

Department of Environmental Studies

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www.esf.edu/es

Department Faculty

DeBAISE (Environmental Writing, Ecofeminism), M. HALL (Ecosystem Modeling, Urban Ecology), JAGER (Environmental and Science Writing), LAWLER (Literature of Nature, Environmental Journalism), MANNO (Sustainable Development, Ecological Economics, Great Lakes Policy), MEISNER (Environmental Communication, Environmental Thought and Ethics), MORAN (Environmental Policy and Politics, Water Issues), NORDENSTAM (Environmental Risk, Environmental Policy, Survey Design), SENECAH (Environmental Communication, Public Participation, Qualitative Methods), SMARDON (Landscape and Sustainability Planning, Environmental Management, Wetland Assessment), SONNENFELD (Environmental Sociology, Sustainable Development, Asian Environmental Policy), WHITMORE (Environmental Communication, Environmental Writing)

Participating Faculty

BEIER (Forest Ecology, Climate Change), C. HALL (Systems Ecology), GIBBS (Conservation Biology), LIMBURG (Aquatic Ecology), NAKATSUGAWA (Toxicology, Health Impacts of Chemicals), SHIELDS (Animal Behavior, Evolution and Genetics)

Adjunct Faculty

ABRAHAM (Public Health), BLISS (Water Resources), BRECHIN (Environmental Sociology), COMO (ESF in the High School), DRIESEN (Environmental Law), DURKIN (Environmental Risk Assessment), EFFLER (Water Quality Modeling), EMERY (Research Geography), FAUST (Human Ecology, Ethnoecology), FERRANTE (Watershed Ecology and Management), HOSMER-BRIGGS (English for Non-Native Learners); HUNT (Environmental Health Effects), JOYAL (Environmental Law), KROEGER (Natural Resource Economics), MARX (ESF in the High School), NOWAK (Urban Ecosystems), SAGE (Community Building), SHARLOW (ESF in the High School), SAMMON (ESF in the High School), WARNEKE (Administration and Planning)

Bachelor of Science in Environmental Studies

To address environmental issues, we must first understand the problems that underlie them. Because those issues and problems exist at the interface of complex human and natural systems, understanding them requires the right synthesis of scientific, social, and cultural knowledge. Addressing those problems also requires scientific, social and cultural skills. The Environmental Studies program at SUNY-ESF offers students just those sorts of learning and skill-development opportunities in the context of a well-rounded, yet substantial, education.

The program has been carefully designed to provide students with as comprehensive an understanding of environmental affairs as is possible in an undergraduate education. That means learning about the scientific diagnosis of environmental issues and having enough scientific knowledge to work with scientists. It also means learning about the social, cultural and

technological causes of those issues. Finally, it means understanding the diversity of approaches needed to treat the problems. In the pursuit of these objectives, we bring together philosophical, theoretical and practical perspectives on a wide range of environmental concerns. In this way, our program prepares students with the knowledge, skills and experience to work for a more ecologically sustainable and socially just world.

Because the environmental studies program is broadly multidisciplinary as well as interdisciplinary, it provides students with a broad-based liberal education and asks them to be proficient across a breadth of scholarly and practical areas. Graduates of the environmental studies program have gone on to graduate school in many disciplines as well as to law and medical school. They have also proceeded to work in nongovernmental organizations (NGOs), education, government, and the private sector, pursuing careers in such areas as policy, advocacy, conservation, consulting, administration, law, and education to name just a few.

Guiding Principles

There are six principles that guide the design and implementation of the environmental studies program:

- *Holistic interdisciplinary education:* We seek to offer our students an education that demonstrates the interconnectedness and integration of the many disciplines and fields that intersect with environmental concerns.
- *Critical skills:* We encourage our students to be active learners and prepare them with invaluable lifelong skills, including research, analysis, writing, and critical thinking.
- *Diversity and complexity:* We encourage our students to recognize and value the diversity and complexity of ecological and social systems, and of the perspectives that inform society's understanding of environmental affairs.
- *Ecological literacy:* We seek to develop students' awareness, knowledge, and appreciation of the intrinsic values of ecological processes and communities.
- *Justice and equity:* We encourage students to value social and ecological justice and equity in all contexts.
- *Thoughtful professionalism:* We seek to prepare our students to be reflective and sensitive, yet also effective and professional, in whatever endeavors they choose to pursue.

Program Description

In the first two years of the program, students develop a foundation in the humanities, social sciences, and natural sciences as they relate to environmental affairs. During that time, students also fulfill SUNY general education requirements and take some open elective courses.

In the final two years of the program, students must select one of three specializations, or "option areas":

- *Environmental Communication, Culture and Writing:* This option focuses on the ways that communication influences environmental affairs, including rhetoric and discourse; news media; public participation; advocacy campaigns; collaboration; conflict resolution; risk communication; and representations of nature in literature and popular culture. It is through written, oral, and visual communication that humans determine their relationship with the rest of the

planet and with each other concerning it, and this option provides a broad-based foundation in environmental communication theory and application. In addition to gaining a critical perspective, students obtain a range of skills within the option, including oral presentation, nature and science writing, environmental journalism, multimedia, and collaboration. Students may also choose to emphasize environmental education, environmental ethics and values, or other cultural perspectives.

- *Environmental Policy, Planning and Law*: This option is concerned with how environmental policies, plans, and laws from the local to the global are created, implemented and contested. It emphasizes legislative, regulatory, and collaborative approaches to addressing environmental issues.
- *Biological Science Applications*: This option is designed for students interested in the interface between biology and socio-economic issues. It provides an emphasis on biology with an eye to the interaction with societal issues ranging from education to habitat management.

In each of these options, students have the flexibility to pursue more specific interests. Also, several undergraduate minors, including a minor in urban environmental science, are available.

In addition to traditional courses available through the core environmental studies curriculum and in the options, our program features the following:

- Community engagement through service learning
- Internships that provide valuable hands-on experience; and
- Opportunities to study abroad for a semester.

The scope and complexity of coursework within the environmental studies program demands both discipline and commitment from students seeking this degree. But the value of a broad education is widely acknowledged by educators and professionals. We hope that in offering this program we can prepare students not only to work in the diverse field of environmental protection, but also in any area that might interest them after graduation.

The undergraduate curriculum in environmental studies consists of two broad categories of courses. The first category, general education, provides students with knowledge and skills that are useful and important for all educated persons regardless of their profession. General education courses also help prepare students for advanced courses leading to a specific profession. The second category, professional courses, provides students with direct preparation for specialization in environmental studies and career opportunities.

Students may enter the Bachelor of Science program as first-year students or as transfer students. Students who are preparing to transfer to ESF as juniors must have earned at least 60 credits of college coursework, in courses comparable to the lower-division course requirements as noted below.

The following table outlines the specific course requirements for the degree in environmental studies. Please refer to the student handbook, available online at www.esf.edu/es, for details on how individual courses meet program requirements and for lists of courses that fulfill specific requirements.

Undergraduate Program Requirements

Lower Division Environmental Studies Core Courses (61-62 credits)

Courses		Credits	
EST	132	Introduction to Environmental Studies Required for all environmental studies majors.	3
APM	104	College Algebra and Precalculus (3)	G3 3-4
APM	105	Survey of Calculus and Its Applications ² (4) <i>Students who pursue the biological science applications option need to complete APM 105 Survey of Calculus and Its Applications.</i> <i>Meets the requirements for general education skills and knowledge area. A complete listing of courses that meet general education standards established by SUNY is listed in Undergraduate Education.</i>	
APM	255	Computing Applications	3
CLL	190	Writing and the Environment	G 3
CLL	290	Writing, Humanities and the Environment	G 3
EFB	120	The Global Environment & the Evolution of Human Environment	3
EFB	101/ 102	General Biology I and Laboratory	G 4
EFB	103/ 104	General Biology II and Laboratory	3-4
EST	231	Environmental Geology <i>Students who pursue the biological science applications option need to complete EFB 103 and EFB 104 General Biology II and General Biology II Laboratory</i>	
ESF	200	Information Literacy	1
EST	200	Cultural Ecology	G 3
EST	221	Introduction to American Government	3
EST	245	Nature and Popular Culture	3
FCH	150/ 151	General Chemistry I and Laboratory	4
FOR	207	Introduction to Economics	G 3
		General Education Course: Western Civilization	G 3
		General Education Course: The Arts	G 3

		Electives <i>Students who pursue the biological science applications option need to complete FCH 152 and FCH 153 General Chemistry II and General Chemistry Laboratory II as one of these electives.</i>	9
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Upper Division Environmental Studies Core Courses (34-35 credits)

APM	391	Introduction to Probability and Statistics		3
CLL	410	Writing for Environmental Professionals		3
EFB	320	General Ecology		4
EST	321	Government and the Environment		3
EST	361	History of the American Environmental Movement	G	3
EST		Social Science <i>EST 353 Environmental Psychology, EST 366 Attributes, Values and the Environment, EST 388 Psychological Principles of Risk Communication, EST 390 Social Processes and the Environment, or EST 426 Community Planning and Sustainability.</i>		3
EST	494	Senior Seminar in Environmental Studies		1
		Upper Division Computing OR Natural Science Course <i>List of recommended courses are available in the student handbook.</i>		3
		Electives		9
		Senior Synthesis		3

Environmental Communication and Culture Option Requirements (27 credits)

CMN	393	Environmental Discourse & Communication		3
CLL	300	Survey of Environmental Writing		3
CMN	420	Advanced Public Presentation Skills		3
Two of the following four courses:				
CLL	495	Environmental Journalism		3
CLL	490	Literature of Nature		3
CMN	493	Environmental Communication Workshop		3
CRS	338	Communication in Organizations		3
		Environmental Communication, Culture and Writing Option Courses <i>List of recommended courses are available in the student handbook.</i>		12

Environmental Policy, Planning and Law Option Requirements (27 credits)

EST	550	Environmental Impact Analysis AND law course AND a planning course <i>Specific courses listed in Environmental Studies Handbook.</i>		9
		Policy/Planning Methods Courses <i>List of recommended courses are available in the student handbook.</i>		6
		Environmental Policy/Planning/Law Option Courses <i>List of recommended courses are available in the student handbook.</i>		12

Biological Science Applications Option Requirements¹¹ (27 credits)

Please note the specific lower division required courses for students in the biological science applications option

Microbes Course	3
Plants Course	3
Animals Course	3
Geographic Information Systems course	3
Policy or Law Course	3
Biology Focus Area Courses	12
A list of recommended courses is available in the student handbook.	

Total minimum credits for the degree 121-124 credits

Note: Total credits must include a minimum of 51 credit hours at the 300 level or above.

Undergraduate Minors

Students who meet eligibility requirements may take one of three minors in business: marketing, entrepreneurship, or general management studies; or the minor in computer and information technology. The minors are composed of courses taught at ESF and at Syracuse University. To be eligible for admission to one of the minors offered in conjunction with Syracuse University's School of Management, students must have a cumulative grade point average of 2.750 or better after one semester at ESF. To be eligible for admission to the minor in computer and information technology, students must have a cumulative grade point average of 2.800 or better after one semester at ESF.

In addition, ESF offers a campuswide minor in urban environmental science that allows students to gain the ability to identify and analyze the biophysical and social aspects of urban environmental issues from a systems science perspective; develop awareness of how diverse social, cultural and urbanization forces influence human perception of, and relation to the environment; and develop the ability to synthesize efficient, equitable and sustainable management, policy and design strategies to improve and sustain the quality of life in the urban community. A

complete description of minors available to ESF students is found in Undergraduate Minors.

Graduate Degrees in Environmental Studies

The Environmental Studies graduate program at SUNY-ESF is dedicated to preparing students to actively support local to global communities working to achieve sustainability. The program integrates social, cultural, and environmental knowledge and skills to address the challenges of the 21st century. Students in this program want to make a difference. Our program offers students a focused, yet flexible, interdisciplinary understanding of environmental issues, the problems that underlie them, and the paths that lead to sustainable communities. The program facilitates student engagement with the study of fundamental cultural, social, political, technical, and economic forces that drive environmental degradation as well as the emerging approaches that can foster sustainability.

Coursework

Students in our program draw on the frameworks of social science, humanities, and natural science to enhance their critical, analytical, and communication skills. Coursework combines theoretical, practical, and applied approaches to engage areas such as *environmental policy, environmental communication, sustainable communities, human behavior, collaborative governance, public participation, and environmental impact analysis*.

Core Environmental Studies graduate courses present its many disciplines and methodologies, and demonstrate its applicability to problem analysis, action, and the quest for sustainability. In addition to completing the core requirements, students may pursue a general program of study or emphasize a particular theme. A general program of study builds on the core and typically broadens it in multiple directions, providing a thorough preparation for diverse professional careers. A thematic focus builds additional competencies related to specialized academic and career goals. Suggested themes and lists of recommended courses are available in the Environmental Studies graduate program handbooks. Examples include *conflict resolution, sustainable development, risk management, media and environmental journalism, watershed policy, and ecosystem-based management*.

For M.S. students, a thematic choice is the preferred — though not required — alternative, since it should strengthen substantive content knowledge in an area relevant to the thesis. Final capstone presentations are required for both M.S. and M.P.S. students.

Plan of Study

Faculty work with individual students to develop a tailored plan of study to meet their specific goals. The plan of study is an opportunity for students to work out their learning, research and career objectives in narrative form and outline a sequence of courses and other learning experiences to help meet those objectives. The plan of study is also used by their major professor in order to provide effective advising on program, research, and internship choices. Guidelines for preparing the plan of study are available in the Environmental Studies graduate program handbooks.

Degree Options

The Environmental Studies graduate program offers two degree options: the Master of Science (M.S.) or Master of Professional Studies (M.P.S.). The requirements of each are outlined below.

The M.P.S. and M.S. degrees may be completed in 1-1/2 to 2 years of full-time study, respectively.

Master of Science (M.S.)

The Environmental Studies M.S. degree program is a 37 credit-hour experience focused on advanced academic scholarship and research related to environmental affairs and sustainability. This degree requires the completion of a Master's thesis. Details on thesis proposals and expectations are available in the Environmental Studies M.S. graduate program handbook. All students must present a Capstone Seminar during their final semester. If necessary, the distribution of required credits may be adjusted to take into account a student's prior academic work and background.

Core (12 credits)

Courses		Credits
All students take:		
EST 600	Foundations of Environmental Studies	3
EST 626	Concepts and Principles of Sustainable Development	3
All students also take at least two of the following:		
EST 608	Environmental Advocacy Campaigns and Conflict Resolution	3
EST 612	Environmental Policy and Governance	3
EST 640	Environmental Thought and Ethics	3
EST 650	Environmental Perception and Human Behavior	3

Research Methods (7 credits)

Courses		Credits
All students take:		
EST 797	Environmental Studies Seminar Students are required to take the specific section of this seminar that deals with research proposal preparation.	1
All students also take two research methods courses, typically from the following list and typically to support their thesis research needs:		
APM 510	Statistical Analysis	3
APM 625	Introduction to Sampling Techniques	3
APM 630	Regression Analysis	3
APM 635	Multivariate Statistical Methods	3
CRS 602	Empirical Research in Social Communication	3
CRS 604	Qualitative Communication Research Methods	3

EST 604	Social Survey Research Methods for Qualitative Methods	3
EST 605	Environmental Issues	3
EST 702	Environmental and Natural Resource Program Evaluation	3
LSA 640	Research Methodology	3
PPA 721	Introduction to Statistics	3
PPA 722	Quantitative Aids for Policy Analysis	3
PSC 602	Public Policy Analysis	3
PSC 693	Introduction to Quantitative Political Analysis	3
PSC 694	Qualitative Political Analysis	3
SOC 614	Introduction to Qualitative Research	3

Generalized/Thematic Area (12 credits)

All students take four courses, typically in a thematic area, in consultation with their major professor. The thematic area should be used to substantively prepare the student for thesis work. EST 898 and EST 899 may not be included as thematic area courses.

Thesis Research (6 credits)

All students with an approved thesis proposal take at least six credits of:

EST 899 Master's Thesis Research

Master of Professional Studies (M.P.S.)

The Environmental Studies M.P.S. degree program is a 39-credit-hour experience focused on advanced academic scholarship and its application to environmental affairs and sustainability. This degree requires the completion of a synthesis experience which frequently, though not always, involves a professional internship. Details on internships and other synthesis options are available in the Environmental Studies M.P.S. graduate program handbook. All students must present a Capstone Seminar during their final semester. If necessary, the distribution of required credits may be adjusted to take into account a student's prior academic work and background.

Core (18 credits)

All students take:

EST 600 Foundations of Environmental Studies 3
 EST 608 Environmental Advocacy Campaigns and Conflict Resolution 3
 EST 612 Environmental Policy and Governance 3
 EST 626 Concepts and Principles of Sustainable Development 3
 EST 640 Environmental Thought and Ethics 3
 EST 650 Environmental Perception and Human Behavior 3

Natural Sciences (3 credits)

All students take one natural science course. Typically this would be one of the following courses, though alternatives may be considered in consultation with the major professor.

EFB 516 Ecosystems 3
 EFB 518 Systems Ecology 4
 EFB 523 Tropical Ecology 3
 EFB 600 Toxic Health Hazards 4

EFB 611 Topics in Environmental Toxicology 3
 EFB 623 Marine Ecology 5

Research / Technical Methods (6 credits)

All students take two research or technical methods courses, typically from the following list and typically to support their learning objectives:

APM 635 Multivariate Statistical Methods 3
 ENS 519 Spatial Ecology 3
 ERE 550 Introduction to Geographic Information Systems 3
 EST 550 Environmental Impact Analysis 3
 EST 604 Social Survey Research Methods for Environmental Issues 3
 EST 605 Qualitative Methods 3
 EST 702 Environmental and Natural Resource Program Evaluation 3
 FOR 556 Introduction to Raster GIS Analysis 3
 FOR 557 Practical Vector GIS 3
 FOR 558 Advanced Topics in GIS 3
 LSA 500 Computer Graphics I 3
 LSA 501 Computer Graphics II 3
 LSA 552 Graphic Communication 3
 LSA 640 Research Methodology 3

Generalized/Thematic Area (6 credits)

All students take two courses in consultation with their major professor. The thematic area should be used to substantively prepare the student for capstone synthesis work. EST 898 and EST 899 may not be included as thematic area courses.

Synthesis (6 credits)

All students take the equivalent of two courses of either:

EST 798 Problems in Environmental Studies
 EST 898 Professional Experience

Certificate of Graduate Study in Environmental Decision Making

Purpose

The certificate of graduate study in environmental decision making is designed for graduate students enrolled in law, management, public administration, or information studies programs at Syracuse University. It provides an exposure to specialized environmental study that is relevant to students' primary professional interests in the fields identified. Because students in each of these programs will engage important environmental policy, program implementation and decision-making processes in their professional efforts, the distinctive environmental orientation of this certificate program will help students to better understand some of the complexities of environmental decision making from their unique professional perspectives.

The focus of certificate study is on environmental decision making, which can be defined as the process by which stakeholders in environmental outcomes engage in communications to seek solutions to environmental problems. Familiarly, decision making can refer to environmental policy making by governmental institutions, but a meaningful understanding of the topic in today's world will also include processes such as information acquisition and dissemination and such notions as negotiation, mediation, information policy and public participation as part of the decision-making lexicon. The decision-making focus furthermore expands the scope of stakeholders to include not only the institutions and agencies of government, but also the

large variety of citizen-based nongovernmental organizations and the business and industrial private sector.

Student Eligibility

Graduate students currently matriculated and in good academic standing in their law, management, public administration, or information studies degree programs at Syracuse University are eligible to apply for entrance into the certificate program. Applications from any other sources cannot be accepted at this time.

Administrative Procedures

Application and admissions procedures, compliance with college requirements for successful graduate study and the awarding of certificates are all administered by the SUNY-ESF dean of Instruction and Graduate Studies. If enrollment limitations are established, acceptances will be made on a rolling basis, according to the date of receipt of applications.

Student applications are made by completing the application form found in the advising guide. This provides contact information for applicants and verifies their matriculated status at Syracuse University. Upon completion of program credit-hour requirements, students file a certificate request form, which identifies completed coursework and initiates actions to produce official transcripts, leading to the award of the certificate.

Forms are available in the College's Office of Instruction and Graduate Studies, 227 Bray Hall, and in the Environmental Studies Graduate Office, 107 Marshall Hall. To assist certificate students in making suitable course selections and to answer related program questions, students should contact the department chair, 106 Marshall Hall.

Academic Advisement

Prospective students are encouraged to speak with their Syracuse University academic advisors about the advisability of and timing for entering this certificate program. Students might also wish to contact the following persons, who are knowledgeable of certificate goals and requirements:

- Law: TBA
- Management: Patrick DiRubbo, Academic Services
- Public Administration: Christine Omolino, associate director
- Information Studies: TBA