ENVIRONMENTAL SCIENCE/ PUBLIC POLICY (BS/MPP)

From ecological restoration to water conservation, from climate change adaptation to storm water management, the challenge is clear. The need for individuals with knowledge and skills relevant to both environmental science and public policy has never been greater.

The SES dual degree programs with the Master of Public Policy (MPP) prepare graduates to meet these challenges effectively in careers in government, non-profit organizations, and businesses.

Undergraduate students take four graduate courses in their senior year, two each semester. In their fifth, graduate only year they will complete the remaining MPP credit hours.

There are eight 3-credit required MPP courses and a one-credit required Professional Development class. Students also take 12 elective credits where they develop a concentration in a particular field, such as environmental policy. For these electives, students can select from graduate courses in the School of Environmental sustainability.

CURRICULUM

These dual degree programs begin with a broad, interdisciplinary undergraduate curriculum drawing on courses in the natural sciences, social sciences, humanities, and business.

Undergraduate service-learning, internships, research, and study abroad provide students with rich, experiential learning opportunities. Students then develop more in-depth understanding of policy issues and the professional skills necessary to influence policy outcomes as part of their graduate studies.

Environmental Science students complete coursework that includes both a heavy dose of basic science requirements and courses spanning a variety of disciplines pertinent to understanding the context in which environmental challenges reside.

Code	Title	Hours
BS Requirements		
Core Curriculum		
ENVS 137	Foundations of Environmental Science I	3
BIOL 101	General Biology I	3
BIOL 111	General Biology I Lab	1
CHEM 160	Chemical Structure and Properties	3
CHEM 161	Chemical Structure and Properties Laboratory	1
BIOL 102	General Biology II	3
BIOL 112	General Biology II Lab	1
CHEM 180	Chemical Reactivity I	3
CHEM 181	Chemical Reactivity I Lab	1
ENVS 200	Environmental Careers and Professional Skills	1
ENVS 203	Environmental Statistics	3
ENVS 274	Chemistry of the Environment	3
ENVS 275	Chemistry of the Environment Lab	1
ENVS 280	Principles of Ecology	3
ENVS 286S	Principles of Ecology Lab	1
PLSC 392	Environmental Politics	3
Justice and Ethics Choice		
Select one of the following:		3
ENVS 284	Environmental Justice	
PHIL 287	Environmental Ethics	
THEO 204	Religious Ethics and the Ecological Crisis	
Economics Choice		
ENVS 335	Ecological Economics	3
or ECON 328	Environmental Economics	
Engaged Learning Choice		
Select one of the following:		3
ENVS 226	Science & Conservation of Freshwater Ecosystems	
ENVS 267	Bird Conservation and Ecology	
ENVS 273	Energy and The Environment	
ENVS 283	Environmental Sustainability	
ENVS 340	Natural History of Belize	
ENVS 345	Conservation and Sustainability of Neotropical Ecosystems	
ENVS 350A	Solutions to Environmental Problems: Water	
ENVS 350B	Solutions to Environmental Problems: Biogas	
ENVS 350C	Solutions to Environmental Problems: Climate Action	
ENVS 350F	Solutions to Environmental Problems: Food Systems	
ENVS 369	Field Ornithology	
ENVS 391	Environmental Research	
ENVS 395	Environmental Internship	
Capstone Choice		
Select one of the following:		3
ENVS 390	Integrative Seminar	
ENVS 391C	Independent Environmental Research (Capstone)	
ENVS 395C	Environmental Internship (Capstone)	
BS Electives		*21*
See designated elective categories below		
MPP Requirements		
Core Requirements		
MPP 400	Policy Design and Analysis	3
MPP 401	Analytical Tools in Public Policy	3
MPP 403	Public Budget and Finance	3
MPP 404	Public Policy Process	3
MPP 405	Statistical Methods & Analysis for Public Policy I	3
MPP 406	Statistical Methods & Analysis Public Policy II	3
MPP 500	Public Policy Evaluation	3
MPP 502	Professional Development Skills	1
MPP 501	Public Policy Internship	3
or MPP 503	Public Policy Practicum	
MPP Electives		
See designated elective categories below		12
Total Hours		**104**

BS Electives

Code	Title	Hours
Society, Ethics, and Justice		
Select one of the following:		3

ENVS 204	Gender, Health & Environment
ENVS 260 / COMM 260	Environmental Journalism
ENVS 279 / HIST 279E	Climate and History
ENVS 284	Environmental Justice
ENVS 297 / HIST 297E	North American Environmental History
ENVS 298	Special Topics (with SES approval)
ENVS 338	Climate Change and Human Health
ENVS 350A	Solutions to Environmental Problems: Water
ENVS 350B	Solutions to Environmental Problems: Biogas
ENVS 350C	Solutions to Environmental Problems: Climate Action
ENVS 350F	Solutions to Environmental Problems: Food Systems
ENVS 383	Human Dimensions of Conservation
ENVS 391	Environmental Research (with SES approval)
ENVS 395	Environmental Internship (with SES approval)
ENVS 398	Special Topics (with SES approval)
ENVS 399	Directed Readings (with SES approval)
COMM 101	Public Speaking & Critical Thinking
COMM 277	Organizational Communication
COMM 306	Environmental Advocacy
COMM 322	Guerilla Media
COMM 379	Digital Sustainability
ENGL 288	Nature in Literature
PHIL 287	Environmental Ethics
PSYC 277	Environmental Psychology
SOCL 226	Science, Technology, & Society
SOCL 252	Global Inequalities
SOCL 272	Environmental Sociology
SOCL 276	The Sociology and Politics of Food
SOCL 278	Global Health
THEO 204	Religious Ethics and the Ecological Crisis
THEO 344	Theology and Ecology
Policy, Economics, and Resource Management	
Select one of the following:	3
ENVS 298	Special Topics (with SES approval)
ENVS 300	Introduction to Public Health
ENVS 310	Introduction to Environmental Law & Policy
ENVS 311	Natural Resources and Land Use Law & Policy
ENVS 312	Water Law & Policy
ENVS 313	Energy Law & Policy
ENVS 327	Food Systems Analysis
ENVS 332	Industrial Ecology
ENVS 333	Introduction to the Circular Economy
ENVS 335	Ecological Economics
ENVS 336	Design for Circular & Sustainable Business
ENVS 338	Climate Change and Human Health
ENVS 363	Sustainable Business Management
ENVS 364	Sustainability Management in the Global Context
ENVS 383	Human Dimensions of Conservation
ENVS 384	Conservation Economics
ENVS 389	Ecological Risk Assessment
ENVS 391	Environmental Research (with SES approval)
ENVS 395	Environmental Internship (with SES approval)
ENVS 398	Special Topics (with SES approval)
ENVS 399	Directed Readings (with SES approval)
ECON 328	Environmental Economics
GLST 305	Globalization and Environmental Sustainability
MGMT 201	Managing People and Organizations
PLSC 354	Global Environmental Politics
Environmental Science Electives	
Select five, at least three of which must be at the 300 level:	15
ENVS 204	Gender, Health & Environment
ENVS 207	Plants and Civilization
ENVS 215 / BIOL 215	Ornithology
ENVS 218	Biodiversity & Biogeography
ENVS 223	Soil Ecology
ENVS 224	Climate & Climate Change
ENVS 226	Science & Conservation of Freshwater Ecosystems
ENVS 267	Bird Conservation and Ecology
ENVS 273	Energy and The Environment
ENVS 278	Hydrology
ENVS 283	Environmental Sustainability
ENVS 298	Special Topics (with SES approval)
ENVS 300	Introduction to Public Health
ENVS 301	Environmental Health
ENVS 303	Introduction to Epidemiology
ENVS 319	Winter Ecology
ENVS 320	Conservation Biology
ENVS 322	Invasive Species
ENVS 323	Environmental Microbiology
ENVS 325	Sustainable Agriculture
ENVS 326	Agroecosystems
ENVS 327	Food Systems Analysis
ENVS 330	Restoration Ecology
ENVS 338	Climate Change and Human Health
ENVS 340	Natural History of Belize
ENVS 345	Conservation and Sustainability of Neotropical Ecosystems
ENVS 350A	Solutions to Environmental Problems: Water
ENVS 350B	Solutions to Environmental Problems: Biogas
ENVS 350C	Solutions to Environmental Problems: Climate Action
ENVS 350F	Solutions to Environmental Problems: Food Systems
ENVS 369	Field Ornithology
ENVS 380	Introduction to Geographic Information Systems
ENVS 381	Advanced GIS Applications
ENVS 382	Remote Sensing
ENVS 383	Human Dimensions of Conservation
ENVS 385	Introduction to Global Health
ENVS 387	Principles of Ecotoxicology

ENVS 388	Applied Environmental Statistics	
ENVS 389	Ecological Risk Assessment	
ENVS 391	Environmental Research (with SES approval)	
ENVS 395	Environmental Internship (with SES approval)	
ENVS 398	Special Topics (with SES approval)	
ENVS 399	Directed Readings (with SES approval)	
ANTH 104	The Human Ecological Footprint	
ANTH 303	People and Conservation	
BIOL, CHEM, PHYS 300-level courses (with SES approval)		
Total Hours		**21**

MPP Electives

Students are required to take 12 hours of electives. Electives can be drawn from departments across the university, including environmental studies and public health. These electives are where students can focus on their preferred field of policy. The following are some examples of optional courses:

Code	Title	Hours
Environment		
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 480	Introduction to Geographic Information Systems	3
ENVS 481	Advanced GIS Applications	3
Public Health		
MPBH 400	Determinants of Population Health	3
MPBH 401	Environmental Health	3
MPBH 407	Public Health Policy: Concepts and Practice	3

Suggested Course Sequence

Course	Title	Hours
Year One		
Fall		
BIOL 101	General Biology I	3
BIOL 111	General Biology I Lab	1
CHEM 160	Chemical Structure and Properties	3
CHEM 161	Chemical Structure and Properties Laboratory	1
ENVS 137	Foundations of Environmental Science I	3
	Hours	**11**
Spring		
BIOL 102	General Biology II	3
BIOL 112	General Biology II Lab	1
CHEM 180	Chemical Reactivity I	3
CHEM 181	Chemical Reactivity I Lab	1
ENVS 200	Environmental Careers and Professional Skills	1
ENVS 203	Environmental Statistics	3
	Hours	**12**
Year Two		
Fall		
ENVS 280	Principles of Ecology	3
ENVS 286S	Principles of Ecology Lab	1
Environmental Science Elective		3
	Hours	**7**
Spring		
Justice & Ethics Choice		3
Environmental Science Elective		3
	Hours	**6**
Year Three		
Fall		
ENVS 274	Chemistry of the Environment	3
ENVS 275	Chemistry of the Environment Lab	1
Environmental Science 300 Level Elective		3
Environmental Science 300 Level Elective		3
Society, Ethics, & Justice Elective		3
	Hours	**13**
Spring		
ENVS 335 or ECON 328	Ecological Economics or Environmental Economics	3
PLSC 392	Environmental Politics	3
Policy, Economics, & Resource Management Elective		3
300 Level Environmental Science Elective		3
	Hours	**12**
Year Four		
Fall		
Engaged Learning Choice		3
MPP 400 or MPP 401 or MPP 404	Policy Design and Analysis or Analytical Tools in Public Policy or Public Policy Process	3
ENVS 410 or ENVS 411 or ENVS 480	Introduction to Environmental Law & Policy or Natural Resources and Land Use Law & Policy or Introduction to Geographic Information Systems	3
	Hours	**9**
Spring		
Capstone Choice		3
MPP 403 or MPP 404	Public Budget and Finance or Public Policy Process	3
MPP 413 or ENVS 412 or ENVS 413 or ENVS 481	Intergovernmental Relations or Water Law & Policy or Energy Law & Policy or Advanced GIS Applications	3
	Hours	**9**
Year Five		
Fall		
MPP 405	Statistical Methods & Analysis for Public Policy I	3
MPP 501	Public Policy Internship	3
MPP 502	Professional Development Skills	1
MPP Elective		3
MPP Elective		3
	Hours	**13**

Spring		
MPP 406	Statistical Methods & Analysis Public Policy II	3
MPP 500	Public Policy Evaluation	3
MPP Elective		3
MPP Elective		3
	Hours	**12**
	Total Hours	**104**

Guidelines for Accelerated Bachelor's/ Master's Programs

Terms

- Accelerated Bachelor's/Master's programs: In this type of program, students share limited credits between their undergraduate and graduate degrees to facilitate completion of both degrees.
- Shared credits: Graduate level credit hours taken during the undergraduate program and then applied towards graduate program requirements will be referred to as shared credits.

Admission Requirements

Accelerated Bachelor's/Master's programs are designed to enhance opportunities for advanced training for Loyola's undergraduates. Admission to these programs must be competitive and will depend upon a positive review of credentials by the program's admissions committee. Accordingly, the admission requirements for these programs may be higher than those required if the master's degree were pursued entirely after the receipt of a bachelor's degree. That is, programs may choose to have more stringent admissions requirements in addition to those minimal requirements below.

Requirements:

- Declared appropriate undergraduate major,
- By the time students begin taking graduate courses as an undergraduate, the student has completed approximately 90 credit hours, or the credit hours required in a program that is accredited by a specialty organization,[1]
- A minimum cumulative GPA for coursework at Loyola that is at or above the program-specific requirements, a minimum major GPA that is at or above the program-specific requirements, and/or appropriate designated coursework for evaluation of student readiness in their discipline.[2]

Students not eligible for the Accelerated Bachelor's/Master's program (e.g., students who have not declared the appropriate undergraduate major) may apply to the master's program through the regular admissions process. Students enrolled in an Accelerated Bachelor's/Master's program who choose not to continue to the master's degree program upon completion of the bachelor's degree will face no consequences.[3]

Ideally, a student will apply for admission (or confirm interest in proceeding towards the graduate degree in opt-out programs) as they approach 90 credit hours. Programs are encouraged to begin advising students early in their major so that they are aware of the program and, if interested, can complete their bachelor's degree requirements in a way that facilitates completion of the program. Once admitted as an undergraduate, Program Directors should ensure that students are enrolled using the plan code associated with the Accelerated Bachelor's/ Master's program. Using the plan code associated with the Accelerated Bachelor's/Master's program will ensure that students may be easily identified as they move through the program. Students will not officially matriculate into the master's degree program and be labeled as a graduate student by the university, with accompanying changes to tuition and Financial Aid (see below), until the undergraduate degree has been awarded. Once admitted to the graduate program, students must meet the academic standing requirements of their graduate program as they complete the program curriculum.

1 Programs that have specialized accreditation will adhere to the admissions criteria provided by, or approved by, their specialized accreditors.

2 The program will identify appropriate indicators of student readiness for graduate coursework (e.g., high-level performance in 300 level courses). Recognizing differences between how majors are designed, we do not specify a blanket requirement.

3 If students choose not to enroll in the Accelerated Bachelor's/Master's program, they still must complete all of the standard requirements associated with the undergraduate degree (e.g., a capstone).

For more information on Admissions requirements, visit here (https://gpem.luc.edu/portal/admission/?tab=home).

Curriculum

Level and progression of courses. The Accelerated Bachelor's/Master's programs are designed to be competitive and attractive to our most capable students. Students admitted to Accelerated Bachelor's/ Master's programs should be capable of meeting graduate level learning outcomes. Following guidance from the Higher Learning Commission, only courses taken at the 400 level or higher (including 300/400 level courses taken at the 400 level) will count toward the graduate program.[1,2] Up to 50% of the total graduate level credit hours, required in the graduate program, may come from 300/400 level courses where the student is enrolled in the 400 level of the course. Further, at least 50% of the credit hours for the graduate program must come from courses that are designed for and restricted to graduate students who have been admitted to a graduate program at Loyola (e.g., enrolled in plan code that indicates the Accelerated Bachelor's/Master's program, typically ending with the letter "D").[3]

In general, graduate level coursework should not be taken prior to admission into the Accelerated Bachelor's/Master's program. Exceptions may be granted for professional programs where curriculum for the Accelerated Bachelor's/Master's program is designed to begin earlier. On the recommendation of the program's Graduate Director, students may take one of their graduate level courses before they are admitted to the Accelerated Bachelors/Master's program if they have advanced abilities in their discipline and course offerings warrant such an exception.[4] Undergraduate degree requirements outside of the major are in no way impacted by admission to an Accelerated Bachelor's/Master's program.[5]

Shared credits. Undergraduate courses (i.e., courses offered at the 300 level or below) cannot be counted as shared credits nor count towards the master's degree. Up to 50% of the total graduate level credit hours, required in the graduate program, may be counted in meeting both the undergraduate and graduate degree requirements. Of those shared credits, students in an Accelerated Bachelor's/Master's program should begin their graduate program with the standard introductory course(s) for the program whenever possible. So that students may progress through the Accelerated Bachelor's/Master's program in a timely manner, undergraduate programs are encouraged to design their curriculum such that a student can complete some required graduate credit hours while

completing the undergraduate degree. For instance, some of the graduate curriculum should also satisfy electives for the undergraduate major.

The program's Graduate Director will designate credit hours to be shared through the advising form and master's degree conferral review process. Shared credit hours will not be marked on the undergraduate record as having a special status in the undergraduate program. They will be included in the student's undergraduate earned hours and GPA. Graduate credit hours taken during the undergraduate program will not be included in the graduate GPA calculation.

[1] If students wish to transfer credits from another university to Loyola University Chicago, the program's Graduate director will review the relevant syllabus(es) to determine whether it meets the criteria for a 400 level course or higher.

[2] Programs with specialized accreditation requirements that allow programs to offer graduate curriculum to undergraduate students will conform to those specialized accreditation requirements.

[3] In rare cases, the Graduate Director may authorize enrollment in a 400-level course for a highly qualified and highly motivated undergraduate, ensuring that the undergraduate's exceptional participation in the graduate class will not diminish in any way the experience of the graduate students regularly enrolled.

[4] For example, if a particular course is only offered once every 2-3 years, and a student has demonstrated the necessary ability to be successful, the Graduate Director may allow a student to take a graduate level course to be shared prior to the student being formally admitted to the graduate program. See, also, footnote 3.

[5] Students should not, for example, attempt to negotiate themselves out of a writing intensive requirement on the basis of admission to a graduate program.

Graduation

Degrees are awarded sequentially. All details of undergraduate commencement are handled in the ordinary way as for all students in the School/College/Institute. Once in the graduate program, students abide by the graduation deadlines set forth by the graduate program. Students in these programs must be continuously enrolled from undergraduate to graduate degree program unless given explicit permission by their program for a gap year or approved leave of absence.

LEARNING OUTCOMES

Upon completion of the joint degree program, students will be able to:

1. Apply scientific knowledge to the understanding of environmental problems and their physical causes. [BS]
2. Understand the ethical, social, and scientific dimensions of issues such as biodiversity loss, hunger, water, energy, and climate change. [BS]
3. Assess environmental problems and potential solutions by integrating economic, societal, ethical, political, scientific, and historical perspectives. [BS]
4. Combine knowledge about current government programs with technical skills to assess how politics influence policy choices, to evaluate the impacts of existing programs, and to design more effective programs with respect to sustainability. [BS]
5. Understand the role of advocacy in the political system, including the role and limitations of expert analysis and data in political decisions. [BS]
6. Design policy interventions and apply criteria to assess the best option in each specific case. [MPP]
7. Understand a government budget and evaluate it from different stakeholder positions. [MPP]
8. Understand the political process at the federal, state and local government levels. [MPP]
9. Develop political messaging to advocate for policies and to build a political coalition of support for a program. [MPP]
10. Apply appropriate statistical procedures used in public policy research and practice. [MPP]
11. Design, conduct and critique program evaluations. [MPP]
12. Experience working in the public policy arena in government agency, non-profit, research, or private sector organization. [MPP]

SES Shared Learning Outcomes

All SES majors share the following Program Learning Objectives, in addition to their unique major-specific Program Learning Objectives:

1. Articulate the foundational principles of natural and social sciences and humanities essential to solving environmental problems.
2. Critically evaluate the accuracy and credibility of information relating to environmental topics.
3. Employ knowledge and skills to design and implement solutions that contribute to a just and sustainable world.
4. Exemplify the values of environmental and social justice through actions to care for our common home and one another.