and addressing a current planning problem; identification, substantive review, research design, preparation and presentation of analysis. Topic varies. Limited to 10 students. Pre: 600, 601, and consent.

PLAN 752 Directed Project (V) Individual project in analysis, plan preparation and evaluation, and policy/program evaluation. Pre: 600, 601, and consent.

PLAN 754 Urban Design Studio (6) Group experience in defining urban and regional design problems and potentials, developing and evaluating alternatives, formulating strategies for implementation. Pre: 640, ARCH 641, or consent. (Cross-listed as ARCH 703)

PLAN 755 Reflection on Planning (1) Major issues and professional dilemmas in the practice of planning. Pre: professional certificate students only.

Vietnamese (VIET)

College of Languages, Linguistics and Literature

VIET 101 Elementary Vietnamese (4) Listening, speaking, reading, writing. Structural points introduced inductively. Meets one hour daily, Monday–Friday; four out of five hours devoted to directed drill and practice; daily lab work. **HSL**

VIET 102 Elementary Vietnamese (4) Continuation of 101. **HSL**

VIET 112 Intensive Elementary Vietnamese (10) **HSL**

VIET 201 Intermediate Vietnamese (4) Continuation of 102. After completion, most students should be able to use all major sentence patterns to produce sounds, combinations of sounds, tones, and intonation and have some understanding of Vietnamese culture. Meets one hour daily, Monday–Friday; daily lab work. Pre: 102 or equivalent. **HSL**

VIET 202 Intermediate Vietnamese (4) Continuation of 201. **HSL**

VIET 212 Intensive Intermediate Vietnamese (10) **HSL**

VIET 301 Third-Level Vietnamese (3) Continuation of 202. Emphasis on increased proficiency and cultural understanding through interaction with Vietnamese media, including newspapers, radio, film, etc. Pre: 202 or equivalent.

VIET 302 Third-Level Vietnamese (3) Continuation of 301.

VIET 303 Intensive Third-Level Vietnamese (6)

VIET 369E Study Abroad: Vietnam (3)

VIET 401 Fourth-Level Vietnamese (3) Continuation of 302. Emphasis on cultural understanding through modern literary Vietnamese. Pre: 302 or equivalent.

VIET 402 Fourth-Level Vietnamese (3) Continuation of 401.

VIET 404 Intensive Fourth-Level Vietnamese (6)

VIET 433 Selected Readings in Vietnamese (3) Readings in disciplines selected for student interest and staff availability. Repeatable. Pre: 402 or consent. **DL**

VIET 434 Selected Readings in Vietnamese (3) Continuation of 433. **DL**

VIET 461 Introduction to Vietnamese Literature (3) Selected readings in major genres; emphasis on analysis. Modern literature. Pre: 402 or consent. **DL**

VIET 462 Introduction to Vietnamese Literature (3) Selected readings in major genres; emphasis on analysis. Traditional literature; introduction to demotic script. Pre: 402 or consent. **DL**

VIET 699 Directed Reading/Research (V) Repeatable. Pre: consent.

Women's Studies (WS)

College of Social Sciences

WS 151 Introduction to Women's Studies (3) Introduction to feminist interdisciplinary analysis; relationships between women and men and among women in contemporary society; women in diverse backgrounds, social structures, cultures, and nature. **DS**

WS 151A Introduction to Women's Studies (3) Introduction to feminist interdisciplinary analysis; relationships between women and men and among women in contemporary society; women in diverse backgrounds, social structures, cultures, and nature. **DS**

WS 200 Culture, Gender, and Appearance (3) Social construction of gender within culture and its visual expression through appearance. Analysis of role, identity, conformity, and deviance in human appearance. Open to nonmajors. (Cross-listed as APDM 200) **DS**

WS 202 Psychology of Women (3) Survey of topics in psychology relevant to women's lives: socialization of gender, mental health, violence against women, achievement motivation, lifespan issues, domestic violence. Pre: 151 or PSY 100. (Cross-listed as PSY 202) **DS**

WS 245 Women Writers of World Literature (3) Major women writers of world literature examined in context of female literary tradition. Pre: ENG 100 or consent. **DL**

WS 257 Sexual Identity in Literature (3) Selected themes in major works of various types, cultures, periods. Requires a minimum of 3,000 words of writing. Pre: ENG 100. (Cross-listed as ENG 257Y) **DL**

WS 275 Women in Art (3) An interdisciplinary survey of the role of women as subject/object in the visual arts, their activity as creators of art and as participants in the art world. Pre: ART 101 and one of 151, PHIL 100, or SOC 100; or consent. (Cross-listed as ART 275) **DH**

WS 304 Women, War, and the Military (3) The military as it includes and excludes women as soldiers, nurses, wives, prostitutes, and victims. Women and war economics; feminism, war, and peace. Pre: one of 151, 362, 375, or consent. **DS**

WS 305 Women and Health (3) Explores current issues in the conceptualization and delivery of health care for women. Pre: one of 151, 202, POLS 110, or SOC 100. (Cross-listed as NURS 305) **DS**

WS 310 U.S. Women's History to 1890s (3) A survey of history of U.S. women and gender relations up to 1890s. Emphasis on women's labor,

women's involvement in social movement, development of suffrage movement, women's literary and popular culture. Pre: 151 (or concurrent) or AMST 201 (or concurrent) or AMST 202 (or concurrent), or consent. (Cross-listed as AMST 315 and HIST 360) **DH**

WS 311 U.S. Women's History since 1890s (3) A survey of history of U.S. women and gender relations since 1890s. Emphasis on social reform, suffrage and the New Woman, women's wartime labor, gender and the Cold War, second wave feminism, divisions among women. Pre: 151 (or concurrent) or AMST 201 (or concurrent) or AMST 202 (or concurrent); or consent. (Cross-listed as AMST 316 and HIST 361) **DH**

WS 315 Sex and Gender (3) Cross-cultural theories and perceptions of sexual difference; linkage between biology and cultural constructions of gender; relationship of gender ideology to women's status. Pre: ANTH 200 or consent. (Cross-listed as ANTH 315) **DS**

WS 318 Women and Social Policy (3) Social and economic policies affecting women in families, education, social services, government, health care, the economy; public policy implementation and development; policy impact on women. Pre: one of 151, 362, SOC 100, or consent. (Cross-listed as SOC 318) **DS**

WS 320 Women and Madness (3) Interdisciplinary critical examination of the relationship between gender and mental health. Psychological research, feminist theory, autobiography, literature, and cinema. Pre: one of 202, 245, PSY 202, or consent. **DS**

WS 345 20th-Century Literature by Women (3) Twentieth-century women writers and their works; novels, short stories, poems, autobiographies. Interrelations of gender and literature. Pre: one of 245 or ENG 250–257, or consent. **DL**

WS 346 20th-Century Literature by Chinese Women (3) A survey and critical examination of contemporary Chinese women writers from China, Taiwan, and Hong Kong. This course traces a genealogy of women's writing from the early 1920s up until now through novels, poetry, drama, and film. Pre: one of 151, EALL 271, EALL 361, or ENG 250. (Cross-listed as EALL 364) **DL**

WS 350 Sex Differences in the Life Cycle (3) Human sex differences, their biological basis and significance; genetic, hormonal, and behavioral determinants of sexual differentiation; biology of gender, sexuality, menopause, and aging. Pre: one semester of biological sciences. (Cross-listed as BIOL 350) **DB**

WS 351 Women, Ideas, and Society (3) Status of women in American society today in light of the cultural, historical, and philosophical forces that have produced it. Pre: HIST 151 and HIST 152, or consent. **DH**

WS 353 Democracy in Organizations (3) Theory and practice of democratic organizations; women's and feminist organizations; co-ops, communes, and collectives; indigenous people's organizations; workplace democracy and social change. Pre: 151 or any 100-level POLS course or POLS 390 (or concurrent); or consent. (Cross-listed as POLS 394) **DS**

WS 360 Pacific/Asian Women in Hawai'i (3) Adaptive strategies of Hawaiian, Chinese, Japanese, Korean, Filipino, Samoan, and Southeast Asian women in Hawai'i; feminist anthropological and historical analysis. Pre: any ANTH, SOC, or WS course. (Cross-listed as ES 365) **DS**

WS 361 Seminar: Women and International Development (3) Topics: Women's role, status, work and treatment in the Third World; Economic Development, changing work/family roles, and improvement/deterioration in gender equity across the Third World; global feminization of poverty; efforts to promote gender equity. Open to nonmajors. Pre: a 100 level economics course or any women's studies course; or consent. (Cross-listed as ECON 361) **DS**

WS 362 Sociology of Gender (3) Effect of sex and gender roles (both traditional and nontraditional) on attitudes and behavior within the family and educational, economic, and governmental systems. (Cross-listed as SOC 362) **DS**

WS 365 Women in Business (3) Social and economic factors affecting working women; two-paycheck marriages; work relationships; attitudes toward working women. Pre: one of 151, 351, MGT 301, or consent. **DS**

WS 375 Women and the Media (3) Media portrayal of women and men; role of the media in reproducing gender inequality. Women as producers and consumers of media. Feminist alternatives to mainstream media. Pre: 151 or 362. **DS**

WS 377 Women and Genetics in Society (3) Interdisciplinary, cross-cultural study of physiological and behavioral evolution of women, fertility patterns, mating systems, eugenics, genetic counseling, genetic engineering health problems. Pre: one semester biological science or consent. **DB**

WS 381 Gender, Sexuality and Literature (3) Basic concepts and representative texts for the study of literary constructions of gender and sexuality. Pre: any two of the following: ENG 250, ENG 251, ENG 252, ENG 253, ENG 254, ENG 255, ENG 256, ENG 257; second may be taken concurrently; or consent. (Cross-listed as ENG 382) **DL**

WS 382 Hawai'i's Female Heritage (3) Learning to reclaim the ethnically diverse creative expressions of Hawai'i's women. Pre: any WS or ES course. **DH**

WS 384 Women and Politics (3) Women's role in political institutions and processes in the U.S. and other countries; female and male approaches to power; feminist political goals and actions. Pre: 151 (or concurrent) or 362 (or concurrent) or any 100 level POLS course (or concurrent); or consent. (Cross-listed as POLS 384) **DS**

WS 390 Gender and Race in U.S. Society (3) Historical and sociological studies of race and gender in U.S. society; grassroots feminist and race/ethnic activism in the mainland and Hawai'i. A-F only. Pre: 151, ES 101, or Social Science Cores. (Cross-listed as ES 390) **DS**

WS 399 Directed Reading (V) Pre: consent.

WS 414 Women in Drama and Theater (3) The role of women and their representation in the theater from ancient Greece to the present; focus on the socio-political status of women. Pre: THEA 311 or consent. (Cross-listed as THEA 414) **DH**

WS 418 Women and Work (3) Gender division of labor nationally and internationally; sex differentials in labor supply, training, wages, working conditions, and unemployment; historical trends and future directions. Pre: any 300-level SOC or WS course. (Cross-listed as SOC 418) **DS**

WS 419 Feminist Issues in Philosophy (3) Examination of a number of feminist issues in philosophy within the areas of ethics, aesthetics, philosophy of religion and epistemology/methodology. Pre: PHIL 100, PHIL 101, or any WS course; or consent. (Cross-listed as PHIL 418) **DH**

WS 420 Seminar in Feminist Psychology (3) Feminist criticisms of traditional models of women's psychological development. Recent contributions by contemporary theorists. Pre: one of 202, PSY 202, or consent. **DS**

WS 430 Seminar in the Biology of Women (3) Embryological, anatomical, and physiological development of human female; hormonal, neural, and behavioral determinants of female sexual behavior; psychobiology of pregnancy, ovariectomy, and menopause. Pre: 350, 377, or BIOL 172, BIOL 350; or consent. (Cross-listed as BIOL 430) **DB**

WS 435 Women and Crime (3) Women's relations with the criminal justice system; types of women's offenses; responses to women's crime; women as victims; women as workers in the criminal justice system. Pre: any SOC or WS course. (Cross-listed as SOC 435) **DS**

WS 436 Women and the Law (3) Past and present roles of women in American political and legal institutions; common law, judicial decisions, and federal and state legislation affecting women of various socioeconomic groups. Pre: junior standing or consent. (Cross-listed as AMST 436) **DS**

WS 438 Gender and Environmental Philosophy (3) Interdisciplinary approach to women's perspectives and roles on ecological and environmental issues; critical analysis of eco-feminism as a social and political movement; cross-cultural comparison of women's roles in human ecology. Pre: any one of ANTH 150, BIOL 310, PHIL 100, PHIL 101, PHIL 102, PHIL 103, PHIL 316, WS 151, WS 362, or instructor's consent. (Cross-listed as PHIL 438) **DH**

WS 439 Feminist Theory (3) Contemporary debates in feminist theory concerning gender, race, and class; subjectivity and representation; gender and colonialism; bodies, sexualities and "nature." Pre: any 300 level WS or POLS course; or consent. (Cross-listed as POLS 339) **DS**

WS 443 History of Families (3) How and by whom family has been historically defined. Compare and contrast various family structures in pre- and post-industrial societies. Pre: either 151 or 351 and either HIST 151 or HIST 152. **DH**

WS 445 U.S. Women's Literature and Culture (3) Reading of selected works of U.S. women's literature and cultural texts (such as art and film). Emphasis on historical and cultural context and diverse expressions of women's gendered identities. Pre: 151 (or concurrent), AMST 202 (or concurrent), or ENG 250 (or concurrent); or consent. (Cross-listed as AMST 455 and ENG 455)

WS 446 Analysis in Rape and Sexual Abuse (3) Theories, methodologies, and research findings on rape victimization and treatment; sexual abuse of

women and children in Hawai'i. Pre: SOC 275 or consent. (Cross-listed as SOC 446) **DS**

WS 452 Marriage and Family: Feminist Perspective (3) Sex-role socialization, mate selection, motherhood, career-family conflicts. Alternative family structures in U.S. and other countries. Pre: 351, a 200-level SOC, or upper division social science course. (Cross-listed as SOC 452) **DS**

WS 453 Gender Issues in Education (3) Examination of current and historical issues in education and how they are impacted upon by gender, with particular reference to gender as it intersects with ethnicity and class, locally and globally. Pre: 151 or junior standing or consent. (Cross-listed as EDEF 453 and TECS 453) **DS**

WS 455 Gender, Culture and Science (3) Seminar/discussion course on how the nature, implementation, and findings of science have both influenced and been influenced by their development within a western, masculine context. Pre: one of 151, 350, BIOL 101, BIOL 103, BIOL 171, or BIOL 350; or consent. **DH**

WS 462 Asian Women (3) History, culture, and contemporary reality of Asian women in Asia and the U.S. Includes critical analysis of American feminist methodology and theory. Pre: 360, 361, or 439 or any 100 level POLS course or POLS 339; or consent. (Cross-listed as AMST 438 and POLS 372) **DS**

WS 463 Gender Issues in Asian Society (3) Construction of gender identities in contemporary Asia. How these interface with other aspects of social difference and inequality (e.g. with class, religion, ethnicity). Pre: any WS course or ASAN 242, or consent. (Cross-listed as ASAN 463) **DS**

WS 481 Women and Film (3) Exploration of film as a philosophical and artistic form in the context of gender, race, and sexuality. Pre: 151 or one of ENG 250-257 or THEA 201 or consent. **DH**

WS 482 Women in Japanese Art (3) Issues relating to representations of women in Japanese art. Emphasis on social class and gender roles. Pre: ART 180, any WS course, or consent. (Cross-listed as ART 482) **DH**

WS 483 Studies in Literature and Sexuality and Gender (3) Intensive study of selected problems and issues in the construction and representation of sexuality and gender in specific genres, social and cultural contexts, thematic or figurative clusters. Repeatable one time. Pre: ENG 320 and one other 300-level ENG course; or consent. (Cross-listed as ENG 482) **DL**

WS 484 Gender Issues in Multimedia and Video (3) Studio/lecture course investigating social, cultural, and gendered representations as informed by contemporary theory and practice. Pre: any WS course or ART 201; or consent. (Cross-listed as ART 404) **DA**

WS 491 Woman's Place (3) Historical explanations of woman's proper place and roles in the home, outside, and in the struggle for emancipation. (Cross-listed as HIST 491) **DH**

WS 492 Women in Revolt (3) Conditions under which women's protest develops. Women's rights movements in the 19th- and 20th-century U.S.; cross-cultural comparisons. Recommended: 491. (Cross-listed as HIST 492) **DH**

WS 495 Selected Topics (3) Problems and issues for reading and research: feminist theory, criticism, affirmative action, etc. Pre: any WS course in appropriate area. **DS**

WS 610 Faculty Seminar Series (1) Seminar/discussion course to introduce students pursuing the Graduate Certificate to the Woman's Studies faculty and their areas of research, and to initiate students's graduate studies in a Woman's Studies field. Repeatable one time. Pre: classified graduate status (or status pending) and consent.

WS 612 Women in American Culture (3) Historical/contemporary status of women in the United States; women's roles as defined by legal, educational, political, economic, and social institutions; implications for social science method. (Cross-listed as AMST 612)

WS 613 Feminist Research and Methods of Inquiry (3) Examination of an emergent body of literature about how to shape questions concerning gender, sex, race, class, colonialism, and other vectors of power. Includes methods from social sciences and humanities and debates in the philosophy of science. Repeatable one time. Pre: classified graduate status and consent.

WS 615 Feminist Theory (3) Selected ideas from contemporary feminist theory concerning power, knowledge, and self; articulating women's voice; deconstructing gender. (Cross-listed as POLS 615C)

WS 650 Research in Feminist Studies: Capstone Experience (2) This course will provide Women's Studies graduate certificate students with an opportunity to design, develop and complete a research project culminating in a publishable quality work and a professional quality seminar presentation. A-F only. Pre: classified graduate status and consent.

WS 699 Directed Reading and Research (V) Pre: classified graduate standing and consent of chair.

Zoology (ZOOL)

College of Natural Sciences

ZOOL 101 Principles of Zoology (3) Structure, development, physiology, reproduction, evolution, behavior, and ecology of animals. (Cross-listed as BIOL 103) **DB**

ZOOL 101L Principles of Zoology Laboratory (1) Laboratory to accompany 101. Pre: 101 (or concurrent). (Cross-listed as BIOL 103L). **DY**

ZOOL 200 Marine Biology (2) Biology and ecology of marine plants and animals; coral reefs, the deep sea, rocky shores, marine mammals, fisheries, aquaculture, pollution, and conservation of marine resources. **DB**

ZOOL 200L Marine Biology Lab (1) (1 3-hr Lab) Laboratory, field trips to accompany 200. Pre: 200 (or concurrent). **DY**

ZOOL 306 Ethology (2) Introduction to animal and human ethology and sociobiology; emphasis on social and interspecific behavior, its causes and adaptive significance. Lab optional. Pre: 101 and 101L. **DB**

ZOOL 306L Ethology Lab (1) (1 3-hr Lab) Application of methods in demonstrations, films, and projects. Pre: 306 (or concurrent). **DY**

ZOOL 320 Vertebrate Zoology (3) Introduction to the evolution and systematics of vertebrates, with emphasis on comparative morphology, physiology, and ecology. Pre: BIOL 265. Co-requisite: 320L. **DB**

ZOOL 320L Vertebrate Zoology Lab (2) (2 3-hr Lab) Laboratory to accompany 320. Pre: BIOL 172 and BIOL 172L. Co-requisite: 320. **DY**

ZOOL 340 Parasitology (2) Animal parasites of man, and domestic and wild animals; systematics, comparative morphology, life history, pathology, treatment, control. Pre: BIOL 275. **DB**

ZOOL 340L Parasitology Lab (2) (2 3-hr Lab) Laboratory to accompany 340. Pre: 340 (or concurrent) and BIOL 275. **DY**

ZOOL 399 Directed Study (V) Pre: written consent.

ZOOL 410 Corals and Coral Reefs (3) A course in the biogeography, evolution, ecology, and physiology of corals and coral reefs, and the application of this information to the management of coral reefs. Emphasis will be placed on processes such as dispersal, the evolution and operation of mutualisms, calcification, reproduction, and the maintenance of diversity. Pre: BIOL 265. Spring only.

ZOOL 416 Histology (3) Functional microanatomy of the animal body, emphasizing vertebrates. Oriented toward pre-professional students. Pre: BIOL 275. Recommended: BIOL 406. **DB**

ZOOL 416L Histology Lab (2) (2 2-hr Lab) Light microscopic study of animal tissues, especially vertebrates. Primarily for pre-professional students. Pre: BIOL 275. Recommended: BIOL 406. Co-requisite: 416. **DY**

ZOOL 417 Microtechnique (3) (2 Lec, 2 3-hr Lab) Preparation of animal tissues and organs for microscopic examination; introduction to cytochemical and histochemical techniques. Pre: BIOL 275 or consent. **DB**

ZOOL 420 Developmental Biology (3) Fundamental principles, methods, concepts, and significance of developmental biology, emphasizing experimental methods. Pre: BIOL 275. Recommended: BIOL 406. **DB**

ZOOL 420L Developmental Biology Lab (2) (2 3-hr Labs) Analysis of animal development by experimental methods, using local organisms. Pre: BIOL 275 or consent. Recommended: BIOL 406. Co-requisite: 420. **DY**

ZOOL 430 Animal Physiology (3) Introduction to function of organs, tissues, and cells, especially in vertebrates. Nerve and muscle physiology, endocrinology, circulation, respiration, excretion, and temperature regulation. Pre: BIOL 275. Co-requisite: 430L. **DB**

ZOOL 430L Animal Physiology Lab (2) Laboratory investigation of function of organs, tissues, and cells, especially in vertebrates. Nerve and muscle physiology, circulation, membrane transport, respiration, excretion. Pre: BIOL 275. Co-requisite: 430. **DY**

ZOOL 432 Comparative Physiology (3) Physical-chemical cellular mechanisms underlying function of organ systems; general principles inferable from study of adaption to diverse environments. Pre: BIOL 171 and 172, and ENBI 402 (or concurrent) or BIOC 441 (or concurrent); or consent. **DB**

ZOOL 435 Endocrinology (2) Anatomy and physiology of the organs of internal secretion, role of hormones in metabolism and development. Pre: a course in biological sciences. **DB**

ZOOL 439 Animal Ecology (3) Principles and theories; examples from current experimental and analytical literature. For students in biological sciences. Pre: BIOL 265 or consent. **DB**

ZOOL 439L Animal Ecology Lab (2) (1 4-hr Lab) Introduction to methodology, experience in characterizing populations and communities. Pre: BIOL 265. **DY**

ZOOL 441 Revolutions In Biology (3) Major themes in biology as they evolve with time: what is a species, preformation or epigenesis, evolution and extinction, is life more than physics and chemistry. Recommended for senior-level students. Pre: BIOL 172. **DB**

ZOOL 450 Natural History of Hawaiian Islands (3) (2 Lec, 1 1-hr Lab) Geography, geology, climatology, biotic environment of Pacific Basin and Hawaiian Islands; endemism and evolution in terrestrial and marine biota. Pre: one semester of biological sciences at college level. (Cross-listed as BOT 450) **DB**

ZOOL 460 Avian Biology (3) Broad coverage of the morphology, physiology, ecology, behavior, and evolution of birds, emphasizing the relation of birds to general theory in biology. Pre: BIOL 265. **DB**

ZOOL 465 General Ichthyology (3) Biology of fishes; reproduction, physiological processes, functional anatomy, behavior, ecology, distribution, and systematics. Pre: BIOL 265. Co-requisite: 465L. **DB**

ZOOL 465L General Ichthyology Lab (1) (2 2-hr Lab) Overview of the major orders and families of fishes of the world; introduction to local Hawaiian fishes; coverage of basic fish anatomy; introduction to field and laboratory techniques in fish research. Pre: BIOL 265. Co-requisite: 465. **DY**

ZOOL 466 Fisheries Science (3) General characteristics of fisheries; harvesting methods; principles and techniques to derive data and analyze fished populations. Field trips. Pre: some background in fish biology and aquatic ecology or consent. **DB**

ZOOL 467 Ecology of Fishes (3) Reproduction, early life history, age and growth, feeding, niche specificity, competitive interactions, communities, and evolutionary mechanisms. Pre: 465 or consent. **DB**

ZOOL 470 Limnology (2) Biology, physics, chemistry of lakes, streams, estuaries. Pre: BIOL 172 or consent. Co-requisite: 470L. **DB**

ZOOL 470L Limnology Lab (1) (1 3-hr Lab) Experimental and descriptive field projects on the biology, chemistry, hydrology, and physics of lakes, streams, and estuaries. Pre: BIOL 172 or consent. Co-requisite: 470. (Alt. years) **DY**

ZOOL 475 Biology of the Invertebrates (3) Body plans, development, cellular construction, physiological integration, natural history, and ecology of invertebrate animals. Emphasis on marine species, especially local ones. Pre: BIOL 172 and CHEM 161, or consent. Co-requisite: 475L. **DB**

ZOOL 475L Biology of the Invertebrates Lab (2) (2 3-hr Lab) Pre: BIOL 172 and CHEM 161, or consent. Co-requisite: 475. **DY**

ZOOL 480 Animal Evolution (3) Process of evolution: genetic basis, natural selection, population genetics, speciation, the fossil record. Pre: one of 475, 475L, or 320; and BIOL 265. Recommended: BIOL 275 and BIOL 375. **DB**

ZOOL 485 Biogeography (3) Distribution of plants and animals and processes that cause, maintain, and modify them. Approach is synthetic and dynamic. Pre: BIOL 172. **DB**

ZOOL 490 (Alpha) Seminar in Zoology (1) Reports on research, reviews of literature, or research experience. Required of students majoring in zoology or entomology. (B) general zoology; (D) animal behavior; (E) ecology; (F) physiology; (G) developmental biology; (H) marine biology. Pre: 306 or equivalent or consent for (D).

ZOOL 499 Directed Reading or Research (V) Limited to zoology majors.

ZOOL 500 Master's Plan B/C Studies (1) Enrollment for degree completion. Pre: master's Plan B or C candidate and consent.

ZOOL 606 Principles of Animal Behavior (2) Critical review of theories of ethology, sociobiology; social and interspecific behavior, communication, and evolutionary theory. Lab optional. Pre: graduate standing.

ZOOL 606L Principles of Animal Behavior Lab (1) (1 3-hr Lab) Group or individual research projects depending on interest of students. Pre: 606 (or concurrent).

ZOOL 610 Topics in Development and Reproductive Biology (V) Discussion and survey of literature on specific topics; some field and lab work may be required.

ZOOL 619 Seminar on Science Teaching (1) Effective teaching methods, organization of courses, lectures, laboratory exercises; development and evaluation of examinations; computers and audio-visual aids. Open to graduate students in various science disciplines. Repeatable one time. (Cross-listed as NSCI 619)

ZOOL 620 Marine Ecology (3) (2 Lec, 1 3-hr Lab) Principles of ecology of marine biota and environment. Pre: graduate standing in zoology, oceanography, or botany; or consent.

ZOOL 621 Evolutionary Ecology (4) (3 Lec, 1 Discussion) Interaction of evolutionary process with ecological principles. How do ecological interactions evolve? What ecological conditions affect evolutionary pathways? What is the nature and ecology of adaptation? What are the units of natural selection? Pre: 480 or consent. (Alt. years)

ZOOL 623 Quantitative Field Ecology (3) (1 Lec, 1 2-hr Lab, 1 Discussion) Formal quantitative approach in identifying, designing, performing, analyzing, and interpreting ecological field problems. Pre: 439, 439L, and 631; or consent. (Alt. years)

ZOOL 631 Biometry (4) (3 Lec, 1 2-hr Discussion) Basic statistical methods: design of studies; data exploration; probability; distributions; parametric and nonparametric one-sample, two-sample, multi-sample, regression, and correlation analyses; frequency tables. Pre: MATH 241 or consent.

ZOOL 632 Advanced Biometry (4) (3 Lec, 1 2-hr Discussion) Multivariate statistical methods: multiple regression and correlation; multiway anova; general linear models; repeated measures and multivariate anova; loglinear analysis and logistic regression. Pre: 631 and MATH 241, or consent.

ZOOL 642 Cellular Neurophysiology (3) Biophysical and membrane mechanisms of conduction, synaptic transmission, and other electrical responses of nerve cells. Pre: one upper division biological science, 5 credit hours of chemistry, MATH 241, or written consent. (Cross-listed as PHYL 642)

ZOOL 652 Population Biology (3) Theory and applications of population biology; behavior of population models, as revealed by analytical methods and computer simulation; application to population problems such as endangered species; discussion of classical and current literature in population biology. Pre: an upper-level ecology course and MATH 215 or MATH 241; or consent. (Cross-listed as BOT 652)

ZOOL 666 Systematic Ichthyology (3) Review of the higher classification of the fishes of the world. Pre: 465.

ZOOL 672 Acarology (3) Taxonomy, biology, ecology of mites. Emphasis on medically and agriculturally important species. Pre: ENTO 462 or consent. (Cross-listed as ENTO 672)

ZOOL 690 Conservation Biology (3) Theories and concepts of ecology, evolution and genetics for conservation of biological diversity. Topics will include restoration ecology, management planning, laws and policies, biological invasions. Pre: 439 or BOT 453; 480 or BOT 462; and CMB 451. (Cross-listed as BOT 690)

ZOOL 691 (Alpha) Seminar in Zoology (1) Reports on research or reviews of literature. Graduate students required to take this or one topics course (710–719) per year. (B) general zoology; (C) zoology literature; (D) animal behavior; (E) ecology; (F) animal physiology; (G) development biology; (H) marine biology; (I) systematics and evolution. Repeatable five times.

ZOOL 699 Directed Research (V) Directed research and reading in various fields of zoology.

ZOOL 700 Thesis Research (V)

ZOOL 710 Topics in Biometry (V) Selected advanced topics in experimental design or data analysis for biologists. Repeatable. Pre: 631 and 632, or consent.

ZOOL 712 Topics in Nerve/Muscle Physiology (V) Advanced treatment of selected topics under current active investigation. Repeatable. Pre: a 600-level course in the area and consent. (Cross-listed as PHYL 712)

ZOOL 714 Topics in Animal Behavior (V) Lecture-discussion of selected topics. Pre: consent.

ZOOL 715 Topics in Invertebrate Zoology (V) Comparative morphology, development, taxonomy, phylogeny.

ZOOL 716 Topics in Fish and Fisheries Biology (V) Lecture-discussion of various aspects.

ZOOL 718 Topics in Animal Physiology (V) Selected problems in environmental physiology, electro-physiology, or neurophysiology. Basic concepts and measurements of function at the organismic or cellular level.

ZOOL 719 Topics in Systematics and Evolution (V) Selected problems of current or historic interest. Pre: consent.

ZOOL 750 Topics in Conservation Biology (V) Advanced topics in conservation and environmental biology. Repeatable three times. A–F only. Pre: consent. (Cross-listed as BOT 750)

ZOOL 800 Dissertation Research (V)

Instructional Support, Research, and Service Units

The following facilities are an integral part of the University of Hawai'i at Mānoa. Some are designed for the purpose of research, some for research and teaching, and others to provide services to UH Mānoa students, faculty, or staff, or the surrounding community. Other units under the jurisdiction of a particular college or school are listed in the appropriate college or school section.

Center on Aging

Office of Public Health Studies
 School of Medicine
 1960 East-West Road, C-106
 Honolulu, HI 96822
 Tel: (808) 956-5001
 Fax: (808) 956-9582

The Center on Aging (COA) was established in July 1988 to stimulate and coordinate gerontological and aging instruction, research, and community service on the Mānoa campus and to promote collaboration between the University and other organizations concerned with aging. The gerontology program draws together faculty and students from a variety of academic areas. The center coordinates two certificate programs (undergraduate and advanced) and supports the development of new courses. For information on the certificate programs see

the "School of Medicine" section of this Catalog. The center conducts interdisciplinary research (with a special interest in cross-cultural studies) and provides research-related assistance to faculty and students conducting their own studies in aging. The center also assists community organizations and individuals in training, research, or evaluation projects.

Institute for Astronomy

2680 Woodlawn Drive
 Honolulu, HI 96822
 Tel: (808) 956-8312
 Fax: (808) 988-2790
 Web: www.ifa.hawaii.edu

The Institute for Astronomy (IFA) conducts research in astronomy and astrophysics and assists in graduate training. It operates observatories on Haleakalā, Maui, for solar, satellite, and lunar ranging studies. The institute also conducts planetary, stellar, extragalactic, and infrared studies on Mauna Kea on the Big Island, using telescopes operated by the University of Hawai'i and by Canada, France, the Netherlands, the United Kingdom, and other countries. University of Hawai'i astronomers are allowed observing time on all telescopes.

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Cancer Research Center of Hawai'i

1236 Lauhala Street
 Honolulu, HI 96813
 Tel: (808) 586-3010
 Fax: (808) 586-3009

The Cancer Research Center of Hawai'i (CRCH) is a free-standing organized research unit of UH Mānoa focusing on cancer research. CRCH faculty are comprised of scientists and physicians from various disciplines reflecting the broad research interests of the Cancer Center. CRCH is a National Cancer Institute (NCI)-designated Cancer Center. This is a prestigious designation granted only to the most eminent and successful cancer centers in the nation after a vigorous peer review. The prestigious NCI designation comes with a Cancer Center Support Grant which provides funding for various research core facilities such as biostatistics, genomics, nutrition, molecular biology, and analytical chemistry. CRCH also

operates the Hawai'i Tumor Registry and a clinical trials unit which makes clinical trials available to cancer patients in Hawai'i.

Center faculty are engaged in all aspects of cancer research, from basic laboratory research, epidemiology and prevention to treatment, continuing care, and the quality of life and generate over \$22 million in extramural research support annually. In addition to conducting fundamental research in cancer biology, the CRCH also provides training opportunities for undergraduate, MS, MD, and PhD students enrolled in academic disciplines closely aligned with the faculty's research interests.

The center's research activities are organized into four programs: (1) cancer etiology which encompasses both basic laboratory and epidemiologic scientists who seek to identify factors, both environmental and genetic, that affect the risk of cancer, (2) clinical sciences which seeks to reduce cancer morbidity, and mortality as well as improve the quality of life for cancer patients, (3) social and behavior sciences, which seeks improved methods to implement community-based prevention programs, and (4) the natural products program, which in partnership with faculty from the Chemistry department, seeks to identify new cancer therapeutic drugs from natural products isolated from the diverse plant species found in Hawai'i and the Pacific Basin. Through these programs, the CRCH brings together a broad spectrum of knowledge to optimize cancer prevention and treatment for the citizens of Hawai'i and provides unique educational and research opportunities for UH Mānoa students.

Cooperating Institutions

The University extends its research capacity and service to the state through cooperative agreements and relationships with various institutions, including Bernice P. Bishop Museum, East-West Center, Hawaiian Agricultural Research Center, Honolulu Academy of Arts, National Marine Fisheries Service, National Park Service, Nature Conservancy of Hawai'i, Pacific International Center for High Technology Research, Tropical Fruit and Vegetable Research Laboratory, U.S. Fish and Wildlife Service, U.S. Geological Survey's Hawaiian Volcano Observatory, several local hospitals, and numerous state agencies.

East-West Center

1601 East-West Road
Honolulu, HI 96848-1601
Tel: (808) 944-7111
Fax: (808) 944-7376
E-mail: ewcinfo@EastWestCenter.org
Web: www.EastWestCenter.org

The East-West Center is an internationally recognized education and research organization established by the U.S. Congress in 1960 to strengthen understanding and relations between the United States and the countries of Asia and the Pacific. Originally part of the University of Hawai'i, the East-West Center in 1975 became an independent institution with an international board of governors.

The Center helps promote the establishment of a stable, peaceful and prosperous Asia Pacific community in which the United States is a natural, valued and leading partner. The Center carries out its mission through programs of cooperative study, training, research and dialogue.

EWC research programs bring together specialists from throughout the region to examine major issues of critical importance in U.S.-Asia-Pacific relations, including domestic and international politics, security, regional and global economic arrangements, national development strategies, ecosystem governance, transboundary and urban air pollution, and population and health.

Dialogue and professional enrichment programs focus on groups central to the communication of ideas: the media, political and policy leaders, and educators.

Educational programs develop the human resources needed in a new era of increased interdependence. The Center provides grants for students to study at the University of Hawai'i.

Funding for the Center comes from the U.S. government with additional support provided by private agencies, individuals, corporations, and a number of Asian and Pacific governments.

Dividing Safety Program (SCUBA and Compressed Gas Diving)

Environmental Health and Safety Office
2040 East-West Road
Honolulu, HI 96822
Tel: (808) 956-9643
Fax: (808) 956-3205
E-mail: dpence@hawaii.edu
Web: www2.hawaii.edu/ehso/diving

SCUBA and compressed gas diving operations are important tools in the research and educational programs of the students, staff, visiting scientists, and faculty of the University of Hawai'i. The University of Hawai'i Diving Safety Program (UHDSP) supports these activities and ensures they are conducted in a safe manner. UH is an organizational member of the American Academy of Underwater Sciences (AAUS) and adheres to the AAUS Guidelines for the Conduct of Scientific Diving Programs. The body governing University diving activities is the University of Hawai'i Diving Control Board. The University Diving Safety Officer is responsible for day-to-day operation of the program.

Regardless of prior recreational SCUBA experience or certification, all UH students, faculty, staff, and visitors must be authorized by UHDSP before participating in University-related diving activities. UH divers serve a Diver-In-Training period and then gain a University Scientific Diver authorization with a specific depth authorization. Temporary or reciprocal authorization for visiting Scientific Divers may be granted in accordance with University and AAUS diving regulations. Divers must receive dive plan approval from UHDSP prior to conducting dives and report diving activity monthly to UHDSP.

UHDSP provides training courses on a periodic basis for University personnel who will utilize compressed gas diving in their research or educational activities. Course topics include diving methods for scientists, computer-assisted diving, enriched air nitrox diving, diver rescue, CPR, first aid, and oxygen administration. A diving equipment inspection program for equipment to be used under University jurisdiction is provided.

UHDSP compiles reports on University Scientific Diver activity and investigates accidents and complaints of unsafe conditions in connection to University-related diving.

Environmental Center

Krauss Annex 19
2500 Dole Street
Honolulu, HI 96822
Tel: (808) 956-7361
Fax: (808) 956-3980
Web: www2.hawaii.edu/~envctr

The Environmental Center, a unit of Water Resources Research Center, coordinates the education, research, and service efforts of the University relating to the maintenance, protection, and improvement of the environmental quality in Hawai'i and the adjacent marine environment. It is a conduit for the transfer of interdisciplinary academic and research expertise in environmental matters from the University to the government, with a particular regard for public review processes established within the state's Environmental Impact Statement (EIS) laws. Its research program is highly interdisciplinary and focuses on issues of particular importance to improving environmental management decisions in the Pacific. The center works closely with the U.S. Environmental Protection Agency as well as other federal and state agencies in Hawai'i on many of its research contracts. For information on the environmental studies major or certificate program, see the "Colleges of Arts and Sciences" section within this Catalog. For a list of research affiliates, see the "Instructional Support, Research, and Service Units Staff" section in the back of this *Catalog*.

External Affairs and University Relations

Office of External Affairs and University Relations
2444 Dole Street
Bachman 109H
Honolulu, HI 96822
Tel: (808) 956-8109
Fax: (808) 956-9701
E-mail: UR@hawaii.edu
Web: www.hawaii.edu/UR

External Affairs and University Relations promotes the image of and enhances support for the University of Hawai'i system through a wide range of public relations, marketing and communication services. Four units report to the Vice President for External Affairs and University Relations: Public Relations incorporates marketing, media relations, and other public relations functions. Community and Alumni Relations

serves as the University's liaison to community and alumni groups. Government Affairs serves as the liaison to state and federal lawmakers. Creative Services provides editorial, photographic and design support for communication via print and online publications, special broadcast programs and other vehicles. For information, call 956-8109, send mail to UR@hawaii.edu or visit www.hawaii.edu/UR. The office also maintains the University's online events calendar in cooperation with Information Technology services; see <http://dbserver.its.hawaii.edu/calendar>.

Office of Faculty Development and Academic Support

Kuykendall 106
1733 Donaghho Road
Honolulu, HI 96822
Tel: (808) 956-8075
Fax: (808) 956-9535
Web: www.ofdas.hawaii.edu

The Office of Faculty Development and Academic Support (OFDAS) provides general academic support and services in support of faculty and instructional development. OFDAS publishes *Teaching and Learning*, the Mānoa campus faculty development newsletter; provides leadership development workshops, seminars, and focus groups for department chairs; manages the Educational Improvement Fund (curriculum development grants); manages faculty and staff travel and development funds (instructional travel); supports faculty evaluation and development funds (professional development plans); supports departmental instructional and faculty development projects; coordinates faculty convocations, orientations, and honors ceremonies; maintains a faculty development resource and conference room (Kuykendall 106) available to faculty and departments; coordinates a faculty mentoring program; and provides direction and supervision for its subunit centers (Center for Teaching Excellence, Center for Instructional Support, and Faculty Mentoring Program).

Industrial Relations Center

Sinclair 301
2425 Campus Road
Honolulu, HI 96822
Tel: (808) 956-8132
(808) 956-8165
Fax: (808) 956-3609
E-mail: uhirc@hawaii.edu

The Industrial Relations Center (IRC) seeks to promote understanding of industrial relations and human resources development problems, techniques, and policies. Organized to facilitate University research and instruction in the disciplines and professions related to industrial relations, the center also serves labor, management, and the community as the link in a continuing dialogue, reporting on changes in the field. The center maintains a library for information services and current publications; provides reference service; conducts conferences, lectures, and group discussions; and assists in the training of

students and practitioners in the field. Research studies in industrial relations problems are conducted and published by the center.

Information Technology Services

Help Desk Location: Keller Hall 105
 Help Desk Tel: (808) 956-8883
 Help Desk E-mail: help@hawaii.edu
 Web: www.hawaii.edu/infotech
 ITS Director Tel: (808) 956-3501
 Fax: (808) 956-5025

Information Technology Services (ITS) provides support for academic computing, management information systems, networking, telephony, teleconferencing and distance learning technologies for the UH Mānoa campus and the UH system. ITS provides and supports a wide array of hardware, software, networks and services to meet these objectives. ITS' infrastructure includes central servers and services, local and wide area networks, a large voice communications system, and several statewide video and teleconferencing systems to provide distance education services. In addition, ITS develops, operates and maintains the University's institutional administrative information systems.

Specific ITS services include: electronic mail, Web hosting services, internet access, host-based software services, software site license programs, computer labs for students, a Digital Media Center for faculty, technical documentation, telephone services, voice mail, and a number of types of teleconferencing support. ITS also offers short courses and professional development activities for faculty and staff. All University students, faculty and staff can obtain access to the internet and UH computing resources through ITS. The ITS Help Desk provides technical support and a single point of contact for access to ITS services.

Office of International Affairs

Physical Science Building 102-106
 2565 McCarthy Mall
 Honolulu, HI 96822
 Tel: (808) 956-6940
 Fax: (808) 956-5030
 E-mail: oia@hawaii.edu

The Office of International Affairs (OIA) supports international education endeavors on behalf of students, scholars and faculty throughout the ten campuses of the University of Hawai'i. OIA oversees the University's more than 100 international agreements and exchanges with partner institutions, primarily in the Asia-Pacific region. Additionally, OIA assists departments in inviting international scholars, researchers and faculty; facilitates system-wide immigration processing; conducts monthly scholar orientation; and supports departments' international efforts through the dissemination of information. Finally, OIA serves as a center for the exchange of information and the coordination of system-wide international student recruitment.

Laboratory Animal Service

Snyder 514
 2538 McCarthy Mall
 Honolulu, HI 96822
 Tel: (808) 956-8770
 Fax: (808) 956-4448

The Laboratory Animal Service (LAS) is the support unit responsible for administering the Animal Care and Use Program for vertebrate animals used in research, training and testing at the University of Hawai'i. In addition to administering the System-wide Animal Care and Use Program, LAS also operates biomedical animal research facilities on the UH, Mānoa campus. The Program administered through LAS is managed in accord with the *Guide for Care and Use of Laboratory Animals*, and in compliance with all federal, state, and local laws and regulations such as the Animal Welfare Regulations (AWR) and the National Institutes of Health Public Health Service (PHS) Policy on Humane Care and Use of Animals.

The AWR and PHS Policy require institutions to ensure that people caring for or using animals are qualified to do so. LAS provides instruction to UH investigators, staff, students, and visiting researchers on the humane care and use of animals. In addition, an occupational health and safety program is part of the System-wide Animal Care and Use Program.

The Institutional Animal Care and Use Committee (IACUC) is responsible for the oversight and evaluation of the Animal Care and Use Program and its components. The committee is composed of veterinarians, biological and non-biological scientists, and local community representatives, who review animal use protocols, inspect facilities, evaluate animal use programs, investigate concerns involving alleged noncompliance, and deal with issues concerning humane care and use of animals.

Harold L. Lyon Arboretum

3860 Mānoa Road
 Honolulu, HI 96822
 Tel: (808) 988-0456
 Fax: (808) 988-0462

The Harold L. Lyon Arboretum facilitates and conducts research, instruction, and public service in tropical biology and horticulture. Located on a 194-acre site in upper Mānoa valley are greenhouses, laboratories, classrooms, and an herbarium. The arboretum also houses living plant collections, comprising about 15,000 accessions that encompass more than 6,000 species, varieties, and cultivars. It is the only university arboretum in the U.S. located in a tropical rainforest, and it has one of the largest collections of palms of any botanical garden in the world. Other major collections include tropical trees, heliconias, gingers, aroids, and tis. Emphasis is placed on native Hawaiian plants, including research on propagation and restoration of endangered species, on restoration of Hawaiian ecosystems, and on ethnobotany of the Hawaiian Islands. The arboretum sponsors and publishes the Harold L. Lyon Arboretum Lectures.

Spark M. Matsunaga Institute for Peace

Saunders Hall 717
 2424 Maile Way
 Honolulu, HI 96822
 Tel: (808) 956-7427
 MIP Fax: (808) 956-5708
 PCR Fax: (808) 956-9121
 E-mail: uhip@hawaii.edu
 Web: www2.soc.hawaii.edu/peace

The Spark M. Matsunaga Institute for Peace is an academic community designed to develop and share knowledge about the conditions of peace and the use of nonviolent means for resolving conflicts. The institute is committed to improving education in peace studies; undertaking peace research and peace teaching; participating with community groups active in peace and conflict resolution; and publishing scholarly and creative works on peace in all media. The institute's programs include the Program on Conflict Resolution, engaged in the identification, prevention, and resolution of conflicts; the Program on Nonviolence, engaged in the research and practice of nonviolence; the UH Mediation Service, engaged in dispute resolution within the University community; and the Institute for Peace Resource Center, which contains a collection of peace and conflict resolution books, journals, and videos. The institute gives special attention to issues of peace in the Asia Pacific region. For further information on its educational programs, see the "Colleges of Arts and Sciences" section within this Catalog.

Pacific Biomedical Research Center

Pacific Biomedical Research Center 215
 1993 East-West Road
 Honolulu, HI 96822
 Tel: (808) 956-7401
 Fax: (808) 956-4768

The Pacific Biomedical Research Center (PBRC) conducts interdisciplinary research in cellular, developmental and molecular biology; Hawaiian evolutionary biology and conservation; neuro-behavioral biology; retrovirology; biotechnology; molecular endocrinology; and pathobiology of the extracellular matrix. It maintains core facilities in molecular biology and electron microscopy; fosters undergraduate research for minority students (Minority Access to Research Careers, Minority Biomedical Research Support and National Science Foundation-Undergraduate Mentoring in Environmental Biology); and maintains the Kewalo Marine Laboratory, the Békésy Laboratory of Neurobiology, the Retrovirology Research Laboratory, and the Center for Conservation Research and Training. The institute also supports, in collaboration with the John A. Burns School of Medicine (JABSOM), a series of programs supporting junior faculty research development. These programs include the Research Centers in Minority Institutions (RCMI) award, the Center for Clinical Research Excellence (CCRE) award, the Specialized Neuroscience Research Program (SNRP), and its separate AIDS-SNRP

offshoot, specializing in neurological effects of HIV infection, also, a Center of Biomedical Research Excellence (COBRE) award. PBRC and JABSOM additionally collaborate with Kapi'olani Health Research Institute, to support a Clinical Research Center located at the Kapi'olani Medical Center for Women and Children. Finally, PBRC and JABSOM are cooperating in administration of a Biomedical Research Infrastructure Network (BRIN) award aimed to increase NIH funding for biomedical research carried out in Hawai'i.

Social Science Research Institute

Saunders Hall 704
 2424 Maile Way
 Honolulu, HI 96822
 Tel: (808) 956-8930
 Fax: (808) 956-2884

The Social Science Research Institute (SSRI) facilitates and supports interdisciplinary, applied research that addresses critical, social, environmental, and economic problems primarily in Hawai'i and the Asia Pacific region. This is done through collaboration with faculty and students throughout the University of Hawai'i and with other educational and research institutions, regional and international organizations, the private sector, and federal, state, and county agencies. It is supported largely by contracts and grants from public agencies and private organizations.

SSRI serves as the sponsored research division of the College of Social Sciences. SSRI provides practical experience to students at the University of Hawai'i through involvement in research, planning, and training projects. SSRI's staff assists county, state, and federal agencies and local community groups in Hawai'i with training and technical assistance. SSRI is also working with instructional units to integrate SSRI's research efforts into courses offered at the University of Hawai'i.

The institute is currently working in five problem areas: crime, drug abuse, youth problems, and poverty; resources, sustainable development, and futures research; telecommunication and information policy; culture, language and social problems; and health services and health policy. SSRI also cooperatively manages the UH Economic Research Organization (UHERO) with the Department of Economics and the Globalization Research Center.

University of Hawai'i Press

2840 Kolowalu Street
 Honolulu, HI 96822
 Tel: (808) 956-8257
 Fax: (808) 988-6052

University of Hawai'i Press publishes and distributes books and journals of high merit that reflect the regional or special interests and responsibilities of the University and other scholarly research organizations. All titles carry the imprint "University of Hawai'i Press." UH Press is a member of the Association of American University Presses, the Association of American Publishers, the Society for Scholarly Publishing,

Hawai'i Book Publishers Association, and the International Association of Scholarly Publishers. UH Press publishes books of regional interest, scholarly monographs, textbooks, and scholarly journals. (UH Press also operates a sales program—East-West Export Books—in Asia and the Pacific on behalf of American scholarly publishers.) Editorial control (final approval of manuscripts) is vested in a board made up of University of Hawai'i faculty members appointed by the senior vice chancellor for academic affairs. Faculty members are encouraged to submit book-length manuscripts to the executive editor. Journal papers should be submitted to the editor-in-chief of the appropriate journal.

Waikiki Aquarium

2777 Kalākaua Avenue
Honolulu, HI 96815
Tel: (808) 923-9741
Fax: (808) 923-1771
E-mail: webmaster@www.waquarium.hawaii.org
Web: waquarium.mic.hawaii.edu/

Waikiki Aquarium displays more than 2,500 specimens representing over 400 vertebrate and invertebrate species. The exhibits focus primarily on coral reefs and feature up-close experiences at the “Edge of the Reef” outdoor exhibit, educational talks about the Hawaiian Monk Seal, and other interpretive presentations. An audio tour provides additional information about exhibits. The Aquarium also offers a marine education program with classes, workshops, school tours, and a

lecture series on marine science. Research activities include Coral propagation, shark biology, larval studies and the reproduction of cuttles and the chambered nautilus. The aquarium is open to the public from 9 a.m. to 5 p.m. daily, except Christmas.

Water Resources Research Center

Holmes 283
2540 Dole Street
Honolulu, HI 96822
Tel: (808) 956-7847
Fax: (808) 956-5044
Web: www2.hawaii.edu/~WRRRC/WRRRC.html

Water Resources Research Center (WRRRC) conducts research on Hawai'i's water resources, assists and promotes instruction in water resources in several academic departments, provides training opportunities for engineers and scientists through research, and communicates research results to users. Interdisciplinary research is broadly based in physical and biological sciences, technology, ecology, and social sciences. The research encompasses hydrology and hydraulic engineering, geology, geophysics and geochemistry, microbiology, chemistry, zoology, oceanography, sanitary engineering and public health, climatology and soil physics, agricultural engineering and forestry, and socioeconomic and legal issues. WRRRC operates laboratories and field research facilities. The Environmental Center, whose mission is to focus on ecological relationships, natural resources, and environmental quality, is administered by WRRRC.

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Nursing and Dental Hygiene

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*MAGNUSSEN, Lois, Director of Student Services

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Travel Industry Management

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Tropical Agriculture and Human Resources

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*Brennan, Barry M., Associate Dean/Associate Director of Cooperative Extension Services

Faculty

Key to Abbreviations

CRCH - Cancer Research Center of Hawai'i
CRDG - Curriculum Research and Development Group
HIGP - Hawai'i Institute of Geophysics and Planetology
HIMB - Hawai'i Institute of Marine Biology
CTAHR - College of Tropical Agriculture and Human Resources
HNEI - Hawai'i Natural Energy Institute
HSGCP - Hawai'i Space Grant College Program
HURL - Hawai'i Undersea Research Lab
IRC - Industrial Relations Center
IFA - Institute for Astronomy
IPRC - International Pacific Research Center
IRTF - Infrared Telescope Facility
JABSOM - John A. Burns School of Medicine
JIMAR - Joint Institute for Marine and Atmospheric Research
OFDAS - Office of Faculty Development and Academic Support
PBRC - Pacific Biomedical Research Center
PMP - Pacific Mapping Program
SGCP - Sea Grant College Program
SOEST - School of Ocean and Earth Science and Technology
SSRI - Social Science Research Institute
WRRC - Water Resources Research Center

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Bob Y. K. Wong Visiting Professor in Civil and Environmental Engineering, funded by the late Bob Y. K. Wong.

A

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- ANDERSON, Kristen, Librarian III, University Libraries; BS 1983, Montana; MLIS 1990, Hawai'i
- ANDERSON, Marsha P., Assistant Dean, Office of Student Academic Services, College of Business Administration; BA 1964, Duke; MA 1970, Michigan; MBA 1984, Hawai'i
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BOGGS, Stephen T., Emeritus Professor of Anthropology; AB 1947, Harvard; PhD 1954, Washington U

BOTSAL, Elmer E., Emeritus Professor of Architecture; AB 1954, UC Berkeley; ArchD 2000, Hawai'i

BOTTICELLI, Max G., Emeritus Professor of Medicine; MD 1956, Wayne State

BOUSLOG, Charles S., Emeritus Professor of English; BA 1934, Indiana; MA 1948, PhD 1951, Harvard

BOWMAN, Addison M., Emeritus Professor of Law; AB 1957, Dartmouth; LLB 1963, Fairleigh Dickinson; LLM 1964, Georgetown

BOYER, William H., Emeritus Professor of Education; BA 1948, Oregon; MEd 1952, Colorado; EdD 1956, Arizona State

BRANDON, James R., Emeritus Professor of Theatre and Dance; PhB 1948, MS 1949, PhD 1955, Wisconsin; Regents' Medal for Excellence in Research, 1977; Fujio Matsuda Scholar, 1991; Uchimura Prize, International Theatre Institute, UNESCO, 1996

BRANTLEY, L. Reed, Emeritus Professor of Education; AB 1927, UCLA; MS 1929, PhD 1930, CIT

BRAUN, Frederick G., Emeritus Professor of Education; BA 1949, MEd 1954, EdD 1962, UCLA

BRENEMAN, Lucille, Emeritus Professor of Speech; BA 1935, Baylor; MA 1949, Hawai'i

BRETSCHNEIDER, Charles L., Emeritus Professor of Ocean and Resources Engineering; BS 1947, Hillsdale College; MS 1950, UC Berkeley; PhD 1959, Texas A&M

BROOKS, Coy C., Emeritus Animal Scientist; BS 1942, Arkansas; MS 1949, PhD 1954, Missouri

BUCHELE, Robert B., Emeritus Professor of Management; AB 1938, Columbia; MBA 1943, Harvard; PhD 1952, Chicago

BULLOCK, Richard M., Emeritus Professor of and Researcher in Tropical Plant and Soil Science; BS 1940, Kansas State; MS 1942, PhD 1950, Washington State

BURGESS, John C., Emeritus Professor of Mechanical Engineering; ScB 1944, Brown; MS 1949, PhD 1955, Stanford

BURTON, Leon H., Emeritus Professor of Education, CRDG; BEd, 5-Yr Diploma 1956, Hawai'i; MA 1957, EdD 1963, Columbia

BUSHNELL, Kenneth W., Emeritus Professor of Art; BA 1956, UCLA; MFA 1961, Hawai'i

BUSHNELL, Oswald A., Emeritus Professor of Medical Microbiology and Medical History; BS 1934, Hawai'i; MS 1935, PhD 1937, Wisconsin

BUTLER Lucius A., Emeritus Professor of Education; BA 1952, Bethel; MRE 1954, Northern Baptist Seminary; BD 1955, Bethel Seminary; MA 1955, PhD 1968, Minnesota; MLS 1974, Hawai'i

C

CAMPBELL, Charles M., Emeritus Researcher of Animal Science, HITAHR; BS 1958, Texas A&M; MS 1960, Idaho; PhD 1964, Oklahoma State

CARSON, Hampton L., Emeritus Professor of Genetics; AB 1936, PhD 1943, Pennsylvania

CENCE, Robert J., Emeritus Professor of Physics; AB 1952, PhD 1959, UC Berkeley; Presidential Citation for Meritorious Teaching, 1991

CHANG, Jen Hu, Emeritus Professor of Geography and Climatology; BA 1949, Che Kiang; MA 1952, PhD 1954, Clark

CHANG, Thomas M. C., Emeritus Professor of Education; BA 1947, Hawai'i; MA 1950, Columbia; PhD 1957, Ohio State

CHAPPELL, David W., Emeritus Professor of Religion; BA 1961, Mt. Allison; BD 1965, McGill; PhD 1976, Yale

CHAR, Donald F. B., Emeritus Professor of and Specialist in Pediatrics, MD 1950, Temple

CHAR, Walter F., Emeritus Professor of Psychiatry; MD 1945, Temple

CHENG, Ping, Emeritus Professor of Mechanical Engineering; BS 1958, Oklahoma State; MS 1960, MIT; PhD 1965, Stanford; Fujio Matsuda Scholar, 1989

CHESNEY, Lee R., Jr., Emeritus Professor of Art; BFA 1946, Colorado; MFA 1948, Iowa

CHIU, Arthur N. L., Emeritus Professor of Civil Engineering; BA, BS 1952, Oregon State; SM 1953, MIT; PhD 1961, Florida; Regents' Medal for Excellence in Teaching, 1982

CHIU, Wan-Cheng, Emeritus Professor of Meteorology; BS 1941, National Central (China); MS 1947, PhD 1951, New York

CHOE, Yong-ho, Emeritus Professor of History; BA 1961, Arizona; MA 1963, PhD 1971, Chicago

CHOU, James C. S., Emeritus Professor of Mechanical Engineering; BS 1941, National Institute of Technology (China); MS 1949, Georgia Institute of Technology; PhD 1968, Oklahoma State

CHOU, Michaelyn P., Emeritus Librarian; BA 1954, MLS 1955, UC Berkeley; MA 1975, PhD 1980, Hawai'i

CHOU, Shao-Chia, Emeritus Professor of Pharmacology; BS 1943, West China Union; MS 1950, Nebraska; PhD 1958, Stanford

CHUI, Edward F., Emeritus Professor of HPE and Recreation; BS 1947, MA 1948, PhD 1964, Iowa

CHUNG, Chin S., Emeritus Professor of Public Health and Genetics; BS 1951, Oregon State; MS 1953, PhD 1957, Wisconsin

CLARK, Elizabeth W., Emeritus Professor of Public Health; BS 1950, Northwestern; MPH 1954, DrPH 1969, UC Berkeley

CLARK, Francis E., Emeritus Professor of Education; BS 1930, Northern State Teachers College; MS 1937, EdD 1948, Colorado

CLEVELAND, Harlan, Emeritus President and Professor of Political Science; degrees listed under "Former Presidents"

COLBY, Robert R., Emeritus Professor of Mathematics; BS 1960, MA 1963, PhD 1965, Washington

COLE, Robert E., Emeritus Professor of Psychology; BA 1961, Montana; MA 1963, PhD 1966, Hawai'i

COOIL, Bruce J., Emeritus Plant Physiologist; BS 1936, Washington State; MS 1939, Hawai'i; PhD 1947, UC Berkeley

COPI, Irving M., Emeritus Professor of Philosophy; BA 1939, Chicago; BA 1938, MS 1940, MS 1947, PhD 1948, Michigan

CORBIN, Donald A., Emeritus Professor of Accounting and Business Economics; BS 1942, MBA 1943, PhD 1945, UC Berkeley; CPA 1947, California

COTLAR, Morton, Emeritus Professor of Management and Industrial Relations; BSME 1950, MSAeroE 1955, Drexel; PhD 1969, Georgia

COWING, Cedric B., Emeritus Professor of History; BA 1948, MA 1950, Stanford; PhD 1956, Wisconsin-Madison

COX, Doak C., Emeritus Geophysicist; BS 1938, Hawai'i; MA 1941, PhD 1965, Harvard

CRAVEN, John P., Emeritus Professor of Ocean and Resources Engineering; BS 1946, Cornell; MS 1947, CIT; PhD 1951, Iowa; JD 1958, George Washington

CREAN, John E., Jr., Emeritus Professor of German; AB 1962, College of Holy Cross; MA 1964, PhD 1966, Yale

CREED, Walter G., Emeritus Professor of English; BA 1960, MA 1961, PhD 1968, Pennsylvania

CROWELL, David H., Emeritus Professor of Psychology; BS 1946, Drew; PhD 1950, Iowa

CURRIE, Edward M., Emeritus Professor of Accounting; BSc 1948, Iowa; MS 1965, PhD 1967, Minnesota; CMA 1973, Hawai'i

CURTIS, Delores M., Emeritus Professor of Education; BS 1951, Indiana State Teachers; MS 1957, EdD 1963, Illinois

D

DAEUFER, Carl J., Emeritus Professor of Education; BS 1953, Penn State Teachers (Kutztown); MEd 1955, Temple; EdD 1972, Florida

DALE, Verda M., Emeritus Specialist in Family and Consumer Sciences; BS 1938, Kansas State; MS 1950, Cornell; PhD 1968, Michigan State

DANIEL, L. Scott, Emeritus Professor of Engineering; BS 1945, Montana State

DAUER, Dorothea W., Emeritus Professor of German; Diploma 1937, Sorbonne; PhD 1953, Texas

DAVIDSON, Jack R., Emeritus Researcher of Agricultural and Resource Economics, HITAHR; BS 1953, Wyoming; MS 1956, Montana State; PhD 1960, UC Berkeley

DE FEO, Vincent J., Emeritus Professor of Anatomy and Reproductive Biology; BS 1949, Juniata College; MS 1951, Rutgers; PhD 1954, Ohio State; Regents' Medal for Excellence in Teaching, 1990

DE FRANCIS, John, Emeritus Professor of Chinese; BA 1933, Yale; MA 1941, PhD 1948, Columbia

DESJARLAIS, Mary Ellen, Emeritus Professor of Family and Consumer Sciences; BS 1940, MS 1963, Wisconsin; PhD 1977, Hawai'i

DESOWITZ, Robert S., Emeritus Professor of Tropical Medicine and Medical Microbiology; BA 1948, Buffalo; PhD 1951, DSc 1960, London; Regents' Medal for Excellence in Teaching, 1988

DINELL, Tom, Emeritus Professor of Urban and Regional Planning; AB 1948, Brown; MPA 1950, Michigan

DOLLAR, Alexander M., Emeritus Professor of Public Health; BS 1948; UC Berkeley; MS 1949, PhD 1958, Reading

DOUE, Stephen M., Emeritus Specialist in Agricultural Economics; BS 1947, MA 1959, Hawai'i

DOYLE, James R., Emeritus Professor of Surgery; BA 1954, La Sierra; MD 1958, UC San Francisco

DUBIN, Hazel, Emeritus Associate Professor of Nursing; BSN 1950, Washington D.C.; MEd 1962, Hawai'i; MN 1972, Seattle; PhD 1980, Florida

DUGAN, Gordon L., Emeritus Professor of Civil Engineering; BS 1959, MS 1964, Washington State; PhD 1970, UC Berkeley

DUNN-RANKIN, Peter, Emeritus Professor of Educational Psychology; BS 1953, MS 1954, Florida State; MA 1963, Louisiana State; EdD 1965, Florida State

E

ECKE, Betty Tseng Y. H., Emeritus Professor of Art; MS 1966, Hawai'i; PhD 1972, New York

EDGE, Alfred G., Emeritus Professor of Management and Industrial Relations; BS 1956, Rider College; MBA 1965, Denver; PhD 1972, Arkansas

EKERN, Paul C., Jr., Emeritus Professor of Agronomy and Soil Science, BA 1942, Westminster College; PhD 1950, Wisconsin

EL-RAMLY, Nabil, Emeritus Professor of Information Technology Management; BSc 1958, Cairo; MS 1962, Illinois Institute of Technology; PhD 1970, UCLA

ETHERINGTON, Alfred B., Emeritus Professor of Architecture; BArch 1947, Cornell; MA 1970, Hawai'i; MEP 1977, U of Philippines; MArch 1978, McGill; PhD 1984, Hawai'i

EVANS, John R., Emeritus Professor of Civil Engineering; BS 1941, MS 1947, Michigan State

EVERLY, Hubert V., Emeritus Professor of Education; BEd 1934, MEd 1938, Hawai'i; PhD 1946, Ohio State

EZER, Melvin, Emeritus Professor of Education, AB 1950, UC Berkeley; EdM 1951, Tufts; EdD 1961, Harvard

F

FINNEY, Ben R., Emeritus Professor of Anthropology; BA 1955, UC Berkeley; MA 1959, Hawai'i; PhD 1964, Harvard; Regents' Medal for Excellence in Research, 1997

FLEECE, Jeffrey, Emeritus Specialist, Continuing Education; BA 1941, Missouri; MA 1942, Vanderbilt; PhD 1952, Iowa

FLITTER, Hessel, Emeritus Professor of Nursing; BSN 1941, MA 1942, New York; EdD 1958, Pennsylvania

FOX, Joel S., Emeritus Professor of Mechanical Engineering; BS 1959, MS 1961, PhD 1966, Polytechnic Institute of Brooklyn

FOX, Morton, Emeritus Professor of Travel Industry Management; BS 1953, MS 1965, Maryland; DrEng 1980, Karlsruhe (Germany)

FOX, Robert L., Emeritus Professor of Soil Science; BS 1948, MA 1950, PhD 1955, Missouri

FRANK, Hilmer A., Emeritus Food Technologist, Human Nutrition, Food, and Animal Sciences; BA 1949, Minnesota; MS 1952, PhD 1954, Washington State

FREITAS, Lewis P., Emeritus Professor of Finance; AB 1957, Harvard, MBA 1959, PhD 1966, Columbia

FRIEDSON, Anthony M., Emeritus Professor of English; AB 1951, Simpson College; MA 1954, PhD 1960, Iowa

FRIEND, Douglas J. C., Emeritus Professor of Botany; BSc 1950, PhD 1953, London

FRIERSON, James W., Emeritus Professor of English; BA 1929, LLB 1933, Tulane; PhD 1953, Stanford

FRYER, Donald W., Emeritus Professor of Geography and Asian Studies; BSc 1941, MSc 1942, London School of Economics; PhD 1958, London

FUCHS, Roland J., Emeritus Professor of Geography; BA 1954, Columbia; MA 1957, PhD 1959, Clark

FUJIOKA, Norito, Emeritus Associate Professor of Japanese; BA 1948, MA 1952, Hawai'i

FUJITANI, Shigeaki, Emeritus Specialist in Student Development; BA 1955, Hawai'i; MA 1957, New York; PhD 1968, Utah

FULTZ, Jane N., Emeritus Professor of Education; BEd 1938, Hawai'i; MA 1939, Ohio State; EdD 1966, New York

FURER, Gloria S., Emeritus Professor of Family and Consumer Sciences; BS 1945, Michigan St; MEd 1964, Hawai'i

FURTICK, William R., Emeritus Professor of Agronomy and Soil Science; BS 1949, Kansas State; MS 1952, PhD 1958, Oregon State

FURUMOTO, Augustine S., Emeritus Professor of Geology and Geophysics; BS 1949, U of Dayton; MS 1955, U of Tokyo; PhD 1961, St. Louis U

FURUNO, Setsu, Emeritus Professor of Public Health; BEd 1941, Hawai'i; MSPH 1949, Columbia; PhD 1960, New York

G

GEE, Chuck Y., Emeritus Dean of Travel Industry Management, BA 1957, BS 1957, Denver; MA 1958, Michigan State; PhD (Hon) 1991, Denver

GEORGE, Dorothy, Emeritus Professor of English; BA 1936, Louisiana State Normal; MA 1937, PhD 1950, Louisiana State

GERRITSEN, Franciscus, Emeritus Professor of Ocean and Resources Engineering; Candidaatsexamen, 1948, Ingenieursdiploma, 1950, Technological U Delft (Netherlands); DrTech 1981, Trondheim (Norway)

GETHING, Thomas W., Emeritus Professor of Southeast Asian Languages; BA 1961, MA 1963, PhD 1966, Michigan

GHALLI, Moheb A., Emeritus Professor of Economics; BCom 1959, Cairo; MA 1962, UC Berkeley; PhD 1967, Washington

GILBERT, Helen O., Emeritus Professor of Art; BA 1943, Mills College; MFA 1968, Hawai'i

GILSON, Thomas Q., Emeritus Professor of Management and Industrial Relations; BA 1938, Princeton; MA 1942, Columbia; PhD 1954, MIT

GITLIN, Harris M., Emeritus Specialist In Agricultural Engineering; BS 1940, BA AgrEngr 1941, Ohio State; MS 1962, Michigan State

GO, Mateo L. P., Emeritus Professor of Civil Engineering; SMCE 1943, MIT; BCE 1942, PhD 1946, Cornell

GOCHROS, Harvey L., Emeritus Professor of Social Work; AB 1953, Bridgeport; MS 1955, DSW 1964, Columbia; Regents' Medal for Excellence in Teaching, 1999

GOFF, Madison L., Professor of and Researcher in Plant and Environmental Protection Sciences, CTAHR; BA 1966, Hawai'i; MA 1974, Cal State, Long Beach; PhD 1977, Hawai'i

GOLDEN, William P., Jr., Emeritus Professor of Public Health; AB 1937, San Francisco; MA 1941, PhD 1951, UC Berkeley

GOODMAN, Lenn E., Emeritus Professor of Philosophy; BA 1965, Harvard; DPhil 1968, Oxford

GOODRIDGE, Robert C., Emeritus Specialist in Student Affairs; BA 1937, Denison; MEd 1950, EdD 1953, Buffalo

GORTER, Wytze, Emeritus Professor of Economics; AB 1936, PhD 1948, Stanford

GOSLINE, William A., Emeritus Professor of Zoology; BS 1938, Harvard; PhD 1941, Stanford

GRACE, George W., Emeritus Professor of Linguistics; Licence 1948, Geneva; PhD 1958, Columbia

GREEN, Richard E., Emeritus Soil Scientist; BS 1953, Colorado State; MS 1957, Nebraska; PhD 1962, Iowa State

GREENBERG, Marvin, Emeritus Professor of Music; BS 1957, NYU; MA 1958, EdD 1962, Columbia; Presidential Citation for Meritorious Teaching, 1988

GROSSMAN, Jerome, Emeritus Professor of Public Health; BA 1945, MPH 1946, PhD 1954, UC Berkeley

GULBRANDSEN, Christian L., Emeritus Professor of Medicine; BS 1960, MD 1963, Wisconsin

GURIAN, Jay Paul, Emeritus Professor of American Studies; BA 1951, Syracuse; MA 1957, Hawai'i; PhD 1962, Minnesota

H

HAAK, John R., Emeritus University Librarian; BA 1961, MLS 1962, UC Berkeley

HADLICH, Roger L., Emeritus Professor of Spanish; BA 1951, Yale; MA 1957, Middlebury; PhD 1961, Michigan

HALE, Ralph W., Emeritus Professor of Obstetrics and Gynecology; BS 1957, MD 1960, Illinois

HALEY, Samuel R., Emeritus Professor of Zoology; BA 1962, MA 1964, PhD 1967, Texas-Austin; Presidential Citation for Meritorious Teaching, 1986; Regents' Medal for Excellence in Teaching, 1990; CASE Hawai'i Professor of the year, 1990

HALL, John B., Emeritus Professor of Microbiology; AB 1957, Kansas; PhD 1960, UC Berkeley

HALVERSON, Vivian B., Emeritus Specialist of Student Affairs; BS 1964, Brigham Young; MS 1967, Purdue; PhD 1978, Florida State

HAMADA, Harold S., Emeritus Professor of Civil Engineering; BS 1957, Hawai'i; MS 1958, PhD 1962, Illinois

HAMILTON, Richard A., Emeritus Professor and Researcher in Tropical Plant and Soil Science; BS 1937, North Dakota Agricultural; MA 1940, Ohio State; PhD 1953, Minnesota

HAMMAR, Sherrel L., Emeritus Professor of Pediatrics; BA 1953, Idaho; MD 1957, Washington

HANKIN, Jean, Emeritus Professor of the Cancer Research Center of Hawai'i; BA 1945, Milwaukee-Downer College; MS 1954, U of Tennessee; MPH 1963, DrPH 1966, UC Berkeley

HARAMOTO, Frank H., Emeritus Professor of Plant and Environmental Protection Sciences; BS 1949, MS 1953, PhD 1964, Hawai'i

HARDY, D. Elmo, Emeritus Senior Professor of Plant and Environmental Protection Sciences; BA 1937, Brigham Young; PhD 1941, Kansas

HARRELL, Gertrude P., Emeritus Specialist, Cooperative Extension Service; BS 1927, Georgia State College; MA 1949, Columbia

HARMS, L. Stanley, Emeritus Professor of Communication; BA 1955, Florida; MA 1957, PhD 1959, Ohio State

HAYES, Eloise D., Emeritus Professor of Education; BEd 1939, Minnesota State Teachers College (St. Cloud); MA 1951, PhD 1953, North Carolina

HAZAMA, Dorothy O., Emeritus Professor of Education; BEd 1952, Hawai'i; MA 1955, New York; EdD 1981, Nova

HEINBERG, Paul J., Emeritus Professor of Communications; BS 1949, MA 1950, Columbia; PhD 1956, Iowa

HELFRICH, Philip, Emeritus Director, HIMB; BS 1951, Santa Clara; PhD 1958, Hawai'i

HELSELEY, Charles E., Emeritus Researcher of Geology and Geophysics; BS 1956, MS 1957, California Institute of Technology; PhD 1960, Princeton

HENKE, Burton L., Emeritus Professor of Physics; AB 1944, Miami (Ohio); MS 1946, PhD 1953, CIT

HERBIG, George, Emeritus Astronomer in IFA; PhD 1948, UC Berkeley

HERRICK, Orpha E., Emeritus Professor of Family and Consumer Sciences; BS 1949, Northwestern State; MS 1954, Wisconsin

HIGAKI, Tadashi, Emeritus Professor and Researcher in Tropical Plant and Soil Science; BS 1958, MS 1961, Hawai'i; PhD 1976, Michigan State

HINES, Robert S., Emeritus Professor of Music; BS 1952, Juilliard; MM 1956, Michigan

HINZE, Richard H., Emeritus Researcher in Education; BA 1947, MA 1952, EdD 1957, Stanford

HIROSHIGE, Herbert M., Emeritus Specialist in Agricultural Economics; BS 1934, UC Berkeley; MA 1950, Hawai'i

HOGE, Phyllis T., Emeritus Professor of English; BA 1948, Connecticut College; MA 1949, Duke; PhD 1958, Wisconsin

HOLLINGSHEAD, Virginia, Emeritus Professor of English; BS 1949, Pittsburgh; MS 1951, Hawai'i; PhD 1960, Washington

HOLMES, John R., Emeritus Professor of Physics; AB 1938, MA 1941, PhD 1942, UC Berkeley

HOLTON, James S., Emeritus Professor of Spanish; BA 1948, San Diego State; MA 1951, PhD 1956, UC Berkeley

HOLTZMANN, Oliver V., Emeritus Professor of and Researcher and Specialist in Plant and Environmental Protection Sciences; BS 1950, MS 1952, Colorado State; PhD 1955, Washington State

HONG, Pihl-Whoon, Emeritus Professor of Surgery; MB 1942, Severance U (Seoul); MD 1961, Yonsei

HOOK, Ralph C., Jr., Emeritus Professor of Marketing; BA 1947, MA 1948, Missouri-Columbia; PhD 1954, Texas-Austin

HORAN, Claude F., Emeritus Professor of Art; BA 1942, San Jose State; MA 1946, Ohio State

HORI, Ted M., Emeritus County Extension Agent, HITAHR; BS 1955, MS 1977, Hawai'i

HOWARD, S. Alan, Emeritus Professor of Anthropology; BA 1955, MA 1958, PhD 1962, Stanford

HSIA, Yujen E., Emeritus Professor of Cell and Molecular Biology; BA 1953, MA 1957, MD 1960, London Hospital Medical College

HUGH, Williams I., Emeritus Professor of Animal Science; BSA 1949, British Columbia; MS 1951, PhD 1955, Minnesota

HUNG, Fred C., Emeritus Professor of Economics; BA 1947, St John's (China); PhD 1955, Washington

HUNT, John A., Emeritus Professor of Cell and Molecular Biology; BA 1956, PhD 1960, Cambridge

HUNTSBERRY, William E., Emeritus Professor of English; BA 1942, Michigan State Normal; MA 1949, Hawai'i

HYLIN, John W., Emeritus Professor of Molecular Biosciences and Biosystems Engineering; BA 1950, Marietta; MS 1953, Purdue; PhD 1957, Columbia

I

IAMS, Ruth W., Emeritus Specialist in Counseling and Testing; PhD 1933, Chicago; MA 1952, Hawai'i

IGE, Thomas H., Emeritus Professor of Business Economics and Quantitative Methods; BA 1940, Hawai'i; MA 1942, PhD 1950, Wisconsin

IHARA, Teruo, Emeritus Professor of Education; BS 1940, Hawai'i; MA 1949, PhD 1959, Ohio State

IHRIG, Judson L., Emeritus Professor of Chemistry; BS 1949, Haverford; MA 1951, PhD 1952, Princeton

IKEDA, Hiroko, Emeritus Professor of Japanese Literature; BS 1936, Tokyo Joshi Daigaku; PhD 1956, Indiana

IKEDA, Kiyoshi, Emeritus Professor of Sociology; BA 1950, MA 1955, Hawai'i; PhD 1959, Northwestern

IN, Andrew W. S., Emeritus Dean, College of Education, and Emeritus Professor of Education; BEd 1941, Hawai'i; MA 1949, PhD 1951, New York

INSKEEP, Richard G., Emeritus Professor of Chemistry; BA 1944, Miami; MS 1947, PhD 1949, Illinois

IZUTSU, Satoru, Emeritus Professor of Psychiatry and Public Health; BA 1950, Hawai'i; MA 1955, Columbia; PhD 1963, Case Western Reserve

J

JACKSON, Ernest A., Emeritus Professor of European Languages; BA 1948, Boston; MA 1951, Yale; PhD 1962, Michigan

JACKSON, Miles M., Jr., Emeritus Professor of Library and Information Studies; BA 1955, Virginia Union; MSLS 1956, Drexel; PhD 1974, Syracuse

JACOBS, Roderick A., Emeritus Professor of Linguistics and Second Language Studies; BA 1956, London; EdM 1961, Harvard; MA 1970, PhD 1972, UC San Diego

JACOBSEN, Lyle E., Emeritus Professor of Accounting; BSc 1951, Dana College; MA 1955, Nebraska; CPA 1955, Nebraska; PhD 1958, Illinois

JAECKEL, Solomon P., Emeritus Professor of Education; BS 1935, Wayne State; MA 1963, EdD 1965, UCLA

JAMBOR, Harold A., Emeritus Professor of Social Work; BA 1935, Reed; MA 1939, Chicago; DSW 1963, USC

JEFFERIES, John T., Emeritus Professor of Physics and Astronomy; BS 1947, West Australia; MA 1949, Cambridge; DSc 1962, West Australia

JENNER, Philip N., Emeritus Professor of SE Asian Literature; BA 1946, Washington; PhD 1969, Hawai'i

JOHANSSON, Annette, Emeritus Professor of Music; BM 1955 Eastman; MM 1974, Hawai'i

JOHNSON, Nancy E., Emeritus Specialist in Human Nutrition, Food, and Animal Sciences, HITAHK; BS 1947, MS 1949, Iowa State; PhD 1969, Wisconsin-Madison

JOHNSON, Ronald C., Emeritus Professor of Psychology; BA 1949, Minnesota-Duluth; MA 1950, Denver; PhD 1959, Minnesota

JOHNSON, Rubellite K., Emeritus Professor of Hawaiian; BA 1954, Hawai'i

JONES, Jane H., Emeritus Specialist, Student Affairs; BA 1947, Colorado; MEd 1965, EdD 1967, Auburn

K

KALUPAHANA, David J., Emeritus Professor of Philosophy; BA 1959, MA 1961, Sri Lanka; PhD 1967, London

KAMEMOTO, Fred I., Emeritus Professor of Zoology; AB 1950, MS 1951, George Washington; PhD 1954, Purdue

KAMEMOTO, Haruyuki, Emeritus Professor and Researcher in Tropical Plant and Soil Science; BS 1944, MS 1947, Hawai'i; PhD 1950, Cornell

KAMINS, Robert M., Emeritus Professor of Economics; BA 1940, MA 1948, PhD 1950, Chicago

KANEHIRO, Yoshinori, Emeritus Professor of Soil Science; BS 1942, MS 1948, PhD 1964, Hawai'i

KANESHIGE, Edward, Emeritus Specialist, Student Affairs; BA 1950, Hawai'i; MA 1954, EdD 1959, Columbia

KASSEBAUM, Gene, Emeritus Professor of Sociology, AB 1951, Missouri, MA 1956, PhD 1958, Harvard

KAY, E. Alison, Emeritus Professor of Zoology; BA 1950, Mills College; BA 1952, MA 1956, Cambridge; PhD 1957, Hawai'i

KELLY, Marion, Emeritus Professor of Ethnic Studies; BA 1941, MA 1956, Hawai'i

KEPPEL, Anna M., Emeritus Professor of Education; BS 1945, La Crosse; MS 1954, PhD 1960, Wisconsin

KHAN, Mohammad A., Emeritus Professor of Geodesy, HIGP; BS 1957, MS 1963, Punjab (Pakistan); PhD 1967, Hawai'i

KIEFER, Edgar F., Emeritus Professor of Chemistry; BS 1957, Stanford; PhD 1961, CIT

KIMURA, Sueko, Emeritus Professor of Art; BA 1936, MFA 1959, Hawai'i

KINCH, Donald M., Emeritus Agricultural Engineer; BS 1938, Nebraska; MS 1940, Minnesota; PhD 1953, Michigan State

KINARIWALA, Bharat, Emeritus Professor of Electrical Engineering; BS 1950, Benares Hindu (India); MS 1954, PhD 1957, UC Berkeley

KIRTLEY, Bacil F., Emeritus Professor of English; BA 1949, MA 1951, Texas; PhD 1955, Indiana

KIYOSE, Gisaburo, Emeritus Professor of Japanese; BA 1954, Kyoto; PhD 1973, Indiana

KLEINFELD, Ruth G., Emeritus Professor of Anatomy and Reproductive Biology; BS 1949, Brooklyn College; MA 1951, Wisconsin; PhD 1953, Chicago

KLIMENKO, Michael, Emeritus Professor of Russian; BD 1955, Zurich; DrPhil 1957, Erlangen

KLOPF, Donald W., Emeritus Professor of Speech; BA 1953, MA 1955, Hawai'i; PhD 1958, Washington

KNOWLTON, Edgar C., Jr., Emeritus Professor of European Languages; BA 1941, MA 1942, Harvard; PhD 1959, Stanford

KODAMA, Arthur M., Emeritus Professor of Public Health; BA 1954, Washington; PhD 1963, MPH 1978, UC Berkeley; Presidential Citation for Meritorious Teaching, 1989

KOGA, Yoshi T., Emeritus Associate Professor of Dental Hygiene; BEd 1951, Hawai'i; MA 1953, Columbia

KOSAKI, Richard H., Emeritus Chancellor and Professor of Political Science; BA 1949, Hawai'i; MA 1952, PhD 1956, Minnesota

KOWALKE, Ronald L., Emeritus Professor of Art; BA 1959, Rockford College; MFA 1960, Cranbrook

KRAEMER, Hazel V., Emeritus Professor of Human Development; AB 1934, MA 1938, PhD 1945, UC Berkeley

KURREN, Oscar, Emeritus Professor of Social Work; BA 1943, MSW 1948, Pittsburgh; PhD 1967, Brandeis

KWOK, Daniel W. Y., Emeritus Professor of History; BA 1954, Brown; MA 1956, PhD 1959, Yale; Presidential Citation for Meritorious Teaching, 1988

L

LADD, Doris M., Emeritus Professor of History; AB 1955, MA 1956, 1964, PhD 1972, Stanford

LAGUNDIMAO, Clemente, Emeritus Professor of Art; BFA 1957, MFA 1975, Hawai'i

LAMLEY, Harry J., Emeritus Professor of History; BA 1953, Reed College; MA 1960, PhD 1964, Washington

LANG, Melvin, Emeritus Professor of Education; BS 1953, SUNY New Paltz; MA 1956, Columbia; EdD 1962, NYU

LANGHANS, Edward A., Emeritus Professor of Theatre and Dance; BA 1948, MA 1949, Rochester; MA 1951, Hawai'i; PhD 1955, Yale

LARSON, Harold O., Emeritus Professor of Chemistry; BS 1943, Wisconsin, MS 1947, Purdue; PhD 1950, Harvard

LAU, Kenneth K., Emeritus Professor of Business and Law; BA 1938, Hawai'i; JD 1941, Michigan; LLM 1951, Harvard

LAU, L. Stephen, Emeritus Professor of Civil Engineering; BS 1953, MS 1955, PhD 1959, UC Berkeley

LAURILA, Simo L., Emeritus Professor of Geodesy; BSc 1946, MSc 1948, PhD 1953, Finland Institute of Technology

LEBRA, Takie, Emeritus Professor of Anthropology; BA 1954, Gakushuin (Japan); MA 1960, PhD 1967, Pittsburgh; Fujio Matsuda Scholar, 1988

LEE, Peter H., Emeritus Professor of Korean Comparative Literature; BA 1951, College of St. Thomas; MA 1953, Yale; PhD 1958, Munchen

LEN, Eleanor, Emeritus Specialist of Career Services; BEd 1957, Hawai'i; MA 1958, Columbia; PhD 1979, Arizona State

LENZER, Anthony M., Emeritus Professor of Public Health; AB 1952, Antioch; PhD 1970, Michigan

LEONG, Yau Sing, Emeritus Professor of Business Economics and Quantitative Methods; BA 1924, Hawai'i; MA 1925, PhD 1933, Columbia

LETON, Donald A., Emeritus Professor of Education; BS 1947, Central State; MA 1949, PhD 1955, Minnesota

LEVI, Werner, Emeritus Professor of Political Science; JD 1934, Fribourg (Switzerland); MA 1943, PhD 1944, Minnesota

LEVY, Alfred J., Emeritus Professor of English; BA 1949, Clark; MA 1950, PhD 1957, Wisconsin

LIANG, Tung, Emeritus Professor and Researcher in Molecular Biosciences and Biosystems Engineering; BS 1956, Taiwan; MS 1963, Michigan State; PhD 1967, North Carolina State

LICHTON, Ira J., Emeritus Nutritionist; PhB 1947, Chicago; BS 1950, MS 1951, PhD 1954, Illinois

LIE, Harry K., Emeritus Professor of Business Economics and Management; BA 1950, Kongju National TC; BEc 1953, Yonsei; BS, BA, MA 1955, Missouri State; PhD 1969, Chuo

LIEBAN, Richard W., Emeritus Professor of Anthropology; BJ 1943, Missouri; MA 1951, PhD 1956, Columbia

LIN, Shu, Emeritus Professor of Electrical Engineering; BS 1959, National Taiwan U; MS 1964, PhD 1965, Rice

LINMAN, James W., Emeritus Professor of Medicine; BS 1945, MD 1947, Illinois

LINN, James R., Emeritus Professor of Speech; BA 1949, MA 1950, Alberta; MFA 1953, Hawai'i; PhD 1964, Southern California

LISTER, H. Lawrence, Emeritus Professor of Social Work; BA 1957, Willamette; MSW 1959, Washington; DSW 1971, Columbia

LO, Chin-Tang, Emeritus Professor of Chinese Literature; BA 1952, MA 1956, National Taiwan U; DLitt 1961, Ministry of Education, Rep. of China and National Normal (Taiwan)

LOCKE, Robert R., Emeritus Professor of History; BA 1956, PhD 1965, UCLA

LOSEY, George S., Emeritus Professor of Zoology; BS 1964, Miami; PhD 1968, UC San Diego

LOWE, Howard D., Emeritus Professor of Accounting and Finance; BS 1945, MS 1948, Brigham Young; CPA 1950, Utah; DBA 1957, Indiana

LUM, Bert K. B., Emeritus Professor of Pharmacology; BS 1951, PhD 1956, Michigan; MD 1960, Kansas

LUM, Jean L. J., Emeritus Professor of Nursing; BS 1960, Hawai'i; MS 1961, UC San Francisco; MA 1969, PhD 1972, Washington

LUM, Richard S., Emeritus Professor of Music; BEd 1951, Hawai'i; MMusEd 1953, Northwestern

LUNDEEN, Gerald W., Emeritus Professor of Library and Information Studies; BS 1959, Wisconsin; PhD 1965, Minnesota; AMLS 1972, Michigan

LUTZKY, Seymour E., Emeritus Professor of American Studies; BA, BJ 1942, Missouri; MS 1948, PhD 1951, Iowa

LYDDON, Paul W., Jr., Emeritus Professor of Music; BM 1954, Eastman School of Music; MM 1955, Illinois

M

MA, Yau-Woon, Emeritus Professor of Chinese Literature; BA 1965, Hong Kong; PhD 1971, Yale

MALTBY, Joseph, Emeritus Professor of English; BA 1952, MA 1957, Stanford; PhD 1963, Wisconsin

MAMIYA, Richard T., Emeritus Professor of Surgery; BS 1950, Hawai'i; MD 1954, St. Louis

MARETZKI, Thomas W., Emeritus Professor of Allied Medical Science and Anthropology; BA 1951, Hawai'i; PhD 1957, Yale

MARK, Shelley M., Emeritus Researcher of Agricultural and Resource Economics; BA 1943, Washington; MS 1944, Columbia; PhD 1956, Washington

MARTIN, Robert B., Emeritus Citizen's Professor of English; AB 1943, Iowa; AM 1947, Harvard; BLitt 1950, Oxford

MARUTANI, Herbert K., Emeritus Specialist in Agricultural Economics; BBA 1953, MA 1958, Illinois; PhD 1970, Hawai'i

MASON, Leonard E., Emeritus Professor of Anthropology; BA 1935, MA 1941, Minnesota; PhD 1955, Yale

- MASON, Richard G., Emeritus Professor of Drama and Theatre; BA 1950, Swarthmore; MFA 1953, Yale
- MATSUDA, Fujio, Emeritus President and Professor of Civil Engineering; degrees listed under "Former Presidents"
- MATSUMOTO, Eleanor A., Emeritus Specialist in Family and Consumer Sciences; BS 1941, Hawai'i; MS 1953, Columbia
- MATSUMOTO, Hiromu, Emeritus Biochemist in Molecular Biosciences and Biosystems Engineering, BS 1944, MS 1945, Hawai'i; PhD 1955, Purdue
- MATSUO, Dorothy I., Emeritus Director and Specialist, Student Affairs; BS 1950, MPH 1970, EdD 1982, Hawai'i
- MAURER, Walter H., Professor of Sanskrit; BA 1943, Vermont; PhD 1962, Pennsylvania State
- McCARDLE, H. Roy, Emeritus Specialist in Student Development; BS 1941, Columbia; MBA 1962, Hawai'i; EdD 1972, New Mexico
- McCARTHY, Harold E., Emeritus Professor of Philosophy; BA 1937, MA 1942, PhD 1947, UC Berkeley; Regents' Medal for Excellence in Teaching, 1965
- McCUTCHEON, Elizabeth N., Emeritus Professor of English; BA 1954, William Smith; MA 1956, PhD 1961, Wisconsin
- McCUTCHEON, James M., Emeritus Professor of History and American Studies; BA 1954, Hobart; MS 1955, PhD 1959, Wisconsin
- McDERMOTT, John F., Jr., Emeritus Professor of Psychiatry; AB 1951, Cornell; MD 1955, NYU Medical College
- MCKAUGHAN, Howard P., Emeritus Professor of Linguistics; BA 1945, UCLA; MTh 1946, Dallas Theological Seminary; MA 1952, PhD 1957, Cornell
- McKAY, R. Neil, Emeritus Professor of Music; BA 1953, Western Ontario; MA 1955, PhD 1956, Eastman School of Music
- MCVAY, Harue O., Emeritus Professor of Art; BA 1950, Hawai'i; MA 1951, Ohio State
- MELENDY, H. Brett, Emeritus Professor of History; AB 1946, MA 1948, PhD 1952, Stanford
- MERRITT, Fred C., Emeritus Professor of Social Work; BA 1941, Montana State; MSW 1949, Denver; DSW 1970, Case Western Reserve
- MI, Ming-Pi, Emeritus Professor of Genetics and Molecular Biology; BS 1954, National Taiwan U; MS 1959, PhD 1963, Wisconsin
- MICHAEL, Jerrold M., Emeritus Professor of Public Health; BCE 1949, George Washington; MSE 1950, Johns Hopkins; MPH 1957, UC Berkeley; DrPH (Hon) 1983, Mahidol (Thailand); ScD (Hon) 1984, Tulane
- MIKLIUS, Walter, Emeritus Professor of Economics; BA 1958, Cal State Los Angeles; MA 1960, PhD 1964, UCLA
- MILLER, Richard S., Emeritus Professor of Law; BS 1951, BA 1951, JD 1956, Boston; LLM 1959, Yale
- MIYAHARA, Allen, Emeritus Extension Veterinarian, Animal Scientist; DVM 1954, MS 1960, Iowa State
- MIYAHARA, James T., Emeritus Professor of Pharmacology; BS 1960, PhD 1966, Utah
- MIYAKE, Iwao, Emeritus Professor of Physics; BS 1926, MS 1929, Hawai'i
- MONTES, Matias, Emeritus Professor of Spanish; BA 1948, Havana Institute (Cuba); PhD in Pedagogy 1952, Havana
- MONTES, Yara, Emeritus Professor of Spanish; PhD in Philosophy and Letters 1955, Havana; PhD 1978, Pittsburg
- MOORE, Anneliese W., Emeritus Associate Professor of European Languages; BA 1958, Hawai'i; MA 1959, UC Berkeley
- MOORE, Cornelia N., Emeritus Professor of German and Dutch; BA 1966, MA 1966, Colorado; PhD 1971, Indiana
- MORISHIGE, Walter K., Emeritus Professor of Physiology; AB 1964, Missouri; MA 1967, PhD 1971, Rutgers; Presidential Citation for Meritorious Teaching
- MORIWAKI, Takeshi, Emeritus Associate Professor of Education; BA 1951, MA 1952, PhD 1962, Indiana
- MORRIS, James D., Emeritus Professor of Education; BS 1955, Northern State College; MA 1957, EdD 1961, North Dakota
- MORTON, Bruce E., Emeritus Professor of Biochemistry and Biophysics; BA 1960, La Sierra College; MS 1963, PhD 1965, Wisconsin
- MORTON, Newton E., Emeritus Professor of Genetics; BA 1951, Hawai'i; MS 1952, PhD 1955, Wisconsin
- MOSCOTTI, Albert D., Emeritus Professor of Asian Studies; BA 1942, New Jersey State Teachers College; MA 1947, Michigan; PhD 1950, Yale
- MOSER, Roy E., Emeritus Specialist of Food Technology; BS 1944, MS 1947, Massachusetts
- MUELLER-DOMBOIS, Dieter, Emeritus Professor of Botany; Diplom Landwirt 1951, Stuttgart-Hohenheim (Germany); BScF 1955, PhD 1960, British Columbia; Fujio Matsuda Scholar, 1988
- MUNCHMEYER, Frederick C., Emeritus Professor of Mechanical Engineering; BS 1942, Coast Guard Academy; MS 1948, MIT; PhD 1978, Michigan
- MURAKAMI, Takio, Emeritus Professor of Meteorology; DSc 1960, Tokyo
- MURDOCH, Charles L., Emeritus Professor of and Researcher in Tropical Plant and Soil Science; BS 1959, MS 1960, Arkansas; PhD 1966, Illinois
- MYTINGER, Robert E., Emeritus Professor of Public Health; BS 1948, DrPH 1965, UCLA

N

- NAGOSHI, Kunio, Emeritus Specialist, CCECS; BA 1953, MA 1954, Hawai'i
- NAGLEY, Winfield E., Emeritus Professor of Philosophy; BA 1940, Southern California; BD 1943, San Francisco Theological Seminary; PhD 1947, Southern California
- NAJITA, Kazutoshi, Emeritus Professor of Electrical Engineering; BS 1953, Illinois Institute of Technology; MS 1955, Brown; PhD 1969, Hawai'i
- NAKAGAWA, Yukio, Emeritus Specialist in Tropical Plant and Soil Science; BS 1940, Hawai'i
- NAKAMURA, Charlotte W., Emeritus Extension Agent, HITAHR; BS 1966, Hawai'i; MS 1968 Purdue
- NAKAMURA, Robert M., Emeritus Researcher of Animal Science, HITAHR; DVM 1959, Washington State; MS 1966, PhD 1967, Wisconsin
- NAKANO, Richard, Emeritus Extension Agent, HITAHR; BS 1962, MS 1964, Hawai'i
- NAKASATO, Masaru, Emeritus Specialist in Extension; BS 1951, Hawai'i; MS 1961, Oregon State
- NAMBA, Ryoji, Emeritus Professor of Plant and Environmental Protection Sciences; BS 1948, MS 1950, Michigan State; PhD 1953, Minnesota
- NELSON, Marita L., Emeritus Professor of Pathology; BS 1957, MS 1959, UCLA; PhD 1968, UC Berkeley
- NELSON, Torlef, Emeritus Professor of Education; BS 1942, MS 1947, Oregon; EdD 1952, Washington
- NEWBY, I. A., Emeritus Professor of History; BS 1951, Georgia Southern College; MA 1957, South Carolina; PhD 1962, UCLA
- NIEDZIELSKI, Henri, Emeritus Professor of French; BA 1959, MA 1963, PhD 1964, Connecticut
- NIELSEN, N. Norby, Emeritus Professor of Civil Engineering; MS 1954, Technical U of Denmark; PhD 1964, CIT; MBA 1985, Hawai'i
- NISHIDA, Toshiyuki, Emeritus Entomologist; BS 1941, MS 1947, Hawai'i; PhD 1953, UC Berkeley

O

- O'BRIEN, Ethel M., Emeritus Professor of Health and Physical Education; BA 1937, UC Berkeley; MEd 1950, Hawai'i; EdD 1958, Oregon
- O'BRIEN, John T., Emeritus Researcher in Ocean and Resources Engineering; BS 1935, Minnesota
- OLIVER, Douglas, Emeritus Pacific Islands Professor of Anthropology; BA 1934, Harvard; PhD 1935, U of Vienna
- OLSON, Marion E., Emeritus Professor of Nursing; BS 1953, Nebraska; MA 1961, MA 1962, Iowa; PhD 1966, UCLA
- OMPS, James R., Emeritus Professor of Accounting; BS 1951, Brigham Young; MLitt 1957, CPA 1958, West Virginia; PhD 1961, Pittsburgh
- OTAGAKI, Kenneth, Emeritus Animal Scientist; BA 1940, Hawai'i; MS 1946, Iowa; PhD 1954, UCLA
- OXFORD, Wayne H., Emeritus Professor of Speech; BA 1954, MA 1960, PhD 1969, UCLA

P

- PAIGE, Glenn D., Emeritus Professor of Political Science; BA 1955, Princeton; MA 1957, Harvard; PhD 1959, Northwestern
- PALAFIX, Anastacio L., Emeritus Poultry Scientist; BS 1940, MS 1941, Washington State; PhD 1970, Michigan State
- PALUMBO, Nicholas E., Emeritus Professor of Comparative Medicine; BS 1952, DVM 1959, Missouri
- PANG, Morris S. Y., Emeritus Professor of Education; BEd 1950, MEd 1962, Hawai'i; EdD 1968, Colorado State
- PARK, Chai Bin, Emeritus Professor of Public Health; MD 1949, Seoul National; MPH 1956, DrPH 1959, UC Berkeley
- PARK, Wesley T., Emeritus Dean, College of Continuing Education; BEd 1959, MEd 1963, Hawai'i
- PARVIN, Philip E., Emeritus Professor of and Researcher in Tropical Plant and Soil Science; BSA 1950, Florida; MS 1952, Mississippi State; PhD 1965, Michigan State
- PECSOK, Robert L., Emeritus Professor of Chemistry; SB 1940, PhD 1948, Harvard
- PETERSON, Frank L., Emeritus Professor of Geology and Geophysics; BA 1963, Cornell; MA 1965, PhD 1967, Stanford
- PETERSON, Richard E. Professor of Financial Economics and Institutions; AB 1954, Stanford; MA 1966, PhD 1972, UC Berkeley
- PETERSON, Vincent Z., Emeritus Professor of Physics; BA 1943, Pomona; PhD 1950, California
- PFUND, Rose T., Emeritus Specialist of Sea Grant College Program; BA 1951, MEd 1978, Hawai'i; PhD 1985, Pittsburgh
- PHILIPP, Perry F., Emeritus Researcher in Agricultural and Resource Economics; BS 1940, PhD 1951, UC Berkeley

PICARD, Anthony J., Emeritus Professor of Education; BS 1960, West Chester State College; MA 1962, Villanova; PhD 1967, Ohio State; Presidential Citation for Meritorious Teaching, 1993

PITTS, Forrest R., Emeritus Professor of Geography; BA 1948, MA 1949, PhD 1956, Michigan

PONG, William, Emeritus Professor of Physics; BS 1951, MS 1952, PhD 1954, Cincinnati

POTTER, Robert E., Emeritus Professor of Education; AB 1947, MEd 1948, Ohio; EdD 1954, Illinois

POWER, John H., Emeritus Professor of Economics; BA 1946, Washington; PhD 1955, Stanford

PREBLE, Duane, Emeritus Professor of Art; BA 1959, UCLA; MFA 1963, Hawai'i

Q-R

RAMAGE, Colin S., Emeritus Professor of Meteorology; BS 1940, Victoria UC (New Zealand); ScD 1961, New Zealand

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REEDER, Maurice M., Emeritus Professor of Surgery; BA 1954, Loyola College; MD 1958, Maryland

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RESIG, Johanna, Emeritus Researcher in Geology; BS 1954, MS 1956, Southern California; Dr rer nat 1965, Kiel (Germany)

RICHMAN, Eugene, Emeritus Professor of Management and Industrial Relations; BIndE 1942, Rensselaer Polytechnic; MAEdE 1949, DEngSc 1951, New York

RIDER, Richard L., Emeritus Professor of Communication; AB 1937, Nebraska; MFA 1947, Yale; PhD 1958, Illinois

RIGGS, Fred W., Emeritus Professor of Political Science; BA 1938, Illinois; MA 1941, Fletcher School; PhD 1948, Columbia

RODGERS, Theodore S., Emeritus Professor, CRDG; BA 1956, Amherst; MS 1961, Georgetown; PhD 1968, Stanford

ROGERS, Terence A., Emeritus Dean, School of Medicine, and Professor of Physiology; BS 1952, British Columbia; PhD 1955, UC Davis

ROSE, John C., Emeritus Professor of Geophysics; BS 1948, MS 1950, PhD 1955, Wisconsin

ROSEN, Leon, Emeritus Researcher; AB 1945, UC Berkeley; MD 1948, UC San Francisco; MPH 1950, UC Berkeley; DrPH 1953, Johns Hopkins

ROSENBERG, Morton M., Emeritus Senior Professor of Poultry Science; BS 1938, Rutgers; MS 1940, Texas A&M; PhD 1948, Wisconsin

ROSS, Ernest, Emeritus Professor and Researcher of Animal Science; BS 1946, Arizona; MS 1951, PhD 1955, Ohio

ROTAR, Peter, P., Emeritus Agronomist; BS 1955, MS 1957, Washington State; PhD 1960, Nebraska

RUMMEL, Rudolph J., Emeritus Professor of Political Science; BA 1959, MA 1961, Hawai'i; PhD 1963, Northwestern

RUSSELL, Armand K., Emeritus Professor of Music; BA 1953, MA 1954, Washington; DMA 1958, Eastman School; Presidential Citation for Meritorious Teaching, 1990

S

SAAKE, Alvin C., Emeritus Professor of Health, Physical Education and Recreation; BS 1937, Ithaca College; MA 1946, EdD 1954, New York

SADLER, James C., Emeritus Professor of Meteorology; BS 1941, Tennessee Polytechnic Institute; MS 1947, UCLA

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SAKAI, Robert K., Emeritus Professor of History; BA 1941, UC Berkeley; MA 1949, PhD 1953, Harvard

SAKUMA, Mabel Y., Emeritus County Extension Agent, HITAHR; BS 1956; MEd 1978, Hawai'i

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SASO, Michael, Emeritus Professor of Religion; BA 1952, Santa Clara; MA 1955, Gonzaga; MA 1964, Yale; PhD 1971, London

SATO, Esther M. T., Emeritus Professor of Education; BA 1938, William Jewell College; MA 1939, Columbia; MA 1966, Hawai'i

SCHAMBER, Dean T., Emeritus Professor of Surgery; BA 1956, MD 1959, Minnesota; Excellence in Teaching, Legion of Merit

SCHEUER, Paul J., Emeritus Professor of Chemistry; BS 1943, Northeastern; MA 1947, PhD 1950, Harvard; Regents' Medal for Excellence in Research, 1972

SCHOFIELD, Edward T., Emeritus Professor of Library Studies; BSEd 1933, BSLS 1950, New Jersey State Teachers College; MA 1947, EdD 1954, NYU

SCHUTZ, Albert J., Emeritus Professor of Linguistics; BS 1958, Purdue; PhD 1962, Cornell

SCHWARTZ, Arnold D., Emeritus Professor of Public Health; AB 1947, UC Berkeley; MD 1950, UC San Francisco; MPH 1956, Harvard

SCOTT, Frank S., Jr., Emeritus Researcher in Agricultural and Resource Economics, HITAHR; BS 1944, Oregon; MA 1947, Missouri; PhD 1953, Illinois

SEIDL, Ludwig H., Emeritus Professor of Ocean and Resources Engineering; BSME 1961, MS 1964, DSc 1970, Vienna U of Technology

SEIFERT, Friedrich, Emeritus Professor of Religion; ThD 1959, Pacific School of Religion; Regents' Medal for Excellence in Teaching, 1967

SEYMOUR, Richard K., Emeritus Professor of German; BA 1951, MA 1952, Michigan; PhD 1956, Pennsylvania

SHANG, Eugene Y. C., Emeritus Researcher in Agricultural and Resource Economics, HITAHR; BA 1958, Chung Hsing; MS 1962, Southern Illinois; PhD 1969, Hawai'i

SHERMAN, Martin, Emeritus Professor of Plant and Environmental Protection Sciences; BS 1941, MS 1943, Rutgers; PhD 1948, Cornell

SHERMAN, Ruth G., Emeritus Specialist in Student Development; BA 1942, Douglass; MA 1964, Hawai'i; PhD 1981, Human Psychology Institute

SHIGETA, Daniel T., Emeritus Extension Agent, HITAHR; BS 1950, Hawai'i; MEd 1964, Colorado State

SHIGETA, James Y., Emeritus Specialist in Club Work; BS 1951, Maryland; MS 1958, Wisconsin

SHINODA, Minoru, Emeritus Professor of History; BA 1937, Hawai'i; PhD 1957, Columbia

SHIPWRIGHT, Edward, Emeritus Professor of Music; BS 1959, MS 1961, Juilliard School; EdD 1976, Columbia

SHUPE, John W., Emeritus Professor of Civil Engineering; BS 1948, Kansas State; MS 1952, UC Berkeley; PhD 1958, Purdue

SIEGEL, Barbara Z., Emeritus Professor of Public Health; AB 1960, Chicago; MA 1963, Columbia; PhD 1966, Yale

SIKKEMA, Mildred, Emeritus Professor of Social Work; MSS 1939, Smith; BS 1937, PhD 1964, Chicago

SILVA, James A., Emeritus Soil Scientist; BS 1951; HS 1959, Hawai'i; PhD 1964, Iowa State

SIMPKINS, Alan, Emeritus Specialist in Student Development; BA 1959, Nebraska; MA 1968, Hawai'i; PhD 1976, US International

SIMSON, George, Emeritus Professor of English; BA 1952, Whitman; MA 1957, Washington St., PhD 1963, Minnesota

SINTON, William M., Emeritus Professor of Astronomy; AB 1949, PhD 1953, Johns Hopkins

SLEPIAN, David, Emeritus Professor of Electrical Engineering; MA 1947, PhD 1949, Harvard

SMITH, Barbara B., Emeritus Professor of Music; BA 1942, Pomona; MM 1943, Eastman School of Music

SMITH, Clifford W., Emeritus Professor of Botany; BSc (Hons) 1962, U of Wales; MSc 1963, PhD 1965, Manchester (UK)

SMITH, M. Ray, Emeritus Researcher in Molecular Biosciences and Biosystems Engineering; BS 1958, Oklahoma State; MS 1959, Illinois; PhD 1965, Iowa State

SNOW, Marcellus S., Emeritus Professor of Economics; BA 1965, Utah; MA 1969, John Hopkins; MS 1969, MIT; PhD 1974, Berkeley

SOLHEIM, Wilhelm G., II, Emeritus Professor of Anthropology; BA 1947, Wyoming; MA 1949, UC Berkeley; PhD 1959, Arizona

STAATS, Arthur W., Emeritus Professor of Psychology; BA 1949, MA 1953, PhD 1956, UCLA

STANDAL, Bluebell R., Emeritus Nutritionist; BS 1942, Calcutta; MS 1948, PhD 1952, UC Berkeley

STARIN, Jane R., Emeritus Professor of Nursing; BSN 1968, San Diego State; MPH 1976, MS 1976, DrPH 1987, Hawai'i

STASACK, Edward A., Emeritus Professor of Art; BFA 1955, MFA 1956, Illinois

STAUFFER, Robert B., Emeritus Professor of Political Science; BS 1942, Penn State; MA 1947, Oklahoma; PhD 1954, Minnesota

STEIGER, Walter R., Emeritus Professor of Physics and Astronomy; BS 1948, MIT; MS 1950, Hawai'i; PhD 1953, Cincinnati

STEMPEL, Daniel, Emeritus Professor of English; BA 1941, City College of New York; MA 1942, PhD 1949, Harvard

STENGER, Victor J., Emeritus Professor of Physics and Astronomy; BS 1956, Newark; MS 1959, PhD 1963, UCLA

STEPHAN, John J., Emeritus Professor of History; BA 1963, MA 1964, Harvard; PhD 1969, London

STEVENS, Robert D., Emeritus Professor of Library Studies; AB 1942, Syracuse; BS 1947, Columbus; MA 1955, PhD 1965, American

STRAEHLEY, Clifford J., Emeritus Professor of Surgery; MD 1946, Harvard

STROVEN, Carl G., Emeritus Senior Professor of English and Librarian; AB 1926, MA 1928, Stanford; PhD 1939, Duke

STUEBER, Ralph K., Emeritus Professor of Education; BS 1950, MA 1955, PhD 1964, Wisconsin

STUIVER, Willem, Emeritus Professor of Mechanical Engineering; Ir 1951, Delft; PhD 1960, Stanford

SUEHIRO, Richard Y., Emeritus Specialist in Public Health; BA 1949, Hawai'i; MA 1951, Indiana; MPH 1962, Michigan

SUMMERSGILL, Travis L., Emeritus Professor of English; BA 1939, Bucknell; MA 1940, PhD 1948, Harvard

SUZUKI, Yukihisa, Emeritus Professor of Library Studies; BA 1954, MA 1955, MALS 1956, PhD 1974, Michigan

SWINDALE, Leslie D., Emeritus Professor of Soil Science; BS 1948, MS 1950, Victoria; PhD 1955, Wisconsin

SZILARD, Rudolph S., Emeritus Professor of Civil Engineering; Grad CE 1942, Dipl-Ing (MS) 1943, Royal Tech U (Budapest); Dr-Ing 1962, Technical U of Stuttgart

T

TABRAH, Frank L., Emeritus Professor of Family Practice and Community Health; MD 1943, Buffalo

TAKASAKI, Richard S., Emeritus Professor of Social Work; degrees listed under "Former Presidents"

TAMASHIRO, Minoru, Emeritus Professor of Plant and Environmental Protection Sciences; BS 1951, MS 1954, Hawai'i; PhD 1960, UC Berkeley

TAMIMI, Yusuf N., Emeritus Soil Scientist; BS 1957, Purdue; MS 1959, New Mexico State; PhD 1964, Hawai'i

TANAKA, Tokushi, Emeritus Specialist in Poultry Husbandry; BS 1948, MS 1953, Hawai'i

TAUSSIG, Russell A., Emeritus Professor of Finance; BS 1941, MBA 1947, CPA 1950; PhD 1962, UC Berkeley

TERAZAKI, T. David, Emeritus Professor of Architecture; BA 1944, ME 1947, Tokyo

THARP, Roland, Emeritus Professor of Psychology; BA 1957, Houston; MA 1958, PhD 1961, Michigan

THOMPSON, Dennis H., Emeritus Professor of HPE and Recreation; BS 1955, MS 1959, George Williams College; EdD 1967, Northern Colorado

THOMPSON, John A., Emeritus Professor of Education; BS 1946, La Crosse State; MS 1965, PhD 1968, Wisconsin

THOMPSON, John R., Emeritus Professor of Agronomy; BS 1949, MS 1952, Minnesota; PhD 1964, Iowa State

THOMPSON, Laurence C., Emeritus Professor of Linguistics; BA 1949, Middlebury; MA 1950, PhD 1954, Yale

TOPPING, Donald M., Emeritus Professor of Linguistics; BA 1954, MA 1956, Kentucky; PhD 1963, Michigan State

TOWNSLEY, Sidney J., Emeritus Professor of Marine Zoology; BA 1948, UC Berkeley; MS 1950, Hawai'i; PhD 1954, Yale

TRACY, Robert A., Emeritus Professor of Education and Physiology; BS 1954, MEd 1956, N State College (South Dakota); PhD 1971, Minnesota

TRUBITT, Allen R., Emeritus Professor of Music; BMEd 1953, MMed 1954 Roosevelt; DMA 1964, Indiana; Presidential Citation for Meritorious Teaching 1988

TRUJILLO, Eduardo E., Emeritus Researcher of Plant and Environmental Protection Sciences, CTAHR; BSA 1956, MS 1957, Arkansas; PhD 1962, UC Berkeley

TSUEI, Julia J., Emeritus Professor of Public Health; MD 1952, National Defense Medical College (Taipei); MA 1966, Pennsylvania

TURNBULL, Murray, Emeritus Professor of Art; BFA 1941, Nebraska; MA 1949, Denver

TUTTLE, Daniel W., Emeritus Specialist in Educational Administration; AB 1945, Illinois; MA 1947, PhD 1964, Minnesota

U

UEHARA, Betty K., Emeritus Professor of Education; BEd 1947, Hawai'i; MA 1958, New York; EdD 1974, Arizona

UHALLEY, Stephen, Jr., Emeritus Professor of History; AB 1956, UC Riverside; MA 1957, Claremont; PhD 1967, UC Berkeley; Fujio Matsuda Scholar, 1986

UPADHYAYA, Kashi Nath, Emeritus Professor of Philosophy; BA 1951, Patna U, MA 1953, PhD 1964, Sri Lanka

V

VANN, Sarah K., Emeritus Professor of Library Studies; AB 1936, Georgia; ABL 1939, North Carolina; AMLS 1944, Michigan; PhD 1958, Chicago

VAN NIEL, Robert, Emeritus Professor of History; BA 1947, MA 1948, Ohio State; PhD 1954, Cornell

VAN REEN, Robert, Emeritus Nutritionist; AB 1943, New Jersey State; PhD 1949, Rutgers

VARNEY, Sheldon S., Emeritus Professor of Public Health and Education; AB 1950, MEd 1964, Nevada; EdD 1967, Northern Colorado

W

WALDRON, Jane A., Emeritus Professor of Psychiatry; BA 1960, Newton; MSW 1965, Boston College; PhD 1974, Smith College

WALKER, George P., Emeritus Professor of Geology and Geophysics; BS 1948, MSc 1949, Queen's (UK); PhD 1956, Leeds; Regents' Medal for Excellence in Research, 1985

WALLEN, Lawrence J., Emeritus Professor of Mathematics; BA 1954, Lehigh; PhD 1967, MIT

WATSON, David L., Emeritus Professor of Psychology; BA 1959, Vanderbilt; MS 1961, PhD 1963, Yale

WATSON, John R., Emeritus Professor of Public Health; MBBS 1969, London; MPH 1976, Hawai'i

WEEKS, Shirley, Emeritus Specialist in Human Development and Relationships; BS 1939 Massachusetts State; MS 1944, Cornell; PhD 1964, Wisconsin

WELDON, Edward J., Jr., Emeritus Professor of Electrical Engineering; BS 1958, Manhattan College; MS 1960, U of Florida; PhD 1963, U of Florida

WEST, Stanley, Emeritus University Librarian and Emeritus Professor of Library Studies; AB 1933, UC Berkeley; LLB 1938, Florida; BSLS 1942, Columbia; JD 1968, Florida

WHITE, Bruce E., Emeritus Dean, College of Education, and Emeritus Senior Professor of Education; BA 1923, Willamette; MA 1932, PhD 1935, Washington

WHITNEY, Arthur S., Emeritus Agronomist; BS 1955, Ohio; MS 1958, Cornell; PhD 1966, Hawai'i

WILLIAMS, Raburn, Emeritus Professor of Economics; BA 1965, Stanford; MA 1967, PhD 1970, Chicago

WILSON, C. Peairs, Emeritus Researcher in Agricultural and Resource Economics; BS 1938, MS 1940, Kansas State; PhD 1958, UC Berkeley

WINTERS, Lee E., Emeritus Professor of English; BA 1947, Michigan; MA 1952, PhD 1956, UCB

WISWELL, Ella L., Emeritus Associate Professor of European Languages; Diploma 1931, Paris; BA 1941, Hawai'i

WITTICH, Walter A., Emeritus Professor of Education; BS 1932, MA 1934, PhD 1943, Wisconsin

WOLFF, Robert J., Emeritus Professor of Public Health; PhD 1953, Michigan

WON, George Y., Emeritus Professor of Sociology; BA 1955, MA 1957, Hawai'i; PhD 1962, Michigan State

WONG, Carolina D., Emeritus Specialist in Student Health Service; MD 1941, Santo Tomas

WONG, Helene H., Emeritus Professor of Speech; BA 1942, MA 1947, Stanford; PhD 1955, Louisiana State

WONG, Ruth E. M., Emeritus Professor of Mathematics; BEd 1948, Hawai'i; MS 1960, Illinois; AM 1964, PhD 1968, Michigan; Presidential Citation for Meritorious Teaching, 1992.

WORTH, Robert M., Emeritus Professor of Public Health; BA 1950, UC Berkeley; MD 1954, UC San Francisco; MPH 1958, Harvard; PhD 1962, UC Berkeley

WRIGHT, Joyce M., Emeritus Library Specialist; BA 1938, BALS, 1939, Washington

WU, I-Pai, Emeritus Professor of and Researcher in Molecular Biosciences and Biosystems Engineering; BSAE 1955, National Taiwan U; MSAE 1960, PhD 1963, Purdue

WYRTKI, Klaus, Emeritus Professor of Oceanography; ScD 1950, Kiel (Germany); Regents' Medal for Excellence in Research, 1980

XYZ

YAMAMOTO, George K., Emeritus Professor of Sociology; BA 1947, MA 1949, Hawai'i

YAMAMOTO, Harry Y., Professor of and Researcher in Molecular Biosciences and BioEngineering, CTAHR; BS 1955, Hawai'i; MS 1958, Illinois; PhD 1962, UC Davis

YAMAUCHI, Hiroshi, Emeritus Professor of Agricultural Economics, BA 1964, MS 1966, PhD 1968, UC Berkeley

YANG, Hong-Yi, Emeritus Professor of Pathology; MD 1961, National Taiwan U; PhD 1967, Chicago

YASUNOBU, Kerry T., Emeritus Professor of Biochemistry and Biophysics; BS 1950, PhD 1954, Washington

YATSUSHIRO, Toshio, Emeritus Specialist, College of Continuing Education and Community Service; BA 1944, Redlands; PhD 1953, Cornell

YEE, Warren, Emeritus Professor of and Specialist in Tropical Plant and Soil Science; BS 1942, Hawai'i; MS 1959, Purdue

YEH, Rui Zong, Emeritus Professor of Mathematics; BA 1953, Minnesota; MA 1956, PhD 1959, Princeton

YOUNG, Reginald H. F., Emeritus Professor of Civil Engineering; BS 1959, MS 1965, Hawai'i; ScD 1967, Washington

YUEN, Jack K., Emeritus Professor of Civil Engineering; BS 1951, Hawai'i; MS 1965, Colorado State

YUEN, Paul C., Emeritus Professor of Electrical Engineering; BS 1952, Chicago; MS 1955, PhD 1960, IIT

ZANE, Lawrence F., Emeritus Professor of Education; BS 1953, MEd 1963, Hawai'i; PhD 1968, Maryland

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*COWIE, Lennox L., Astronomer

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*LABONTE, Barry J., Astronomer

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*MAGNIER, Eugene A., Assistant Astronomer

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*LEUNG, Ping Sun, Researcher

*LI, Quing Xiao Li, Associate Pesticide Chemist

LICHTY, Joanne S., Research Associate

MACOMBER, Patricia, Educational Specialist

*MALECHA, Spencer R., Animal Scientist

*MANSHARDT, Richard M., Horticulturist

MARCUM, Kenneth B., Assistant Specialist in Tropical Plant and Soil Sciences

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*MASUO, Diane, Associate Professor Family Resources

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- MAU, Ronald F. L., Specialist in Plant and Environmental Protection Sciences
- MCEWEN, Janette, Educational Specialist, Tropical Plant and Soil Sciences
- MELLO, Cathy L., Research Associate
- MELZER, Michael, Jr., Researcher
- *MERSINO, Edwin, Extension Agent, O'ahu, Plant and Environmental Protection Sciences
- *MESSING, Russell H., Entomologist, Kaua'i
- MEYER, Donna, Research Associate
- *MIYASAKA, Susan C., Agronomist
- MIZUMOTO, Carla Y., Research Associate
- MOATS, Terri, Research Associate
- *MORGADO, Marcia, Assistant Professor Apparel Product Design and Merchandising
- *MOTOOKA, Philip S., Specialist in Weed Science, Kona
- *MOY, James H., Food Technologist
- NAGAI, Natalie Y., Research Associate
- NAGAMINE, Charles, Educational Specialist
- *NAGANO, Steven, Extension Agent, O'ahu, Natural Resources and Environmental Management
- *NAGAO, Mike A., Researcher, Hawai'i
- NAGATA, Norman, Assistant Extension Agent, Maui
- *NAKAMOTO, Stuart T., Specialist in Marketing
- *NAKAMURA-TENGAN, Lynn C., Associate Extension Agent, Maui
- NAKAO, Patricia, Research Associate
- *NAKATSUKA, Claire, Associate Extension Agent, O'ahu, Family and Consumer Sciences
- *NELSON, Scot C., Associate Plant Pathologist
- NEUPANE, Kabi Raj, Assistant Researcher
- NIINO-DuPONTE, Ruth, Research Associate
- *NIP, Wai-Kit, Food Technologist
- *NISHIJIMA, Wayne T., Specialist in Plant and Environmental Protection Sciences, Hilo
- *NISHIMOTO, Roy K., Horticulturist
- *NISHINA, Melvin S., Associate Extension Agent, Hilo
- *NOVOTNY, Rachel, Professor
- NUNOGAWA, Christine, Educational and Academic Support Specialist, Family and Consumer Sciences
- OGATA, Desmond, Research Associate, Ag Diagnostic Srvc Center; BS 1982, MS 1985, Hawai'i
- OISHI, Darcy E., Research Associate; BA 1995, Washington U
- OKIMOTO, Ken, Educational and Academic Support Specialist
- *OOKA, Jeri J., Associate Plant Pathologist
- OSHIRO, Robert, Research Associate
- PAQUIN, Daniel, Mechanical Engineer
- *PAULL, Robert E., Plant Physiologist and Chair
- PITZ, Karen, Junior Researcher
- *POWLEY, John S., Extension Agent, Maui
- REYES, Maria Eloisa, Research Associate
- RICHARDS, Melissa, Educational Specialist
- *ROHRBACH, Kenneth, Specialist and Chair
- *SAGAWA, Yoneo, Horticulturist
- *SAITO, Rose W., Extension Agent, O'ahu, Family and Consumer Sciences
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- *SATO, Dwight M., Associate Extension Agent, Hilo
- SATO, Dale, Educational Specialist, Tropical Plant and Soil Sciences
- *SAUL, Stephen H., Associate Entomologist
- *SCHMITT, Donald P., Plant Pathologist
- SCHWARTZ, Stacie, Research Associate
- *SEIFERT, Josef, Researcher
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- *SHIMABUKU, Robin S., Associate Extension Agent
- SHOVIC, Anne, Associate Professor
- SHRESTHA, Raj, Research Associate, Family and Consumer Sciences
- *SILVA, James A., Emeritus Soil Scientist
- *SINGLETON, Paul W., Director, NifTAL, and Agronomist
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- SWIFT, Sabina, Assistant Specialist
- SYLVA, Traci, Research Associate
- *TAKEDA, Kenneth Y., Assistant Horticulturist
- *TANG, Chung-Shih, Biochemist
- TANIGUCHI, Glenn Y., Research Associate; BS 1973, MS 1977, Hawai'i
- TARUTANI-WEISSMAN, Cathy, Educational Specialist
- *TEVES, Glenn I., Junior Extension Agent, Moloka'i
- TITCHENAL, C. Alan, Instructor
- TOME, Carrie H. M., Research Associate; BA 1988, Hawai'i
- TSUDA, Dick M., Research Associate; BS 1969, MS 1988, Hawai'i
- TURN, Scott, Assistant Researcher
- *UCHIDA, Janice Y., Associate Plant Pathologist
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- URUU, Gail, Research Associate
- *VALENZUELA, Hector R., Specialist in Tropical Plant and Soil Sciences
- *VIETH, Gary R., Assistant Researcher, Agricultural Economist
- *VINCENT, Douglas L., Animal Scientist and Chair
- WAGNER, Tom A., Research Associate
- WALL, Ronald, Specialist
- *WANG, Jaw-Kai, Professor of Molecular Biosciences and BioEngineering
- *WARD, Deborah J., Associate Extension Agent, Hilo
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- *YOUNG, Jean S., Assistant Extension Agent, State Coordinator, Family Community Leadership, Family and Consumer Sciences
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- *ZALESKI, Halina, Associate Specialist in Animal Science
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University Libraries

- *EHRHORN, Jean H., Interim University Librarian
- *ACOSTA, Deanne S., Librarian II, Access Services
- *ADAMSON, James P., Librarian III and Head, Systems
- AGUNAT, Wayne S., Information Technology Specialist
- *ALLEN, Fredrick D., Librarian II, Systems
- *ANDERSON, Kristen, Librarian IV, Science Technology Reference
- AWAKUNI, John, Fiscal Accounting Specialist
- *BAZZELL, Tokiko Y., Librarian III, Asia Collection
- *BRIER, David J., Librarian III, Systems
- *CARTWRIGHT, James F., Librarian III, Archives
- *CHANG, Erica Soonyoung, Librarian III, Cataloging
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- *CHENG, Susie, Librarian III and Head, Asia Collection
- *CHOPEY, Michael A., Librarian II, Cataloging
- *CHUN, Kyungmi, Librarian III, Asia Collection
- CHRISTENSEN, Ross, Librarian III, Reference Center
- *COLEMAN, David E., Librarian IV, Science Technology Reference
- *DAVIS, Lynn, Librarian III and Head, Preservation
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- *FLYNN, David A., Librarian II, Reference Center
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*GEARY, Gregg S., Librarian IV, Sinclair Reference
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 *MORRIS, Nancy Jane, Librarian V, Charlot Curator and Head, Special Collections
 *MURATA, Susan, Librarian III and Head, Access Services
 *OUCHI, Sharon S., Librarian III, Cataloging
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 *POLANSKY, Patricia, Librarian V, Asia Collection
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University of Hawai'i Press

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Water Resources Research Center

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 MINK, John F. Research Affiliate, Mink and Yuen; BS 1949, Pennsylvania; MS 1951, Chicago
 MIWA, Nobuya, Research Affiliate, Bachelor of Engineering 1977, Master of Engineering 1979, Ph.D. of Engineering 1989, U of Osaka
 *MORAVCIK, Philip S., Junior Specialist
 *RAY, Chittaranjan, Associate Researcher, Water Resources Research Center
 TANOUE, Karen Y., UH Editor IV; BA 1969, MA 1985, Hawai'i
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*MONCUR, James E.T., Director, Water Resources Research Center and Environmental Center
 *HARRISON, John T., Associate Specialist/Environmental Coordinator, Water Resources Research Center and Environmental Center
 *MILLER, Jacquelin, N., Specialist, Water Resources Research Center and Environmental Center

Affiliates

*COX, Doak C., Emeritus Geophysicist
 *CONANT, Sheila, Professor of Zoology
 CURTIS, George D., Affiliate Professor and Lecturer, Natural Sciences, UH Hilo; BS 1952, North Texas
 DASHIELL, Eugene P., Environmental Planning Consultant; BA 1968, California State, Hayward; MA 1970, Hawai'i
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 *EKERN, Paul C., Emeritus Professor of Natural Resources and Environmental Management
 *JARMAN, M. Casey, Associate Professor of Law
 *KAY, E. Alison, Emeritus Professor of Zoology
 *KIM, Karl E., Professor of Urban and Regional Planning
 *LOWRY, Gordon K., Professor of Urban and Regional Planning
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 MORROW, James W., Environmental Management Consultant; BS 1966, New Hampshire; MS 1973, DRPH 2000, Hawai'i
 *RAPPA, Peter J., Associate Extension Agent, Sea Grant College Program
 *RIDGLEY, Mark A., Associate Professor of Geography
 TAKEMOTO, Helene Y., U.S. Army Corps of Engineers; AB 1972, Wells; MS 1982, Hawai'i
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 *WOODCOCK, Deborah W., Associate Professor of Geography

Appendix

Academic Rights and Freedoms of Students

The University of Hawai‘i, like all state universities, embraces those aspects of academic freedom that guarantee the freedom to teach and the freedom to learn. Free inquiry and free expression for both students and faculty are indispensable and inseparable. Students, whether from the United States or from foreign countries, as members of the academic community are encouraged to develop a capacity for critical judgment and to engage in a sustained and independent search for truth.

For its part, the University guarantees all students the freedom of silence. No student is required to engage in research on any topic or to make statements of any kind, unless it is the student’s wish to do so.

Student Conduct and Discipline

It is a privilege to be a member of the University of Hawai‘i at Mānoa community. This privilege provides the student with the opportunity to learn and to participate in the many programs that are offered on campus. Along with that privilege, the individual is expected to be responsible in relationships with others and to respect the special interests of the institution. These special interests are fully set forth in the University’s Student Conduct Code.

Where individuals have conflict with one another or have allegedly violated the Student Conduct Code, every attempt will be made to resolve the problem through nonadversarial and informal proceedings. Where the violation may be particularly serious or differences appear irreconcilable, the matter may be referred to the Student Conduct Committee for an appropriate review and hearing. The committee has the authority to recommend serious disciplinary actions including suspension or expulsion.

Information, advice, or a copy of the code and an outline of the committee’s procedures may be obtained from the Office of the Dean of Students and Student Services, Queen Lili‘uokalani Center for Student Services Center 409.

Academic Honesty

The integrity of a university depends upon academic honesty, which consists of independent learning and research. Academic dishonesty includes cheating and plagiarism. The following are examples of violations of the Student Conduct Code that may result in suspension or expulsion from the University.

Cheating

Cheating includes, but is not limited to, giving unauthorized help during an examination, obtaining unauthorized information about an examination before it is administered, using inappropriate sources of information during an examination, altering the record of any grade, altering an answer after an examination has been submitted, falsifying any official University record, and misrepresenting the facts in order to obtain exemptions from course requirements.

Plagiarism

Plagiarism includes, but is not limited to, submitting, to satisfy an academic requirement, any document that has been copied in whole or in part from another individual’s work without identifying that individual; neglecting to identify as a quotation a documented idea that has not been assimilated into the student’s language and style; paraphrasing a passage so closely that the reader is misled as to the source; submitting the same written or oral material in more than one course without obtaining authorization from the instructors involved; and “dry-labbing,” which includes obtaining and using experimental data from other students without the express consent of the instructor, utilizing experimental data and laboratory write-ups from other sections of the course or from previous terms, and fabricating data to fit the expected results.

Disciplinary Action

The faculty member must notify the student of the alleged academic misconduct and discuss the incident in question. The faculty member may take academic action against the student as the faculty member deems appropriate. These actions may be appealed through the *Academic Grievance Procedure*, available

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in the Office of the Dean of Student Services. In instances in which the faculty member believes that additional action (i.e., disciplinary sanctions and a University record) should be established, the case should be forwarded to the Dean of Student Services.

Academic Grievance

A student who believes that a faculty member has failed to meet specific responsibilities outlined in “Responsibilities of Faculty and Students and Academic Grievance Procedures for Students, University of Hawai‘i at Mānoa (Policy M-4527)” may register a grievance. Students and faculty are encouraged to resolve their differences through consultation and mediation. Where these efforts are ineffective, the policy sets forth the process that is available to the student grievant. The decisions of the Academic Grievance Committee are final within the University. Information, advice, or a copy of the relevant policies and procedures may be obtained from the Office of the Dean of Students and Student Services, Queen Lili‘uokalani Center for Student Services Center 409.

Class Attendance

Regular attendance at class and laboratory sessions is expected for all courses in which a student enrolls. Unavoidable absences should be explained to the instructor.

Nondiscrimination Policy

The University of Hawai‘i is an equal opportunity/affirmative action institution and is committed to a policy of nondiscrimination on the bases of race, sex, age, religion, color, national origin, ancestry, disability, marital status, arrest and court record, sexual orientation, and veteran status. This policy covers academic considerations such as admission and access to, participation and treatment in the University’s programs, activities, and services. With regard to employment, the University is committed to equal opportunity in all personnel actions such as recruitment, hiring, promotion, and compensation. Sexual harassment is expressly prohibited under University policy.

The University strives to promote full realization of equal employment opportunity through a positive, continuing program in compliance with the affirmative action in employment mandates of federal Executive Order 11246. The program includes measuring performance against specific annual hiring goals, monitoring progress, and reporting on good faith efforts and results in annual affirmative action plan reports. As a government contractor, the University is committed to an affirmative policy of hiring and advancing in employment qualified persons with disabilities, disabled veterans, and veterans of the Vietnam era. For information on equal opportunity policies or complaint procedures for the UH Mānoa Campus, contact:

- **Students:** Alan Yang, Dean of Students, SSC 409, phone (808) 956-3290 (V/T)
- **Students with Disabilities:** Ann Ito, Director, KOKUA Program, SSC 013, phone (808) 956-7511 (V/T) or (808) 956-7612 (V/T)

- **Employees (and Affirmative Action Plan):** Mie Watanabe, Director, EEO/AA, Administrative Services Building 1, Room 102, phone (808) 956-7077 (V/T)
- **Sexual Harassment and Gender Equity:** Beverly McCreary, Gender Equity Counselor, SSC 210, phone (808) 956-9977
- **Civil Rights Counselor:** Jill Nunokawa, Civil Rights Counselor, SSC 210, phone (808) 956-4431

UH Mānoa recognizes its obligation to provide overall program accessibility for persons with disabilities. Contact the KOKUA (disabled student services) Program to obtain information as to the existence and location of services, activities, and facilities that are accessible to and usable by persons with disabilities.

Gender Equity in Intercollegiate Athletics

Gender equity in athletics extends the doctrine of fairness to all areas of athletic activity at the university level. It is activated by a sense of moral obligation that exceeds any specific duty to comply with legal requirements, although it also recognizes the necessity of observing the tenets of Title IX. Its desired effect is to offer women and men equal opportunities to participate in sports for which there is demonstrated interest among athletes in Hawai‘i and to provide equitable levels of support for coaching, travel, scholarships, operating expenses, and facilities used. Beyond these specific goals, gender equity also fosters an attitude and establishes an environment in which men’s and women’s sports are encouraged in comparable ways. Those who support gender equity are willing to cooperate in frequent self-evaluations and to implement change so that all student-athletes can have the same opportunity to realize the highest level of their abilities.

Student Records

Pursuant to Section 99.6 of the rules and regulations implementing the Family Educational Rights and Privacy Act of 1974 (hereinafter the Act), students in attendance at the University of Hawai‘i are hereby notified of the following:

1. It is the policy of the University of Hawai‘i to subscribe to the requirements of Section 438 of the General Education Provisions Act, Title IV, of Public Law 90-247, as amended, and to the rules and regulations implementing the Act, which protect the privacy rights of students.
2. The rights of students under the Act include the following, subject to conditions and limitations specified in the Act: (a) the right to inspect and review education records, (b) the right to request to amend education records, (c) the right of protection from disclosure by the University of Hawai‘i of personally identifiable information contained in education records without permission of the student involved, (d) the right to waive certain rights under the Act, and (e) the right to file complaints concerning alleged failure by the University of Hawai‘i to comply with the Act.
3. Students are advised that institutional policy and procedures required under the Act have been published as Administrative Procedure A7.022, “Procedures Relating to Protection of

the Educational Rights and Privacy of Students.” Copies of APA7.022 may be obtained from the Office of the Dean of Students and Student Services.

4. Directory Information. Students are advised that certain personally identifiable information is considered by the University to be directory information and, in response to public inquiry, may be disclosed in conformance with state law, at the University’s discretion, without prior consent of the student unless the student requests that the University not disclose such information. This includes (a) name of student, (b) current address and ZIP code, (c) telephone number, (d) e-mail address, (e) major field of study, (f) educational level (e.g., freshman, sophomore, etc.), (g) dates of attendance, (h) enrollment status (full-time or part-time), (i) participation in officially recognized activities and sports, (j) weight and height of members of athletic teams, (k) most recent educational institution attended, and (l) degrees and awards received. A student has the right to request that any or all of the above items not be designated directory information with respect to that student. Should a student wish to exercise this right, he or she must in person and in writing, not earlier than the first day of instruction, nor later than 14 calendar days from the first day of instruction for the academic term or semester, or the fourth day of a summer session, inform the campus registrar which of the above items are not to be disclosed without the prior consent of that student.
5. A parent or spouse of a student is advised that information contained in educational records, except as may be determined to be directory information, will not be disclosed to him/her without the prior written consent of the student.

Student Graduation Rates

Graduation and Persistence of Entering Students

The information in this graph provides a partial description of the graduation and enrollment patterns of students and describes averages for groups of students. It should not be used to infer or predict individual graduation or enrollment behavior.

This information is provided for the Student Right-to-Know Act, Public Law 101-542 published in the Federal Register, December 1, 1995.

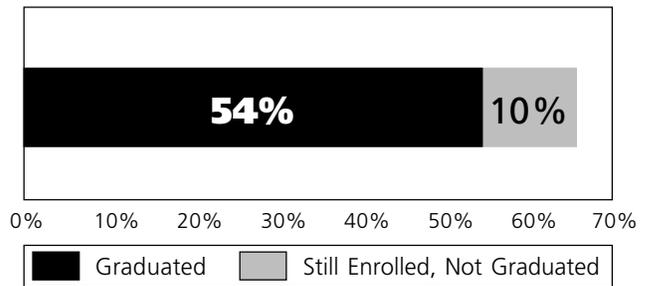
Residency Requirements for Tuition Purposes

Students who do not qualify on the first day of instruction as bona fide residents of the state of Hawai‘i, according to University of Hawai‘i rules and regulations, must pay the nonresident tuition. An official determination of residency status will be made at the time of application. Applicants may be required to provide documentation to verify residency status. Once classified as a nonresident, a student continues to be so classified during his/her enrollment at the University until he/she can present satisfactory evidence to the residency officer that proves otherwise.

Some of the more pertinent University residency regulations follow. For additional information or clarification, contact the residency officer in the Office of Admissions and Records.

University of Hawai‘i at Mānoa Average Graduation and Persistence Rates

Fall Cohorts 1991-95
Six Years After Entry



On average, 64% of first-time, full-time degree-seeking undergraduates entering the Mānoa campus have either graduated or are still enrolled six years after entry. The rates for the most recent cohort (fall 1995) are 52% for graduation and 10% for persistence.

Source: Office of Planning and Policy, Institutional Research

Definition of Hawai‘i Residency

A student is deemed a resident of the state of Hawai‘i for tuition purposes if the student (19 years old or older) or the student (under 19 years old) and the student’s parents or legal guardians have done the following:

1. *Demonstrated intent to establish domicile* in Hawai‘i (see below for indicia);
2. Been *physically present in Hawai‘i* for the 12 consecutive months prior to the first day of instruction and subsequent to the demonstration of intent to establish domicile in Hawai‘i; and
3. The student, whether adult or minor, *has not been claimed as a dependent for tax purposes* for at least 12 consecutive months prior to the first day of instruction by his/her parents or legal guardians who are not residents of Hawai‘i.

To demonstrate the intent to make Hawai‘i a person’s domicile, the following indicia apply, but no single act is sufficient to establish residency for tuition purposes:

1. Filing Hawai‘i resident personal income tax return;
2. Voting/registering to vote in the state of Hawai‘i; and
3. Other indicia, such as permanent employment and ownership or continuous leasing of a dwelling in Hawai‘i.

Other Legal Factors

Other legal factors involved in making a residency determination include the following:

1. The age of majority is 18 years. However, a person between the ages of 18 and 19, unless emancipated, cannot claim residency solely on the basis of himself/herself because he/she does not have the minimum 12 months residency,

which commences on his/her 18th birthday. Therefore, the applicant must claim a portion of the required 12 months on the basis of his/her parents or legal guardian;

2. The 12 months of continuous residence in Hawai'i shall begin on the date upon which the first overt action (see indicia above) is taken to make Hawai'i one's domicile. Resident status will be lost if it is interrupted during the 12 months immediately preceding the first day of
3. Residency in Hawai'i and residency in another place cannot be held simultaneously;
4. Presence in Hawai'i primarily to attend an institution of higher learning does not create resident status, regardless of the length of stay. A student cannot establish residency by simply being enrolled in school. If a student is a nonresident, it is presumed that he/she is living in Hawai'i primarily to attend school and his/her presence is temporary even if the student lives in Hawai'i during vacation and other breaks from study. For example, the student may be presumed to live in Hawai'i primarily to attend school if he/she is enrolled in school half-time or more, appears to be receiving significant financial support from family members who reside outside Hawai'i, is absent from the state for more than 30 days per year during school vacation period, or receives student financial assistance based on residency in another state or jurisdiction;
5. The residency of unmarried students who are minors follows that of the parents or legal guardian. Marriage emancipates a minor;
6. The residency of a married person may follow that of the spouse; and
7. Resident status, once acquired, will be lost by future voluntary action of the resident inconsistent with such status. However, Hawai'i residency will not be lost solely because of absence from the state while a member of the United States Armed Forces, while engaged in navigation, or while a student at any institution of learning.

Exemptions

Nonresidents may be allowed to pay resident tuition if they qualify as one of the following:

1. United States military personnel and their authorized dependents (as defined by the armed services) during the period such personnel are stationed in Hawai'i on active duty;
2. Persons who are legal residents of any Pacific island or Asian district, commonwealth, territory, or insular jurisdiction, state, or nation that does not provide public institutions of higher learning;
3. Certain employees of the University of Hawai'i and their spouses and legal dependents (as defined under Internal Revenue Service rules);
4. East-West Center grantees pursuing baccalaureate or advanced degrees; or
5. Hawaiians, descendants of the aboriginal peoples that inhabited the Hawaiian Islands and exercised sovereignty in the Hawaiian Islands in 1778.

Misrepresentation

A student or prospective student who provides incorrect information on any form or document intended for use in determining residency status for tuition purposes will be subject to the requirements and/or disciplinary measures provided for in the rules and regulations governing residency status.

Appeal Process

Residency decisions may be appealed. Contact the residency officer for information on how to initiate an appeal before the Committee on Resident Status.

Compliance with Federal Guidelines Concerning Research

There are a number of offices and committees at the University that play key roles in overseeing and developing policy for various aspects of the research process. Federal, state, and University regulations require that certain proposed research projects are reviewed and approved to ensure that the proposed research complies with protective standards.

University students who intend to conduct the following types of research should check with their respective academic offices and the committees and office below for guidance and information pertaining to their research project.

1. Research funded by non-University funds.
2. Research sponsored by the University of Hawai'i.
3. Research conducted by or under the direction of any employee or agent of the University in connection with his or her institutional responsibilities.
4. Research conducted by or under the direction of any employee or agent of this institution using any property or facility of this institution.
5. Research involving the use of the University's non-public information to conduct research or identify research subjects.

General information regarding standards applicable to research activities can be obtained from the Office of Research Services, Sakamaki D-200, 2530 Dole Street, Honolulu, HI 96822, (808) 956-7470.

Institutional Animal Care and Use Committee

University employees and students who intend to conduct research involving nonhuman, vertebrate animals are required to submit an application to the Institutional Animal Care and Use Committee (IACUC) for review and approval prior to any such use of animals. Applications and information may be obtained from the Office of Research Services. Students should check with their departments or course instructors for further guidance.

Committee on Human Studies

University employees and students who will conduct research involving human subjects are required to submit an application to the Committee on Human Studies (CHS) for review and approval prior to the involvement of human subjects in the research project. Applications and information

may be obtained from the Committee on Human Studies. Students should check with their departments or course instructors for further guidance.

Environmental Health and Safety Office

Employees and students whose research projects may involve recombinant DNA, radioactive materials, SCUBA diving, or hazardous materials should contact the Environmental Health and Safety Office at 2040 East-West Road, Honolulu, HI 96822; tel. (808) 956-8660 or visit their website at www.hawaii.edu/ehso for information and guidance. This office will also provide information regarding appropriate safety and health standards. Applications and/or information may also be obtained from the Environmental Health and Safety Office for the following committees:

- Institutional Biosafety Committee
- Radiation Safety Committee
- Diving Control Board
- Workplace Safety Committee

Glossary

Academic Year Starts at the beginning of the fall semester, ends at the close of the spring semester; does not include summer sessions.

Accreditation Official certification by an external academic organization that a college, school, or academic unit meets minimum requirements for academic achievement, curriculum, facilities, etc.

Add Period Time at the beginning of each semester during which registered students may enroll in additional courses.

Articulated General Education Courses UH system courses reviewed by the System-wide Articulation Standing Committees and accepted by campus core/curriculum committees as meeting undergraduate requirements at one or more system campuses.

Auditors Regularly admitted students who register, with the consent of the instructor, for informational instruction only and who receive no credit. They do not take course examinations and the extent of their classroom participation is at the instructor's discretion. Auditors are generally not allowed in art studio, laboratory science, mathematics, elementary and intermediate Hawaiian and foreign languages, creative writing, English composition, physical education, speech and other performance courses or in classes where they might displace credit students. Audit courses are entered on the student's transcripts with a grade of L and are subject to regular tuition and fee charges.

Bachelor's Degree Undergraduate degree signifying successful completion of the Mānoa General Education Core, major, elective, and credit requirements of the University and of an academic unit.

Backtracking Completion of a lower-level or prerequisite course after (or while) taking an advanced course. Additional credit and grade points are not awarded for lower-level courses if they are taken after or concurrently with the advanced course for which they are explicitly or implicitly prerequisites.

Classified Students (Graduate) Students admitted by the Graduate Division to a program that offers a graduate certificate, or a master's or doctoral degree.

Classified Students (Undergraduate) Students who intend to earn an undergraduate degree and/or are admitted into a degree-granting college or school such as Architecture, Arts and Sciences, Business Administration, Education, Engineering, etc.

Community Colleges Campuses within the University of Hawai'i system that usually offer lower division courses and grant two-year degrees and certificates.

Conditional Students (Graduate) Students admitted to graduate programs on the condition that they make up academic deficiencies or other requirements within a prescribed period of time.

Continuing Students For registration purposes, those who were registered for the previous semester (fall or spring), are in good standing, have not completely withdrawn, have not graduated in their current classification, and intend to register for the upcoming semester.

Co-requisite A course which must be taken in conjunction with and at the same time as another course. Co-requisites are indicated in the course descriptions.

Core Requirements See General Education Core.

Credit Overload (Graduate) For classified graduate students, registration for more than 16 credits (9 credits for graduate assistants) in any one semester. Permission from the graduate dean is required.

Credit Overload (Undergraduate) Registration for more than 19 UH Mānoa credit hours in any one semester for undergraduate and professional diploma students. Permission from the appropriate college/school dean is required. The request for credit overload is processed during late registration only.

Credits (or Semester Credit Hours) Earned after successful completion (pass) of a course. If students fail a course, they have only attempted (but not earned) the credits for the course. Three semester credits are approximately equivalent to three 50-minute meeting periods per week in a 15-week semester.

Cross-Listed Courses Courses whose contents are identical and are jointly offered by more than one department. Although the departments and course numbers are different—for example, AMST 354 and MUS 370—these courses are the same.

Curriculum All the courses of study offered by the University. May also refer to a particular course of study (major) and the courses in that area.

Discipline A branch of knowledge or teaching. Typically refers to an area of study or a major field.

Diversification Requirement (Undergraduate) Specified courses in the General Education Core intended to assure that every student has a broad exposure to different domains of academic knowledge, while at the same time allowing flexibility for students with different goals and interests.

Double Major Multiple majors falling under one degree will normally be approved for students who show promise of success in both, provided there is sufficient divergence between the majors. No one course may be used to satisfy more than one major requirement.

Drop Period Time at the beginning of each semester during which registered students may drop unwanted courses and not have them appear on their transcripts.

Early-Admits Academically superior and accomplished youths under 18 years of age who are continuing high school students admitted to the University to take specific courses for which they are qualified.

Electives Courses not designated as part of the General Education Core, college/school, or major requirements. Students should consult their major advisers and college advisers to discuss the selection of electives.

Emeriti Faculty Recognition, designation, and privileges given by the UH Board of Regents to faculty members who have retired but still retain ties to the University.

Excess Credit Policy (Undergraduate) Students who, by the end of any semester, have earned 24 credit hours beyond those required for graduation and have fulfilled all specific program and University requirements may graduate by action of their college or school.

Focus Requirements (Undergraduate) Specified courses in the UHM Graduation Requirements identifying important skills and discourses necessary for living and working in diverse communities.

Foreign or Hawaiian Language Requirement (Undergraduate) Successful completion of second-level study (i.e., through 202 or equivalent) of Hawaiian or an approved foreign language for students who entered the UH system in fall 1989 or later. Successful completion of first-level study (i.e., through 102 or equivalent) of Hawaiian or an approved foreign language for students who entered the UH system in fall 1988 or spring 1989.

Foundation Requirement (Undergraduate) Specified courses in the General Education Core intended to give students skills and perspectives that are fundamental to undertaking higher education.

Freshmen Students who have earned fewer than 25 semester credit hours.

Full-Time Students For academic purposes, undergraduates carrying 12 or more credits per semester or graduates carrying 8 or more credits.

General Education Core Specified courses in liberal arts and related areas required for the bachelor's degree and usually completed in the first two years of undergraduate study.

Grade Point Average (GPA) Determined by first multiplying the number of credits for each course taken for a letter grade by the points earned for that course (i.e., A is 4 points, B is 3, C is

2, D is 1, and F is 0), then by adding all the points, and finally by dividing total grade points by the total number of credits attempted for courses in which letter grades were given.

Graduate Assistants Graduate students hired by the University as teaching or research assistants.

Graduate Courses Courses offered as part of a graduate degree program, numbered 600–800.

Graduate Faculty Members of the University community eligible to advise classified graduate students.

Graduate Record Examination (GRE) A standardized test required for admission to many graduate fields of study.

Graduate Students Students admitted to the Graduate Division to pursue advanced degrees.

Incomplete Grades With the instructor's approval, students may receive a grade of I if they are unable to complete a small, but important part of a course's requirements by semester's end but are committed to doing so by a specified deadline.

Introductory Courses All 100-level courses and those 200-level courses without explicit college course prerequisites.

Juniors Students who have earned 55–88 semester credit hours.

Liberal Studies An undergraduate program within the Colleges of Arts and Sciences that allows students to design their own major.

Lower Division Courses Freshman- and sophomore-level courses that generally do not require any prerequisite courses and are numbered 100–299.

Major The area of academic concentration or specialization in which the degree is conferred.

Maximum Registration No more than 19 credit hours per semester for undergraduate and professional diploma students without special approval from a college dean. Graduate students are limited to 16 credit hours per semester (9 for graduate assistants) unless special approval is given.

Minor Limited concentration of courses in an area other than the major and relating to an approved baccalaureate degree.

Non-introductory Courses Upper division courses numbered 300 or above or 200-level courses that have explicit college course prerequisites.

Part-Time Students For academic purposes, undergraduates carrying fewer than 12 credits per semester, or graduates carrying fewer than 8 credits per semester.

Placement Examinations Noncredit tests used to measure a student's proficiency in a specific subject area in order to determine the appropriate level of courses in which to enroll.

Post-baccalaureate Unclassified Students Those who have earned a bachelor's degree from a regionally accredited college or university and wish to enroll as unclassified students.

Pre-professional Programs Programs designed to prepare students to pursue admission into professional programs, such as dentistry, law, medicine, or veterinary medicine.

Prerequisite A necessary condition for enrollment in a course. Prerequisites for courses usually consist of a previous course or courses in a related subject and/or the instructor's consent. Prerequisites are specified in the course descriptions.

Residence This word is used in several ways in this Catalog: (1) to denote registration in a regular session (i.e., when a student is “in residence” during the fall or spring semesters); (2) to denote the period of time that a student must be registered at UH Mānoa in order to be eligible for graduation (i.e., academic residence); (3) to denote a student’s state of residence (e.g., Hawai‘i) to determine if nonresident tuition must be paid (i.e., legal residence); (4) to indicate the student’s place of residence (i.e., living quarters).

Residents Individuals at any level of post-graduate medical education in a program accredited by the Accreditation Council for Graduate Medical Education (ACGME).

Returning Students Students resuming studies after staying out of school for one semester or longer.

Sabbatical A leave of absence granted to University faculty members for research, professional improvement, etc.

Seniors Students who have earned 89 or more semester credit hours.

Sophomores Students who have earned 25–54 semester credit hours.

Test of English as a Foreign Language (TOEFL) Test required of students whose first language is not English.

Transcript Official record of courses and grades earned at a secondary or postsecondary institution.

Transfer Students Students admitted to UH Mānoa who have previously attended another college or university.

Tuition Waiver An exemption from the requirement to pay University tuition. Waivers awarded by the University can range from partial to full waivers and do not include student fees.

UH System The state of Hawai‘i’s postsecondary education system, comprised of 10 campuses and other research and learning facilities throughout the islands. In addition to UH Mānoa, it includes UH Hilo, UH West O‘ahu, and the seven campuses of the UH Community Colleges.

Unclassified Students Students who have not been accepted into a degree or certificate program but who have been admitted into Outreach College and may enroll in regular credit courses and graduate courses with the permission of the instructor.

Undergraduate Students Students who have not earned a bachelor’s degree.

Upper Division Courses Junior- and senior-level courses, numbered 300–499, which generally have prerequisites.

Variable Credit Courses Courses in which the number of credits to be earned is determined in advance by the student and instructor.

Withdrawal Grades Grades of W are given for courses from which the student has officially withdrawn with the approval of the instructor and the student’s college dean. Withdrawals are only approved until the end of the ninth week.

Writing-Intensive Courses Courses that put emphasis on written work as part of the regular course of study and are officially designed as “WI” sections. WI sections are identified in each semester’s *Schedule of Classes*.

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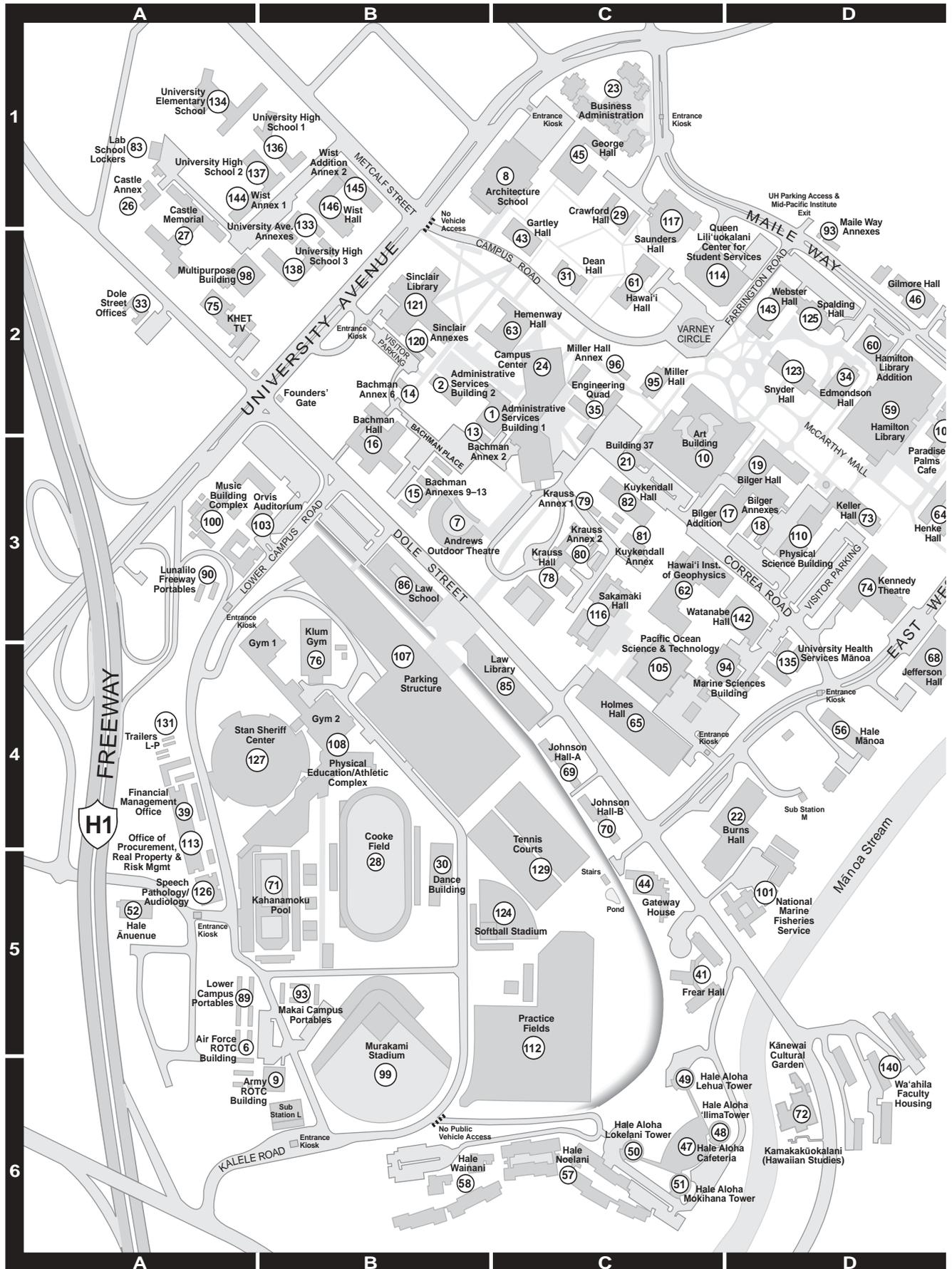
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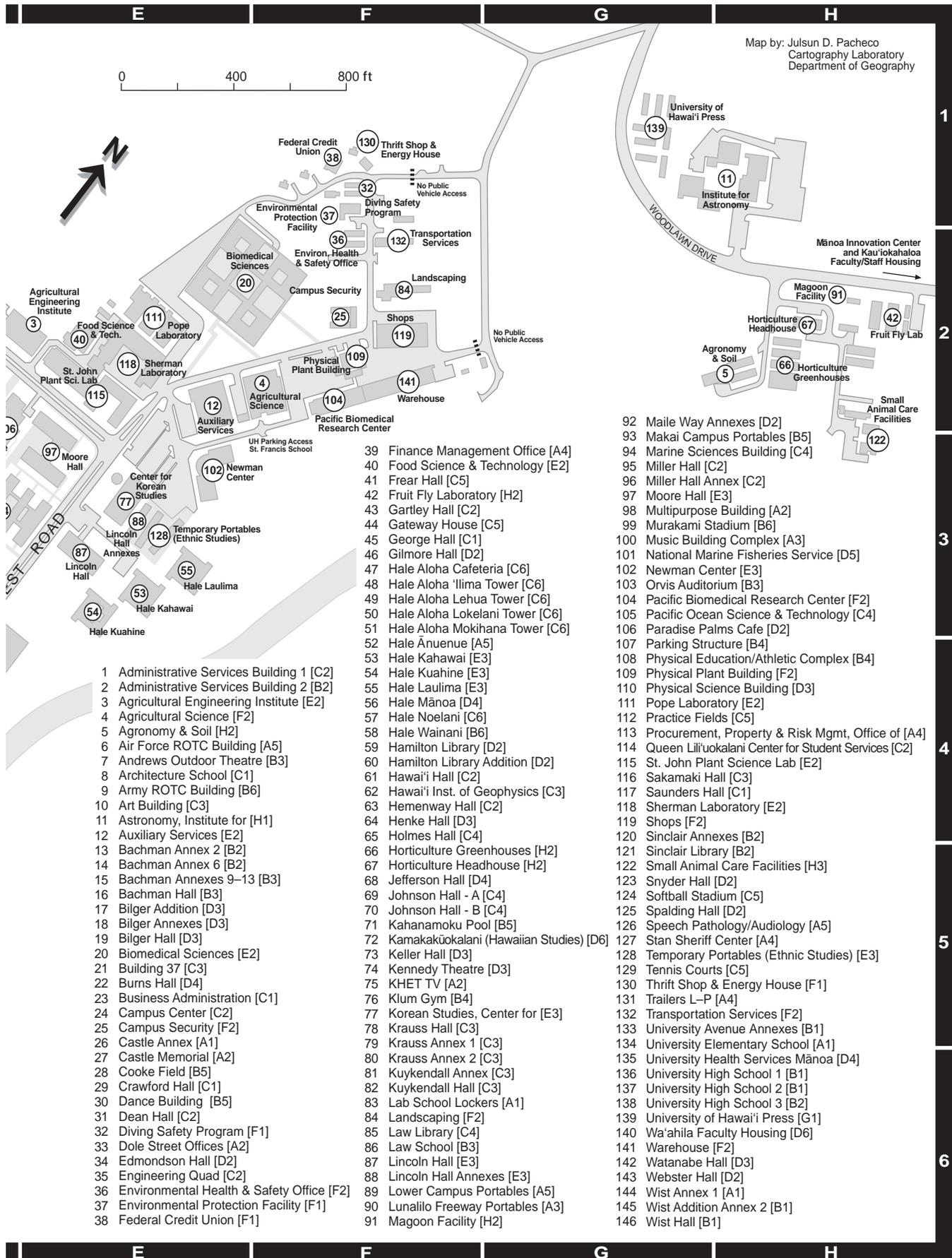
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