

STATE OF HAWAII  
UNIVERSITY OF HAWAII AT MĀNOA  
COLLEGES OF ARTS AND SCIENCES  
COLLEGE OF NATURAL SCIENCES

FUNCTIONAL STATEMENT

**OFFICE OF THE DEAN – Org Code: MADNNS**

The Office of the Dean of the College of Natural Sciences provides leadership and overall vision for the college and coordinates all of its activities including, curricular, personnel, and budget affairs of the College and its ancillary support components including budget management, staff supervision, community relations, grievance and litigation, and travel.

The Dean reports to the Office of the Vice Chancellor for Academic Affairs, University of Hawai'i at Mānoa and functions with the authority delegated by the President and Vice Presidents.

Manages the personnel, budgeting and planning functions.

Initiates and oversees curriculum development and reform, program review, and workload activities.

Manages the development of College research related programs.

Serves on intra-university committees.

Serves as chair of the Council of Arts and Sciences Deans on a rotating basis.

Manages community relations and development including fundraising, representing the College at professional meetings, and meeting with alumni groups.

**ACADEMIC AFFAIRS – Org Code: MAAANS**

Coordinates major curricular policy activities on behalf of the Dean.

Reviews proposals for adding, deleting, or modifying courses, certificates and degrees.

Initiates college-wide curricular innovations, such as certificate programs, interdisciplinary/multidisciplinary programs, across college and school lines.

Assists in establishing and maintaining inter-college coordination relative to cross-disciplinary core requirements.

**ADMINISTRATIVE SERVICES – Org Code: MAASNS**

In conjunction with the Dean, manages the budget preparation/execution for the College including developing criteria for departmental budget allocations.

Directs and advises departments in all matters related to personnel.

Provides guidance on labor-relations issues.

Supervises the purchasing activities of the College.

Provides financial management for all College funds.

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**DEPARTMENT OF BIOLOGY – Org Code: MABIOL**

The Department of Biology is a cooperative program whose faculty members are from the Department of Biology, Botany, Cell and Molecular Biology (JABSOM), Microbiology, Molecular BioSciences and BioEngineering (CTAHR), and Zoology. It provides an academic home to students who wish to pursue a broad training in biological sciences. It offers a BA degree for pre-professional students, a BS degree with five specializations: cell and molecular biology, ecology/evolution/conservation biology, marine/aquatic biology, organismic biology and general biology, a BS degree in marine biology, and a minor in biology.

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**DEPARTMENT OF BOTANY – Org Code: MABOT**

The UH Mānoa has the only botany department located in a tropical environment in the U.S. 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. 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. The department offers BA, BS, and minor degrees in botany, a BS degree in ethnobotany; and MS and PhD degrees in botany.

Research programs focus on ecology, evolution and conservation of Hawai'i's ecosystem and unique endemic flora; the ecology and physiology of marine macroalgae; ethnobotany; invasion biology by alien weeds; and the uses of plants by humans.

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**DEPARTMENT OF CHEMISTRY – Org Code: MACHCH**

Chemistry 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

**Support Activities – Org Code: MASACH**

Associate Chair

The Associate Chair of the Department of Chemistry manages the support activities of the department which include storeroom services; instrument/computer services; analytical services; and glassblowing services.

Storeroom Services

The Department of Chemistry is home to two well-supplied stockrooms, containing an array of materials necessary for undergraduate instructional courses and graduate research for the entire University of Hawai'i community.

Instrument/Computer Services

The Department of Chemistry also provides design and construction services of analog and digital devices not available commercially. Instrument/Computer Services provide repair and maintenance of departmental instruments in the fields of Gas Chromatography, UV - visible, Infrared and Atomic Absorption Spectroscopy, X-ray diffractometry, etc. Support services include the instrument shop, the machine shop and the electronics shop.

Analytical Services

The Department has a strong commitment to maintaining state-of-the-art instrumentation. Instrumentation includes Nuclear Magnetic Resonance spectrometers and Mass Spectrometry. These facilities are regularly used by members of the Department of Chemistry, in addition to other research units within the University of Hawai'i system and across the United States.

Glassblowing Services

The Chemistry Department provides glassblowing services for the entire University system including repair, design, modification and fabrication of glass apparatus not commercially available.

**Instructional Activities – Org Code: MACHEM**

The department offers a BA, BS and minor degrees in chemistry and MS and PhD degrees in chemistry.

The faculty of the Department of Chemistry has research interests in bioinorganic, organic, inorganic, physical, and analytical chemistry. The graduate faculty participates in a number of collaborative efforts with colleagues at the Cancer Research Center of Hawai'i, the Hawai'i Natural Energy Institute, the Cell and Molecular Biology Program, the NASA Astrobiology Institute, and the W.M. Keck Astrochemistry Laboratory.

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**DEPARTMENT OF INFORMATION AND COMPUTER SCIENCES – Org Code:**  
**MAICS**

Information and Computer Sciences is the study of the description and representation of information and the theory, design, analysis, implementation, and application of algorithmic processes that transform information. The curriculum covers all major areas of computer science with special emphasis on software engineering, computer networks, artificial intelligence, human-computer interaction and bioinformatics. Information and Computer Sciences offers BA, BS, and minor degrees in information and computer science, MS in computer sciences, MLISc in library and information science, PhD in computer science, and PhD in communication and information sciences (interdisciplinary).

Information and Computer Sciences faculty members have research interests in algorithms; artificial intelligence and robotics; biomedical informatics and bioinformatics; collaborative systems; compilers; computer vision; databases; human computer interaction; library and information science; machine learning; mobile and ubiquitous computing; security and information assurance; software engineering; and systems, networking, and high-performance computing.

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**DEPARTMENT OF MATHEMATICS – Org Code: MAMATH**

The Department of Mathematics offers preparation in the full spectrum of mathematical sciences, including algebra, geometry, differential equations, real and complex analysis, topology, logic, number theory, and probability and statistics, as well as various topics in applied mathematics. The math department offers BS, BA and minor degrees in mathematics, and MA and PhD degrees in mathematics.

Faculty of the Department of Mathematics has research interests in algebra & number theory; analysis; applied mathematics; geometry & topology; and logic, lattices & universal algebra.

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**DEPARTMENT OF MICROBIOLOGY – Org Code: MAMICR**

Microbiology, one of three basic fields in the biological sciences, is an extremely diverse and complex field. It is essential to the fabric of medicine, the allied health sciences, agriculture, ocean sciences, and the vital growing biotechnology industry (genetics, cell and molecular biology, etc.) of the present era. The Department of Microbiology has concentrated on highly essential areas vital to the State of Hawai'i such as general and applied microbiology (including biotechnology); microbial genetics, microbial physiology (molecular biology), medical microbiology, microbial ecology, and bioremediation, food microbiology, immunology, animal virology (includes marine animal virology) and cell biology. The Department of Microbiology offers BS, BA, and minor degrees in microbiology, and MS and PhD degrees in microbiology.

Faculty of the Department of Microbiology have research interests in microbial signal transduction; prokaryotic biology; marine microbiology; medical microbiology; biochemistry, physiology, and genetics of bacterial systems; molecular virology; and invasive bacterial pathogens.

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**DEPARTMENT OF PHYSICS AND ASTRONOMY – Org Code: MAPA**

Physics is the study of matter and energy and how they interact at the most basic levels. Areas include mechanics, optics and lasers, thermodynamics, phenomena, condensed matter, and elementary particles. Physics is widely regarded as the most basic of all the sciences. Astronomy 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. Faculty members in Physics are joined by visiting faculty members from the Institute for Astronomy to present a balanced program of teaching and research. The Department of Physics and Astronomy offers BS, BA, and minor degrees in physics, and MS and PhD degrees in physics as well as MS and PhD degrees in astronomy.

Faculty of the Department of Physics and Astronomy has research interests in elementary particle physics, free-electron laser physics (including application in medical physics), condensed matter physics, particle astrophysics and high energy physics.



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**DEPARTMENT OF ZOOLOGY – Org Code: MAZOOL**

The biology of Hawai'i – the environments and the organisms – is extraordinary, and offers unique opportunities for research and graduate education. The Department of Zoology's emphasis is on tropical marine biology and evolutionary biology in its education and research. Many members of the graduate faculty in Zoology are affiliated with other research institutions, both within and outside the University, such as the Hawai'i Institute of Marine Biology, the Pacific Biomedical Research Center, the Kewalo Marine Laboratory, the Békésy Laboratory of Neurobiology, the Center for Conservation Research and Training, the Bishop Museum, and the Hakalau Forest Biological Field Station. The Department of Zoology offer BS, BA, and minor degrees in zoology, and MS and PhD degrees in zoology.

The research focus of the faculty of the Department of Zoology is in Hawai'i's unique natural resources, especially its endemic and indigenous marine and terrestrial animals and their habitats.

**Hawai'i Cooperative Fishery Research Unit – Org Code: MACFZO**

Established in 1966 the Hawai'i Cooperative Fishery Research Unit is a collaboration between the University of Hawai'i; the Department of Land and Natural Resources; and the U.S. Department of the Interior, Bureau of Sport Fisheries and Wildlife. The objective of the cooperative undertaking is for the advancement, pursuit, and application of research, management, education, extension, and demonstration programs concerned with sport fisheries.

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**MARINE OPTION PROGRAM – Org Code: MAMOP**

The Marine Option Program offers undergraduates of all majors throughout the University system, the opportunity to discover and develop their marine and marine-related interests and talents. The program is responsible for the development and management of one certificate-granting program offered at all UH campuses, including the Community Colleges, for those students who elect to complete selected academic seminars, symposia, field trips, workshops, baseline surveys and other hand-on experiences designed to promote marine education and training.