

ENVIRONMENTAL SCIENCE AND SUSTAINABILITY (MS)

The SES Master of Science in Environmental Science & Sustainability takes a whole-systems, interdisciplinary approach to global environmental and sustainability challenges. The program offers a choice of two tracks, Research and Professional, and can be pursued by students of any academic background.

Students in both tracks will complete 30 credit hours of instruction, including 6 credit hours in two core courses. Research Track students will pursue an original, in-depth research project, culminating in the writing and defending of a thesis. Professional Track students will complete coursework in one of four professional concentration areas, Environmental Law & Policy, Geographic Information Systems, Sustainable Assessment & Planning and Sustainable Business.

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Related Programs

Certificate

- Environmental Law and Policy Certificate (<https://catalog.luc.edu/graduate-professional/environmental-sustainability/environmental-law-policy-certificate/>)
- Geographic Information Systems (GIS) Certificate (<https://catalog.luc.edu/graduate-professional/environmental-sustainability/geographic-information-systems-certificate/>)
- Sustainability Assessment and Planning Certificate (<https://catalog.luc.edu/graduate-professional/environmental-sustainability/sustainability-assessment-planning-certificate/>)

Curriculum

Code	Title	Hours
Required Courses		
ENVS 401	Sustainable Systems - Natural Science Perspectives	3
ENVS 402	Sustainable Systems - Social Science Perspectives	3
Track Specific Curricula		24
<i>Research Track Curriculum</i>		
Electives		
<i>Students choose 12 credit hours of electives from either of the following in conjunction with their advisor:</i>		
Natural Science and Quantitative Electives; or (p. 2)		
Sustainable Society and Business Electives (p. 2)		
Thesis Research		
Students take 12 credit hours of research to design and conduct research thesis work under the guidance of a thesis advisor and thesis committee. Research track students are required to complete and defend their thesis to graduate.		
ENVS 496	Research	
ENVS 595	Thesis Supervision	
<i>Professional Track Curriculum</i>		
Students choose from one of the following concentration areas: Environmental Law and Policy, Geographic Information Systems, Sustainable Assessment Planning, or Sustainable Business (p. 1)		
Electives		
<i>Students choose electives from either of the following lists in conjunction with their advisors to complete requirements:</i>		
Natural Science and Quantitative Electives; or (p. 2)		
Sustainable Society and Business Electives (p. 2)		
Total Hours		30

Professional Track Curriculum Concentrations

Environmental Law and Policy

This Concentration provides essential knowledge in relevant areas of environmental law and policy for professionals who want to better understand the role of government, industry, non-profit, and other institutions involved in environmental advocacy, consulting, and compliance.

Code	Title	Hours
ENVS 410	Introduction to Environmental Law & Policy	3
ENVS 411	Natural Resources and Land Use Law & Policy	3
ENVS 412	Water Law & Policy	3
ENVS 413	Energy Law & Policy	3
Natural Science and Quantitative Elective		3
Natural Science and Quantitative Elective		3
Environmental Elective		3
Environmental Elective		3

Geographic Information Systems (GIS)

This Concentration provides essential knowledge on Geographic Information Systems (GIS) - a compilation of sophisticated, multidimensional software and tools used to capture, store, analyze, manage and present geospatial data. This curriculum provides essential training in the fundamental principles and concepts behind contemporary

geographic mapping technology needed to solve complex geospatial problems commonly encountered in environmental sciences, urban planning, social sciences, public health, as well as business, engineering, and many more fields.

Code	Title	Hours
ENVS 480	Introduction to Geographic Information Systems	3
ENVS 481	Advanced GIS Applications	3
ENVS 482	Remote Sensing	3
Environmental Elective		3
Environmental Elective		3
Environmental Elective		3
Environmental Elective		3
Environmental Elective		3

Sustainable Assessment & Planning

This Concentration delivers valuable skills for professionals who want to better understand how organizations can - and do – measure, regulate and report their own natural resource use. Students will develop essential skills used by sustainability professionals in government, industry, non-profit, and other institutions striving to improve and document their sustainability impact.

Code	Title	Hours
ENVS 451	Introduction to Sustainability Concepts & Impacts	3
ENVS 452	Sustainability Assessment & Reporting I	3
ENVS 453	Sustainability Assessment & Reporting II	3
ENVS 454	Sustainability Plan Development & Reporting	3
Environmental Elective		3
Environmental Elective		3
Environmental Elective		3
Environmental Elective		3

Sustainable Business

Code	Title	Hours
ENVS 433	Introduction to the Circular Economy	3
ENVS 435	Ecological Economics	3
ENVS 436	Design for Circular & Sustainable Business	3
ENVS 463	Sustainable Business Management	3
Natural Science and Quantitative Elective		3
Environmental Elective		3
Environmental Elective		3
Environmental Elective		3

Natural Science and Quantitative Courses

Work with your advisor to choose from our many courses to best advance your individual interests.

Code	Title	Hours
ENVS 420	Conservation Biology	3
ENVS 422	Invasive Species	3
ENVS 423	Environmental Microbiology	3
ENVS 425	Sustainable Agriculture	3
ENVS 426	Agroecosystems	3
ENVS 427	Food Systems Analysis	3
ENVS 430	Restoration Ecology	3

ENVS 435	Ecological Economics	3
ENVS 438	Climate Change and Human Health	3
ENVS 451	Introduction to Sustainability Concepts & Impacts	3
ENVS 452	Sustainability Assessment & Reporting I	3
ENVS 453	Sustainability Assessment & Reporting II	3
ENVS 454	Sustainability Plan Development & Reporting	3
ENVS 480	Introduction to Geographic Information Systems	3
ENVS 481	Advanced GIS Applications	3
ENVS 482	Remote Sensing	3
ENVS 484	Conservation Economics	3
ENVS 487	Principles of Ecotoxicology	3
ENVS 488	Applied Environmental Statistics	3
ENVS 489	Ecological Risk Assessment	3
ENVS 491	Independent Environmental Research (upon approval)	1-4
ENVS 495	Environmental Internship	3
ENVS 498	Special Topics (upon approval)	1-12
ENVS 498L	Special Topics with Lab (upon approval)	1-4
ENVS 499	Directed Readings (upon approval)	1-3
BIOL 495	Special Topics	1-4
BIOL 416	Limnology Lec/Lab	4
BIOL 418	Aquatic Insects Lecture & Laboratory	4
BIOL 470	Biostats & Exp Design Lec/Lab	4
MPBH 400	Determinants of Population Health	3
MPBH 401	Environmental Health	3
MPBH 403	Introduction to Epidemiology	3
MPBH 404	Biostatistics for Health and Biological Science	3
MPBH 407	Public Health Policy: Concepts and Practice	3
MPBH 409	Biostatistics I	3
MPBH 412	Intro to Statistical Computing for Public Health	1-3
MPBH 414	Introduction to Global Health	3
MPBH 421	Biostatistics II	3
MPBH 423	Intermediate Epidemiology	3
MPP 401	Analytical Tools in Public Policy	3
MPP 402	Cost Benefit Analysis	3
MPP 403	Public Budget and Finance	3
MPP 405	Statistical Methods & Analysis for Public Policy I	3
MPP 406	Statistical Methods & Analysis Public Policy II	3
MPP 408	Political Feasibility Analysis	3
SOCL 414	Statistical Methods Analysis I	3
SOCL 415	Statistical Methods of Analysis II	3
STAT 403	SAS Program & Applied Statistics	3
STAT 407	Statistical Design	3
STAT 436	Topics in Biostatistics	3

Sustainable Society and Business Electives

Work with your advisor to choose from our many courses to best advance your individual interests.

Code	Title	Hours
ENVS 410	Introduction to Environmental Law & Policy	3
ENVS 411	Natural Resources and Land Use Law & Policy	3
ENVS 412	Water Law & Policy	3

ENVS 413	Energy Law & Policy	3
ENVS 433	Introduction to the Circular Economy	3
ENVS 436	Design for Circular & Sustainable Business	3
ENVS 454	Sustainability Plan Development & Reporting	3
ENVS 463	Sustainable Business Management	3
ENVS 464		
ENVS 483	Human Dimensions of Conservation	3
ENVS 491	Independent Environmental Research (upon approval)	1-4
ENVS 495	Environmental Internship	3
ENVS 498	Special Topics (upon approval)	1-12
ENVS 499	Directed Readings (upon approval)	1-3
MPBH 407	Public Health Policy: Concepts and Practice	3
MPP 400	Policy Design and Analysis	3
MPP 404	Public Policy Process	3
PSYC 460	Social Psychological Theory	3
PSYC 461	Attitude and Attitude Change	3
PSYC 486	Methods of Program Evaluation	3
SOCL 412	Qualitative Methods in Social Research	3
SOCL 446	Knowledge, Power & Expertise	3
SOCL 463	Sociology & Natural Environment	3

Suggested Sequence of Courses

Research Track Curriculum

Course	Title	Hours
Year One		
Fall		
ENVS 402	Sustainable Systems - Social Science Perspectives	3
ENVS 496	Research	3-12
400 Level Elective		3
Hours		9
Spring		
ENVS 401	Sustainable Systems - Natural Science Perspectives	3
ENVS 496	Research	3-12
400 Level Elective		3
Hours		9
Year Two		
Fall		
ENVS 496	Research	3-12
400 Level Elective		3
400 Level Elective		3
Hours		9
Spring		
ENVS 496	Research	3-12
ENVS 595	Thesis Supervision	0
Hours		3
Total Hours		30

Professional Track Curriculum

Environmental Law & Policy Concentration

Course	Title	Hours
Year 1		
Fall		
ENVS 402	Sustainable Systems - Social Science Perspectives	3
ENVS 410	Introduction to Environmental Law & Policy	3
ENVS 411	Natural Resources and Land Use Law & Policy	3
Hours		9
Spring		
ENVS 401	Sustainable Systems - Natural Science Perspectives	3
ENVS 412	Water Law & Policy	3
ENVS 413	Energy Law & Policy	3
Hours		9
Year 2		
Fall		
	Natural Science and Quantitative Elective	3
	Natural Science and Quantitative Elective	3
	Environmental Elective	3
	Environmental Elective	3
Hours		12
Total Hours		30

Geographic Information Systems Concentration

Course	Title	Hours
Year 1		
Fall		
ENVS 402	Sustainable Systems - Social Science Perspectives	3
ENVS 480	Introduction to Geographic Information Systems	3
ENVS 482	Remote Sensing	3
Hours		9
Spring		
ENVS 401	Sustainable Systems - Natural Science Perspectives	3
ENVS 481	Advanced GIS Applications	3
	Environmental Elective	3
Hours		9
Year 2		
Fall		
	Environmental Elective	3
	Environmental Elective	3
	Environmental Elective	3
	Environmental Elective	3
Hours		12
Total Hours		30

Sustainable Assessment & Tracking Concentration

Course	Title	Hours
Year 1		
Fall		
ENVS 402	Sustainable Systems - Social Science Perspectives	3
ENVS 451	Introduction to Sustainability Concepts & Impacts	3
ENVS 452	Sustainability Assessment & Reporting I	3
Hours		9
Spring		
ENVS 401	Sustainable Systems - Natural Science Perspectives	3
ENVS 453	Sustainability Assessment & Reporting II	3
ENVS 454	Sustainability Plan Development & Reporting	3
Hours		9
Year 2		
Fall		
Environmental Elective		3
Environmental Elective		3
Environmental Elective		3
Environmental Elective		3
Hours		12
Total Hours		30

Sustainable Business Concentration

Course	Title	Hours
Year 1		
Fall		
ENVS 402	Sustainable Systems - Social Science Perspectives	3
ENVS 433	Introduction to the Circular Economy	3
ENVS 463	Sustainable Business Management	3
Hours		9
Spring		
ENVS 401	Sustainable Systems - Natural Science Perspectives	3
ENVS 436	Design for Circular & Sustainable Business	3
ENVS 435	Ecological Economics	3
Hours		9
Year 2		
Fall		
Natural Science & Quantitative Elective		3
Environmental Elective		3
Environmental Elective		3
Environmental Elective		3
Hours		12
Total Hours		30

Graduate & Professional Standards and Regulations

Students in graduate and professional programs can find their Academic Policies in Graduate and Professional Academic Standards and Regulations (<https://catalog.luc.edu/academic-standards-regulations/graduate-professional/>) under their school. Any additional University Policies supersede school policies.

Learning Outcomes

- Deepen your understanding of complex socio-ecological systems and their connection with sustainable development goals.
- Increase your ability to make accurate and ethical evidence-based decisions from scientific literature.
- Expand your capacity to communicate environmental science and sustainability issues to the scientific community, professional colleagues, policy makers, and the general public.
- Demonstrate competence of in-depth knowledge and skills through completion of an original research project and thesis.