

Environmental Studies

Joel Heinen, *Associate Professor and Chairperson*

Bradley Bennett, *Associate Professor*

Mahadev Bhat, *Associate Professor*

Brian Bovard, *Instructor*

David Bray, *Professor*

Anne Hartley, *Assistant Professor*

Krishnaswamy Jayachandran, *Associate Professor*

Stephen P. Leatherman, *Professor (International Hurricane Center)*

Michael McClain, *Associate Professor*

Jack Meeder, *Research Scientist (Southeast Environmental Research Center)*

Assefa Melesse, *Assistant Professor*

John Parker, *Professor*

Tom Pliske, *Instructor*

Gary Rand, *Professor*

Mike Ross, *Research Scientist (Southeast Environmental Research Center)*

Raymond Scattone, *Assistant Professor*

Rebecca Zarger, *Assistant Professor*

Keqi Zhang, *Assistant Professor and Research Scientist (International Hurricane Center)*

Affiliated Faculty

William Anderson, *Earth Sciences*

Jerry Brown, *Sociology/Anthropology*

Yong Cai, *Chemistry*

Daniel Childers, *Biological Sciences*

Alice Clarke, *US Park Service*

Maureen Donnelly, *Biological Sciences*

Jim Fourqurean, *Biological Sciences*

Jennifer (Zhaohui) Fu, *GIS-RS Center*

Evelyn Gaiser, *Biological Sciences*

Piero R. Gardinali, *Chemistry*

Jennifer Gebelein, *International Relations*

Gail Hollander, *International Relations*

James Huchingson, *Religious Studies*

Rudolf Jaffe, *Chemistry*

Jeff Joens, *Chemistry*

B.M. Golam Kibria, *Statistics*

Suzanne Koptur, *Biological Sciences*

David Lee, *Biological Sciences*

Andrew Mathews, *Sociology/Anthropology*

Rod Neumann, *International Relations*

Michael Norland, *S. Fla Natural Resource Center*

Steve Oberbauer, *Biological Sciences*

Laura Ogden, *Sociology/Anthropology*

Kevin O'Shea, *Chemistry*

Tom Philippi, *Biological Sciences*

René Price, *Earth Sciences*

Stewart Reed, *US Department of Agriculture*

James Riach, *Adjunct Professor*

Len Scinto, *Southeast Environmental Center*

Berrin Tansel, *Civil and Environmental Engineering*

Joel Trexler, *Biological Sciences*

Bill Vickers, *Sociology/Anthropology*

Yan Yan Zhou, *Statistics*

Master of Science in Environmental Studies

The Environmental Studies Department offers the Master of Science (M.S.) in Environmental Studies degree to train students for work in the areas of environmental policy, natural resource science and management, and sustainable development, with particular focus on the South Florida region, the Caribbean Basin, Asia and Latin America. An emphasis of the program is the cultural and political milieu in which environmental issues of the region are embedded. The program is interdisciplinary in nature, and students will be encouraged to take advantage of University-wide resources, programs, and courses in environmental issues, such as those in Public Administration, International Relations, Biology, Chemistry, Earth Sciences, Political Science, Economics, and Sociology/Anthropology.

The M.S. degree program offers two options: thesis track and non-thesis track. The thesis track involves rigorous, solutions-oriented scientific research into the functioning of environmental systems. This track is highly recommended for students who are coming directly from undergraduate programs and who are interested in doctoral research in the future. The non-thesis track is primarily designed for employed professionals who may want to enhance their careers and skills through additional academic training beyond their bachelor's degree and practical training through internships with agencies, corporations, non-profit organizations or academic institutions. It is not recommended for students who do not have job experience.

Admission Requirement

To be admitted into the master's program in Environmental Studies, a student must meet the University's graduate admission requirements and:

1. Have a "B" average in upper level work, *and* a combined score of 1000 (quantitative and verbal) on the GRE, which every candidate must take. International graduate student applicants whose native language is not English are required to submit a score for the Test of English as a Foreign Language (TOEFL) or for the International English Language Testing System (IELTS). A total score of 80 on the iBT TOEFL or 6.3 overall on the IELTS is required.
2. Have submitted three letters of recommendation, a one-page statement of research interests, a copy of all transcripts, and a copy of the university graduate application to the Graduate Program Director on or before March 1 for the Fall admissions and October 1 for the Spring admissions.
3. Have received approval of the departmental graduate program committee.

Degree Requirements

The Master of Science in Environmental Studies requires 36 credits, including the specific requirements (listed below) of either thesis track or non-thesis track option of the degree program. A maximum of six credits of post-baccalaureate graduate course work may be transferred from other institutions, subject to approval of the graduate committee. Particular courses will be determined by the student in consultation with the thesis advisory committee, faculty advisor, or the Graduate Program Director.

Thesis Track: Course Requirements

EVR 5320	Environmental Resource Management	3
EVR 5355	Environmental Resource Policy	3
EVR 6950	Graduate Seminar	3
EVR 6971	Master's Thesis	6
Research Methods or Analysis Course		3
Electives		18
Total Credits		36

The research methods course and electives are selected in consultation with student's thesis advisor. Elective courses are chosen in one of the three graduate concentrations (see below) and fit the student's thesis Research. Additional thesis or research credit, above the 6-credit minimum, may also be applied as elective credit. A maximum of six credit hours may be taken at the 4000 level, and a minimum of six credit hours of electives must be taken in Environmental Studies. Students must demonstrate a competency in Statistics (equivalent to two courses of undergraduate statistics, taken prior to the admission into the program, with a "B" or better grade in both courses, or two courses of graduate statistics with a "C" or better grade in both courses). Additional course work may be recommended by the advisory committee. A maximum of 5 credit hours of independent study credit (EVR 5907 Graduate Independent Study) may be applied toward graduation.

Thesis Track: Graduation Requirements

A grade of 'B' or higher must be obtained in all core courses. A grade of 'C' or higher must be obtained in all courses, with a cumulative GPA of 3.0 or higher in the 36 credits. Students must pass a comprehensive oral and/or written qualifying examination. The format of the examination will be decided by the thesis advisor and the committee. A thesis must be completed and defended in consultation with the student's graduate thesis committee.

Non-Thesis Track: Course Requirements

EVR 5320	Environmental Resource Management	3
EVR 5355	Environmental Resource Policy	3
EVR 5907	Research and Independent Study	3
EVR 6950	Graduate Seminar	3
Quantitative Methods Course		3
Electives		21
Total Credits		36

The quantitative methods course and electives are selected in consultation with faculty advisor. Elective courses are chosen in one of the three graduate concentrations (see below), and to fit the student's particular professional interest and to ensure sufficient breadth and depth of environmental studies knowledge. Students carrying out research, internship or independent study for their non-thesis project should sign up for EVR 5907, but may not exceed six credits total. EVR 6970 and EVR 6971 will *not* count toward electives. A maximum of six credit hours may be taken at the 4000 level. A minimum of twelve elective credits must be taken in Environmental Studies. All courses except EVR 6950 must be taken for letter grades.

Non-Thesis Track: Graduation Requirements

A grade of "B" or higher must be obtained in all core courses. A grade of "C" or higher must be obtained in other courses, with a cumulative GPA of 3.0 or higher in the 36 credits. A project (EVR 5907) must be completed

under faculty supervision, and the project report must be presented as a part of the Graduate Seminar class. This work may be based on a specific field research, or internship of current occupation. A project is defined as a substantial analysis and proposal for change of real-world environmental problem.

Graduate Concentrations for the Master of Science in Environmental Studies

The Department of Environmental Studies currently offers graduate-level concentrations in three different areas. These are 1) energy management, and 2) biological management, and 3) pollution management. A list of electives for each of these concentrations can be obtained from the Department's Office.

Course Descriptions**Definition of Prefixes**

EVR-Environmental Studies.
F-Fall semester offering; S-Spring semester offering; SS-Summer semester offering.

EVR 5061 South Florida Ecology: Field Studies (3).

Introduction to ecology of South Florida. Series of field trips to unique ecosystems (Everglades, hardwood hammocks, coastal regions). No science background required. Intended for teachers. Not intended for Environmental Studies graduate students.

EVR 5065 Ecology of Costa Rican Rainforest (3).

Intensive study of Central American tropical forest ecosystems conducted for two weeks in Costa Rica in sites ranging from lowland to high mountains. Primarily for teachers. Prerequisites: Graduate standing or permission of the instructor. (SS)

EVR 5066 Ecology of the Amazon Flooded Forest (3).

Study of the ecology of the flooded forest with emphasis on the relationships between plants and animals and the annual flooding cycle. The course includes a two-week field study at river camp in Peru. Prerequisites: Graduate standing or permission of the instructor. (SS)

EVR 5067 Tropical Forest Conservation and Utilization (3).

Distribution and classification of tropical forest ecosystems, their description and the ecological principles governing their function. Factors influencing tropical forest utilization and destruction, and strategies for sustainable use and conservation. Prerequisites: EVR 5355 or permission of the instructor.

EVR 5236 Air Pollution Dynamics (3).

A course designed to give an understanding of the fates of atmospheric pollutants. Scavenging processes in the atmosphere; radiation, residence times, chemical reactions, global transport process, point source dispersion and modeling calculations. Prerequisites: EVS 3360 or EVR 4231.

EVR 5300 Topics in Urban Ecology (3).

Topics include urban and suburban ecosystems emphasizing energy relations, ecological functions of urban landscapes, urban wildlife, urban forestry and ecological issues relevant to human health and well-being. Prerequisites: PCB 3043 or permission of the instructor.

EVR 5313 Renewable Energy Sources (3). An analysis of renewable energy sources and energy efficiency

including wind, biomass, geothermal, hydroelectric, solid waste, solar heating, solar cooling, and solar electricity. Prerequisite: Permission of the instructor.

EVR 5315 Energy Resources and Systems Analysis (3). Detailed analysis of energy flows in natural and man-made systems. Energy systems analysis. Energy use patterns. Conventional and alternate sources of energy.

EVR 5320 Environmental Resource Management (3). The scientific and philosophical basis for the management of renewable and non-renewable energy, mineral, air, water, and biotic resources. Prerequisites: Graduate standing or permission of the instructor. (F)

EVR 5330 Tropical Ecosystems Management (3). Analyzes the dimensions of tropical ecosystems management. Organizational and institutional dynamics of the management of tropical forests, agroecosystems, and coastal areas are covered. Prerequisite: Permission of the instructor.

EVR 5350 International Organizations & Environmental Politics (3). The role of international organizations in environmental politics and the process of their formation and change in response to environmental problems. Prerequisites: Graduate standing or permission of the instructor.

EVR 5353 International Energy Policy (3). Focuses on the distribution of global energy resources and related issues. A comparison of the energy policies of various countries serves as the basis for exploring alternative energy policy approaches. Prerequisites: EVR 5355 or permission of the instructor.

EVR 5355 Environmental Resource Policy (3). A survey of international and national environmental policy and the legal, economic, and administrative dimensions of international accords and selected U.S. law. Prerequisites: EVR 5320 or permission of the instructor. (S)

EVR 5360 Protected Area Management (3). Interdisciplinary examination of ecological, administrative, and socio-economic aspects of managing protected natural areas. Case studies from developed and developing nations.

EVR 5405 International Biological Conservation Accords (3). Survey of international biological conservation agreements. Topics include bilateral migratory wildlife agreements, the Berne Convention on Migratory Wildlife, CITES, Ramsar, the UNCED Biodiversity Treaty and the Statement of Principles on Forests. Prerequisites: EVR 5355 or permission of the instructor.

EVR 5406 U.S. Endangered Species Management (3). History and implementation of the U.S. Endangered Species Act. Topics include legal and administrative aspects, reauthorization, procedures for recovery planning and conflict resolution, and biological measures of success. Prerequisites: EVR 5355 or permission of the instructor.

EVR 5410 The Human Population and Earth's Ecosystems (3). Explores the impact of the human population of Earth's ecosystems. Reviews current population data at global, regional, and local scales.

Includes study of specific South Florida carrying capacity issues.

EVR 5907 Research and Independent Study (VAR). The student works with a professor on a research project. Variable credit.

EVR 5935 Special Topics (VAR). A graduate-level course dealing with selected environmental topics. The content will not necessarily be the same each time the course is offered.

EVR 5936 Topics in Environmental Studies (3). An analysis of several current environmental topics. Recommended for primary and secondary school teachers.

EVR 6322 Methods of Sustainable Resource Management (3) A study of methods and policies for achieving a sustainable environment. Covers project appraisal, resource modeling and national accounts in the context of resource sustainability. Prerequisites: Graduate standing or permission of the instructor.

EVR 6329 Watershed Analysis and Management (3). An examination of the watershed approach to managing water and land resources. Integrating fundamental physical, chemical, and biological processes with human systems at the landscape scale using GIS.

EVR 6950 Graduate Seminar (1) A weekly seminar that features guest speakers, student presentations, and discussions among graduate students and faculty. Environmental Studies graduate students are required to register during three semesters of their program. Prerequisite: Permission of the instructor.

EVR 6970 Thesis Research (1-12) Supervised research towards completion of Master's Thesis. Repeatable. Prerequisite: Permission of Major Professor.

EVR 6971 Master's Thesis (1-12) Completion of Master's Thesis. Repeatable. Prerequisite: Permission of Major Professor.

EVS 5145 Ecotoxicology (3). Fate of chemicals and their acute and chronic toxicological effects on aquatic and wildlife systems. Dose-response relationships, bioavailability, bioconcentration, microbial degradation, and biomonitoring. Prerequisites: One year of biology and one year of chemistry and CHM 2200 and lab or permission of the instructor.

EVS 5194 Applied Soil Biology (3). Examines biology of soil organisms and biologically-mediated chemical transformations occurring in soil ecosystems. Prerequisite: BSC 1011.

EVS 5637 Ecological Risk Assessment (3). Evaluation of risks of foreign chemicals to aquatic and terrestrial systems. Concepts and methodology used in the hazard and risk assessment of toxic effluents, chemical/oil spills, and contaminated sediments. Prerequisites: One year of biology and one year of chemistry and CHM 2200 and lab or permission of the instructor.