STATE OF HAWAIʻI
UNIVERISTY OF HAWAI`I
UNIVERSITY OF HAWAIʻI AT MĀNOA
OFFICE OF THE VICE CHANCELLOR FOR ACADEMIC AFFAIRS
COLLEGES OF ARTS AND SCIENCES
COLLEGE OF NATURAL SCIENCES

FUNCTIONAL STATEMENT

OFFICE OF THE DEAN – Org Code: MADNNS

The Office of the Dean provides leadership and overall vision for the college, directs and coordinates the activities including curricular, personnel and budget management, program management, staff supervision, community relations, fundraising, grievance and litigation, and travel of the College. The Office of the Dean also manages the development of the College's research related programs and oversees curriculum development and reform, program review, and workload activities.

ACADEMIC AFFAIRS – Org Code: MAAANS

Coordinates major curricular policy activities on behalf of the Dean.

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

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

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

Provides academic advising services and programming to students from matriculation to graduation for the College of Natural Sciences.

ADMINISTRATIVE SERVICES – Org Code: MAASNS

Administrative Services supports and assists the Dean and the College units in personnel and fiscal affairs, budget planning and preparation, facilities, resource allocation, space management and activities coordination.

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DEPARTMENT OF BIOLOGY

FUNCTIONAL STATEMENT

DEPARTMENT OF BIOLOGY – Org Code: MABIOL

The biology of Hawaiʻi is extraordinary, and offers unique opportunities for research, teaching and graduate education. The Department of Biology is the academic home for students who wish to pursue broad training in the biological sciences. The department offers BA and BS degrees in Biology, a BS degree in marine biology, a minor in biology, and certificates in Marine Options (see Marine Option Program below) and in Mathematical Biology. The Department of Biology offers MS and PhD degrees in zoology and participates in the Marine Biology Graduate Program and the graduate specialization in Ecology, Evolution and Conservation Biology.

Research by the faculty of the Department of Biology encompasses the range of modern biology, from molecular biology through macroevolution, with evolution providing a unifying theme. Much of this research deals with species endemic or indigenous to Hawai`i, in both marine and terrestrial habitats.

Hawaiʻi Cooperative Fishery Research Unit – Org Code: MACFZO

Established in 1966 the Hawaiʻi Cooperative Fishery Research Unit is a collaboration between the University of Hawaiʻi; the Department of Land and Natural Resources; and the U.S. Department of the Interior, U.S. Fish & Wildlife Service. 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.

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.

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DEPARTMENT OF BOTANY

FUNCTIONAL STATEMENT

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 Hawaiʻi'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 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, and MS and PhD degrees in botany.

Research programs focus on the ecology and evolution of Hawaiʻi's unique plants, algae, and fungi; the conservation and restoration of natural communities facing global threats from invasive plants, animals, and microbes, habitat alteration, and climate change; and ethnobotany.

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DEPARTMENT OF CHEMISTRY

FUNCTIONAL STATEMENT

DEPARTMENT OF CHEMISTRY – Org Code: MACHCH

Chemistry stands at the crossroads between physics and biology and provides a fundamental knowledge base for further training in diverse fields including medicine, pharmacy, engineering, oceanography, and environmental studies. The Chemistry Department provides instruction, conducts sponsored and unsponsored research, and provides support and analytical services related to chemical structure determination. Instructional activities include service courses for undergraduate science and engineering majors, advanced courses for undergraduate chemistry and biochemistry majors, and highly specialized courses for graduate students. Research activities serve an essential educational function by training advanced undergraduate and graduate students in the specialized methods for carrying out chemical research projects.

Instructional Activities – Org Code: MACHEM

The department offers BA, BS and minor degrees in chemistry, BA and BS degrees in biochemistry, and MS and PhD degrees in chemistry. The department also teaches large service courses in general chemistry and organic chemistry that support other majors in the natural sciences, as well as in the Colleges of Engineering and Tropical Agriculture and Human Resources, and the Schools of Nursing and Ocean and Earth Science and Technology.

Department faculty have research interests in organic, inorganic, physical, and analytical chemistry, as well as biochemistry and biophysics. Sponsored research conducted by faculty plays a central role in undergraduate and graduate student education. The graduate faculty participate in a number of collaborative research efforts with colleagues at the UH Cancer Center, the John A. Burns School of Medicine, the College of Tropical Agriculture and Human Resources, the Hawaiʻi Natural Energy Institute, the NASA Astrobiology Institute, and the W.M. Keck Astrochemistry Laboratory.

Support Activities – Org Code: MASACH

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

Stockroom 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 Hawaiʻi community.

Instrument/Computer Services
The Department of Chemistry provides services for design, construction, and repair of devices and scientific instruments not available commercially, and provides repair and maintenance of departmental instruments used for Gas and Liquid Chromatography, UV-Visible and Infrared Spectroscopy, X-ray Diffractometry, and Mass Spectrometry. 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 instruments for molecular structure determination. Instrumentation includes Nuclear Magnetic Resonance and Electron Paramagnetic Resonance Spectrometers, Mass Spectrometers, and X-ray Diffractometers. These facilities are regularly used by members of the Department of Chemistry, other research units within the University of Hawaiʻi system, and scientists from across the State of Hawaiʻi.

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DEPARTMENT OF INFORMATION AND COMPUTER SCIENCES

FUNCTIONAL STATEMENT

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

FUNCTIONAL STATEMENT

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

FUNCTIONAL STATEMENT

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 Hawaiʻi 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, 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

FUNCTIONAL STATEMENT

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. It is the ideal major for those who want to understand the universe from the smallest to the largest scales. Areas include mechanics, electricity and magnetism, thermodynamics, optics and lasers, computational physics, electronics for physicists, quantum theory, atomic and nuclear phenomena, condensed matter, and elementary particles. 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 faculty members from the Institute for Astronomy to present a balanced academic program. The Department of Physics and Astronomy offers BS, BA, and minor degrees in physics, and MS and PhD degrees in physics as well as BS in Astrophysics, BA in Astronomy, minors in both Astrophysics and Astronomy, and 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, condensed matter physics, nanophysics, particle astrophysics and high energy physics.