

Environmental Sciences Core Faculty

Nianhong Chen, Ph.D.
(Geochemistry)

Paulinus Chigbu, Ph.D.
(Fisheries)

Ali Ishaque, Ph.D.
(Eco-Toxicology)

Andrea Johnson, Ph.D.
(Fish Physiology / Health)

Anthony Mazzaccaro, Ph.D.
(Aquaculture)

Eric May, Ph.D.
(Fish Pathology)

Margaret Sexton, Ph.D.
(Biological Oceanography)

Bradley Stevens, Ph.D.
(Fisheries/ Invertebrates)

Meng Xia, Ph.D.
(Physiology/ Oceanography)

**Paul S. Sarbanes Coastal Ecology Laboratory
Living Marine Resources
Cooperative Science Center**



Dr. Ali B. Ishaque
ENVS Group Leader



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If you would like more information
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Environmental Science Program**

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Visit our website at:
www.umes.edu/sciences



ENVIRONMENTAL SCIENCES



UNIVERSITY of MARYLAND
EASTERN SHORE

**DEPARTMENT OF
NATURAL SCIENCES**



Program Mission

The mission of the Environmental Sciences (ENVS) Program is to prepare students for entry into graduate school and productive careers in Environmental Sciences and Environmental Sciences related occupations.

Objectives

- Provide students with a strong academic curricula in Environmental Sciences.
- Prepare students to be adaptable to new developments in Environmental Sciences.
- Train students to conduct scientific research through example, mentoring and personal experience.
- Prepare students for employment in newly evolving and conventional scientific fields related to Environmental Sciences.

Program Description

The ENVS program offers undergraduate BS degrees specializing in two areas of interest: Marine Science or Environmental Chemistry. UMES also offers a Dual Degree BS program in conjunction with Salisbury University. Three graduate degrees are offered through the ENVS program, a BS/MS degree, a MS degree and a PhD degree in conjunction with the USM MEES program.

Environmental Science Curriculum

The ENVS program B.S. curriculum comprises 29 credit hours of required core courses, 46 hours of supportive course requirements, 3 hours of program electives, and an additional 42 semester hours of general education courses.

To receive the B.S./M.S. degree, students must satisfy the 120 credit B.S. degree requirements and M.S. degree requirements which include a total of 30 course credits: course work (24 credits) and Master's Thesis research (6 credits).

Environmental Chemistry Core Courses

Course No. Title
CHEM311/312 Analytical Chemistry I & II
CHEM488A/489 Environmental Chemistry/Lab
ENVS221/222 Prin. of Environ. Science/Lab
ENVS403/405 Marine Ecotoxicology/Lab
ENVS460 Earth Science
ENVS497 Senior Seminar
ENVS498/499 Ind. Study/UG Research

Marine Science Core Courses

Course No Title
BIOL 301/303 Microbiology
BIOL201/203 Marine Zoology/Lab
BIOL202/204 Marine Botany/Lab
BIOL 402 Ecology
ENVS202/204 General Oceanography/Lab
ENVS221/222 Prin. of Environ. Science/Lab
ENVS403/405 Marine Ecotoxicology/Lab
ENVS497 Senior Seminar
ENVS498/499 Ind. Study/UG Research

BS/MS Option Curriculum

Additional Courses to fulfill M.S. Requirements,

Course No Title
MEES XXX Electives (14 credits)
MATH 410 Mathematical Statistics II
CSDP 604 Computers Methods in Statistics
ENVS 684 Natural Resource Management
MEES 799 Graduate Research
MEES 608 MEES Seminar

*See the undergraduate, or graduate, catalogs for specific details or visit our website.

Career Opportunities

Graduates in Environmental Sciences will qualify for employment as an Air Pollution Supervisor, Water Treatment Plant Manager, Energy & Environment Specialist, Oceanographer, Marine Biologist, Soil Conservationist, Environmental Chemist/Biologist, or Fisheries Scientist.

Scholarships

Department of Natural Sciences
UMES Honors Program
Minority Access to Research Careers (MARC)
National Oceanographic and Atmospheric Administration (NOAA).

Faculty Research Interests

Current areas of faculty research include water-air-soil pollution, heavy metal toxicity, environmental endocrinology, marine natural products, biological rhythms, marine invertebrates, mariculture, laser and application, solar energy storage/conversion, insect resistance of soybeans, renewable energy and fisheries science.

Environmental Science majors also have the opportunity to participate in internships and/or faculty research projects with private industries, state, federal and local government agencies including the Department of Energy, National Institute of Health, Federal Government Research Laboratories, Hewlett Packard, US Army Waterways Experimental Research Station and other Universities with which collaborative agreements have been established.

Equipment

Equipment holdings reflects current trends in research and technology. They include: Nippon Mercury Analyzer (MA 2000); Calibur Fluorescence-Activated Cell Sorter (FACS); Micro Array; Real Time (RT) PCR; Gas Chromatography Mass Spectrometer (GC-MS), Matrix-Assisted Laser Desorption/ Ionization Spectrometer (MALDI), Ion Chromatograph (IC), Nuclear Magnetic Resonance Spectrophotometer (NMR), Inductively Coupled Plasma Mass Spectrometer (ICP-MS), High-Performance Liquid Chromatograph (HPLC) with Diode Array and Fluorescence Detection, HPLC for Carbohydrate Analysis, Atomic Absorption Spectrophotometer (AAS), Thermogravimetric Analyzer (TG/MS/GC), X-Ray Diffractometer, Toxicity Analyzer, Laser Zee Meter, Autoclave, Differential Thermal Analyzer (DTA), Solution Phase Synthesizer (SPS), Microtiter Plate Reader with Fluorescence Detector, Electrophoresis Equipment for Protein Analysis, Porosimeter (ASAP2010), Fluorometer, Infrared Spectrometer, and UV-VIS Spectrophotometer, as well as several boats, ysi-6600, trawl and bongo nets.