

# ENVIRONMENTAL SCIENCE/ PUBLIC HEALTH (BS/MPH)

Earn a dual bachelor's and master's degree in five years

The environment is a powerful determinant of public health. Combining your environmental studies through Loyola's School of Environmental Sustainability (SES) (<https://www.luc.edu/sustainability/>) with a master's degree in public health will strengthen your ability to improve public health.

## Related Programs

### Major

- Environmental Science (BS) (<https://catalog.luc.edu/undergraduate/environmental-sustainability/environmental-science/environmental-science-bs/>)

### Combined

- Healthcare Administration/Public Health (BS/MPH) (<https://catalog.luc.edu/undergraduate/accelerated-bachelors-masters-program/healthcare-administration-public-health-bsmph/>)

## Curriculum

The BS in Environmental Science can be taken without a concentration (66 credits) or a chosen concentration in Environmental Health (69 credits). During a student's senior year two classes per semester (12 credits total) can be taken at the Graduate level and count towards both the BS and the Master of Public Health, leaving 30 credits worth of coursework to be completed after the BS degree is complete, for a total of 42 credits for the Masters Degree. ENVS 303 should be taken as MPBH 403.

Code	Title	Hours
<b>BS Requirements</b>		
<i>Core Curriculum</i>		
BIOL 101 & BIOL 111	General Biology I and General Biology I Lab	4
BIOL 102 & BIOL 112	General Biology II and General Biology II Lab	4
CHEM 160	Chemical Structure and Properties	3
CHEM 161	Chemical Structure and Properties Laboratory	1
ENVS 137	Foundations of Environmental Science I	3
ENVS 200	Environmental Careers and Professional Skills	1
ENVS 203	Environmental Statistics	3
ENVS 274	Chemistry of the Natural Environment	3
ENVS 275	Chemistry of the Environment Lab	1
ENVS 276	Chemistry of Environmental Pollution	3
ENVS 280	Principles of Ecology	3
ENVS 286S	Principles of Ecology Lab	1
PLSC 392	Environmental Politics	3
<i>Justice and Ethics Choice</i>		
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 350C	Solutions to Environmental Problems: Climate Action	
ENVS 350F	Solutions to Environmental Problems: Food Systems	
ENVS 369	Field Ornithology	
ENVS 391	Environmental Research (with SES approval)	
ENVS 395	Environmental Internship (with SES approval)	

### *Capstone Choice*

Select one of the following:		3
ENVS 390	Integrative Seminar	
ENVS 391C	Independent Environmental Research (Capstone)	
ENVS 395C	Environmental Internship (Capstone)	

Concentrations and Electives (p. )<sup>1</sup> 21-24

See designated elective categories below

### **MPH Requirements**

MPBH 400	Determinants of Population Health	3
MPBH 402	Public Health Practice and Management	3
MPBH 403	Introduction to Epidemiology	3
MPBH 404	Biostatistics for Health and Biological Science	3
or MPBH 409	Biostatistics I	
MPBH 407	Public Health Policy: Concepts and Practice	3
MPBH 499	Public Health in Action	3
MPH Track-Specific Curricula (p. 3)		15
<i>MPH Electives</i> <sup>1,2</sup>		6

Select two of the following:

MPBH 413	Non-Communicable Disease Epidemiology	
MPBH 426	Infectious Disease Epidemiology	
MPBH 432	Health Impact Assessment	
MPBH 495	Special Topics	

*Applied Practice Experience* 1

MPBH 410 MPH Practicum

*Integrated Learning Experience* 2

MPBH 411 MPH Capstone

**Total Hours** 108-111

<sup>1</sup> Students could take ENVS 301 and/or ENVS 380 to satisfy MPH elective requirements. These must be taken at the 400 level to count toward the MPH

<sup>2</sup> Selected courses from other schools/programs may satisfy MPH elective requirements.

## Concentration Requirements and Elective Course Options

### Environmental Science (Without Concentration)

Code	Title	Hours
<b>Electives</b>		
One (1) course in Society, Ethics, and Justice Electives		3
One (1) course in Policy, Economics, and Resource Management Electives		3
Five (5) courses in Environmental Science Electives, at least three (3) of which must be at 300-level		15
<b>Total Hours</b>		<b>21</b>

### Environmental Science: Environmental Health Concentration

Code	Title	Hours
<b>Required Courses</b>		
ENVS 300	Introduction to Public Health	3
ENVS 301	Environmental Health	3
ENVS 303	Introduction to Epidemiology	3
<b>Electives</b>		
One (1) course in Environmental Health and Society Electives		3
Four (4) courses in Environmental Science Electives		12
<b>Total Hours</b>		<b>24</b>

### Electives

#### Environmental Science Electives

Code	Title	Hours
<b>Environmental Science Electives</b>		
ANTH 104	The Human Ecological Footprint	3
ANTH 303	People and Conservation	3
ENVS 204	Gender, Health & Environment <sup>1</sup>	3
ENVS 215 / BIOL 215	Ornithology <sup>1</sup>	3
ENVS 218	Biodiversity & Biogeography <sup>1</sup>	3
ENVS 223	Soil Ecology <sup>1</sup>	3
ENVS 224	Climate & Climate Change	3
ENVS 226	Science & Conservation of Freshwater Ecosystems	3
ENVS 267	Bird Conservation and Ecology <sup>1</sup>	3
ENVS 273	Energy and the Environment <sup>1</sup>	3
ENVS 278	Hydrology <sup>1</sup>	3
ENVS 283	Environmental Sustainability	3
ENVS 298	Special Topics (with SES approval)	1-12
ENVS 300	Introduction to Public Health <sup>1</sup>	3
ENVS 301	Environmental Health <sup>1</sup>	3
ENVS 303	Introduction to Epidemiology <sup>1</sup>	3
ENVS 320	Conservation Biology <sup>1</sup>	3
ENVS 322	Invasive Species	3
ENVS 323	Environmental Microbiology <sup>1</sup>	3
ENVS 324	Climate Science	3

ENVS 326	Agroecosystems	3
ENVS 327	Food Systems Analysis	3
ENVS 330	Restoration Ecology <sup>1</sup>	3
ENVS 338	Climate Change and Human Health <sup>1</sup>	3
ENVS 340	Natural History of Belize <sup>1</sup>	3
ENVS 345	Conservation and Sustainability of Neotropical Ecosystems <sup>1</sup>	3
ENVS 350A	Solutions to Environmental Problems: Water	3
ENVS 350C	Solutions to Environmental Problems: Climate Action	3
ENVS 350F	Solutions to Environmental Problems: Food Systems	3
ENVS 367	Mammalogy	3
ENVS 369	Field Ornithology <sup>1</sup>	3
ENVS 380	Introduction to Geographic Information Systems	3
ENVS 381	Advanced GIS Applications	3
ENVS 382	Remote Sensing	3
ENVS 383	Human Dimensions of Conservation <sup>1</sup>	3
ENVS 384	Conservation Economics <sup>2</sup>	3
ENVS 385	Introduction to Global Health	3
ENVS 386	Python Programming for GIS	3
ENVS 387	Principles of Ecotoxicology	3
ENVS 389	Ecological Risk Assessment	3
ENVS 391	Environmental Research (with SES approval)	1-3
ENVS 395	Environmental Internship (with SES approval)	3
ENVS 398	Special Topics (with SES approval)	3
ENVS 399	Directed Readings (with SES approval)	1-3
BIOL, CHEM, PHYS 300-level courses (with SES approval)		

<sup>1</sup> For students without a Concentration only.

<sup>2</sup> For students in the Environmental Health Concentration only.

### Environmental Health and Society Elective (Environmental Health only)

Code	Title	Hours
COMM 101	Public Speaking & Critical Thinking	3
COMM 260	Environmental Journalism	3
COMM 277	Organizational Communication	3
COMM 306	Environmental Advocacy	3
COMM 379	Digital Sustainability	3
ECON 328	Environmental Economics	3
ENGL 288	Nature in Literature	3
ENVS 204	Gender, Health & Environment	3
ENVS 230	Feeding the Planet: Global Perspectives on Sustainability, Culture and Food	3
ENVS 279	Climate and History	3
ENVS 284	Environmental Justice	3
ENVS 285	Eco-spirituality	3
ENVS 297	North American Environmental History	3
ENVS 298	Special Topics (with SES approval)	1-12
ENVS 310	Introduction to Environmental Law & Policy	3
ENVS 311	Natural Resources and Land Use Law & Policy	3
ENVS 312	Water Law & Policy	3

ENVS 313	Energy Law & Policy	3
ENVS 335	Ecological Economics	3
ENVS 338	Climate Change and Human Health	3
ENVS 340	Natural History of Belize	3
ENVS 350A	Solutions to Environmental Problems: Water	3
ENVS 350C	Solutions to Environmental Problems: Climate Action	3
ENVS 350F	Solutions to Environmental Problems: Food Systems	3
ENVS 363	Sustainable Business Management	3
ENVS 383	Human Dimensions of Conservation	3
ENVS 389	Ecological Risk Assessment	3
ENVS 391	Environmental Research (with SES approval)	1-3
ENVS 395	Environmental Internship (with SES approval)	3
ENVS 398	Special Topics (with SES approval)	3
ENVS 399	Directed Readings (with SES approval)	1-3
MGMT 201	Managing People and Organizations	3
PHIL 287	Environmental Ethics	3
PLSC 354	Global Environmental Politics	3
PSYC 277	Environmental Psychology	3
SOCL 226	Science, Technology, & Society	3
SOCL 252	Global Inequalities	3
SOCL 272	Environmental Sociology	3
SOCL 276	The Sociology and Politics of Food	3
SOCL 278	Global Health	3
THEO 204	Religious Ethics and the Ecological Crisis	3
THEO 344	Theology and Ecology	3

## MPH Track-Specific Curricula

### Epidemiology

This hybrid program combines online and evening classes. Epidemiology is the basic science of public health: it helps us understand the causes of and solutions to diseases. This track equips students to design, conduct, analyze, and interpret population health research, while they learn the basic principles of all public health disciplines.

Code	Title	Hours
MPBH 412	Intro to Statistical Computing for Public Health	2
MPBH 421	Biostatistics II	3
MPBH 423	Intermediate Epidemiology	3
MPBH 427	Advanced Statistical Methods	1
MPBH 431	Grant Writing	3
Choose One Research Methods Course from the following:		
MPBH 413	Non-Communicable Disease Epidemiology	3
MPBH 414	Introduction to Global Health	3
MPBH 433	Clinical Trials	3
MPBH 434	Systematic Review and Meta-Analysis	3
<b>Total Hours</b>		<b>15</b>

### Global Health Equity

This concentration is a hybrid program of online and evening classes. Study the health of global populations with the ultimate goal of

identifying and eliminating structures and practices of inequity and injustice to advance health equity for individuals and populations.

Code	Title	Hours
MPBH 414	Introduction to Global Health	3
MPBH 417	Global Maternal and Child Health	3
MPBH 422	Population Health Planning & Management	3
MPBH 431	Grant Writing	3
Choose one of the following: <sup>1</sup>		
BEHL 407	Social Determinants of Health and Bioethics	3
BEHL 432	Global Bioethics	3
<b>Total Hours</b>		<b>15</b>

<sup>1</sup> Students may choose an elective course not on this list with Track Director approval.

### Public Health Policy and Management

This concentration can be completed entirely online, and also can be taken with in-person courses. This curriculum studies the organization, structure, and delivery of health-related services, and associated population health outcomes. Students may customize their academic focus in either public health policy, administration, or both.

Code	Title	Hours
MPBH 416	Health Services Research Methods	3
MPBH 425	Policy Analysis	3
Choose one of the following:		
BEHL 402	Justice & Health Care	3
BEHL 404	Biomedical Ethics and Law	3
BEHL 407	Social Determinants of Health and Bioethics	3
BEHL 411	Systems Ethics Frameworks	3
BEHL 412	Organizational Ethics I: Business, Professionalism, and Justice	3
BEHL 418	Advancing Health Equity Practice	3
BEHL 432	Global Bioethics	3
Choose two of the following:		
<i>Policy-oriented</i>		
MPBH 420	Public Health Law: Theories and Cases	3
MPBH 424	Health Economics and Healthcare Financing	3
<i>Management-oriented</i>		
MPBH 422	Population Health Planning & Management	3
CMAN 533	Fiscal Management in Health Care Organizations	3
<b>Total Hours</b>		<b>15</b>

## Suggested Sequence of Courses

The below sequence of courses is meant to be used as a suggested path for completing coursework. An individual student's completion of requirements depends on course offerings in a given term as well as the start term for a major or graduate study. Students should consult their advisor for assistance with course selection.

Course	Title	Hours
<b>Year One</b>		
<b>Fall</b>		
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
<b>Hours</b>		<b>11</b>
<b>Spring</b>		
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
<b>Hours</b>		<b>12</b>
<b>Year Two</b>		
<b>Fall</b>		
ENVS 280	Principles of Ecology	3
ENVS 286S	Principles of Ecology Lab	1
Environmental Science Elective		3
<b>Hours</b>		<b>7</b>
<b>Spring</b>		
Environmental Science Electives		3
Society, Ethics, & Justice Elective		3
<b>Hours</b>		<b>6</b>
<b>Year Three</b>		
<b>Fall</b>		
ENVS 274	Chemistry of the Natural Environment	3
ENVS 275	Chemistry of the Environment Lab	1
300 Level Environmental Science Elective		3
300 Level Environmental Science Elective		3
<b>Hours</b>		<b>10</b>
<b>Spring</b>		
ENVS 335 or ECON 328	Ecological Economics or Environmental Economics	3
PLSC 392	Environmental Politics	3
Policy, Economics, & Resource Management Elective		
300 Level Environmental Science Elective		3
<b>Hours</b>		<b>9</b>
<b>Year Four</b>		
<b>Fall</b>		
Engaged Learning Choice		3
MPBH 400	Determinants of Population Health	3
MPBH 402	Public Health Practice and Management	3
MPBH 403	Introduction to Epidemiology	3
MPBH 431	Grant Writing	3
<b>Hours</b>		<b>15</b>
<b>Spring</b>		
Capstone Choice		3
MPBH 407	Public Health Policy: Concepts and Practice	3
MPBH 404	Biostatistics for Health and Biological Science	3

MPBH 499	Public Health in Action	3
<b>Hours</b>		<b>12</b>
<b>Year Five</b>		
<b>Fall</b>		
MPBH 412	Intro to Statistical Computing for Public Health	1-3
MPBH 421	Biostatistics II	3
MPBH 423	Intermediate Epidemiology	3
Research Methods Choice		3
MPH Electives		3
MPBH 434	Systematic Review and Meta-Analysis	3
<b>Hours</b>		<b>16-18</b>
<b>Spring</b>		
MPBH 410	MPH Practicum	1-3
MPBH 411	MPH Capstone	1-3
MPBH 423	Intermediate Epidemiology	3
MPBH 427	Advanced Statistical Methods	1-3
MPH Electives		3
<b>Hours</b>		<b>10-12</b>
<b>Total Hours</b>		<b>108-112</b>

## 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,<sup>1</sup>
- 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.<sup>2</sup>

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.<sup>3</sup>

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.

- <sup>1</sup> Programs that have specialized accreditation will adhere to the admissions criteria provided by, or approved by, their specialized accreditors.
- <sup>2</sup> 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.
- <sup>3</sup> 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.<sup>1,2</sup>

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").<sup>3</sup>

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.<sup>4</sup>

Undergraduate degree requirements outside of the major are in no way impacted by admission to an Accelerated Bachelor's/Master's program.<sup>5</sup>

*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.

- <sup>1</sup> 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.
- <sup>2</sup> Programs with specialized accreditation requirements that allow programs to offer graduate curriculum to undergraduate students will conform to those specialized accreditation requirements.
- <sup>3</sup> 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.
- <sup>4</sup> 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.
- <sup>5</sup> 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. In offering the option of an Accelerated Bachelor's/Master's program, the university is making possible the acceleration of a student's graduate degree completion. It should be understood that students may not request deferral of their matriculation into the Master's degree program. If students would like to delay their graduate studies after earning the undergraduate degree, they may apply for admission to the traditional master's degree program. Any application of graduate credit earned while

in the undergraduate program is subject to the policies of the graduate degree granting school.

## Learning Outcomes

- Evidence-based Approaches to Public Health: Apply epidemiological methods to the breadth of settings and situations in public health practice; Select quantitative and qualitative data collection methods appropriate for a given public health context; Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate; and Interpret results of data analysis for public health research, policy or practice. [MPH]
- Public Health & Health Care Systems: Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings; and Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels. [MPH]
- Planning & Management to Promote Health: Assess population needs, assets and capacities that affect communities' health; Apply awareness of cultural values and practices to the design or implementation of public health policies or programs; Design a population-based policy, program, project or intervention; Explain basic principles and tools of budget and resource management; and Select methods to evaluate public health programs. [MPH]
- Policy in Public Health: Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence; Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes; Advocate for political, social or economic policies and programs that will improve health in diverse populations; and Evaluate policies for their impact on public health and health equity. [MPH]
- Leadership: Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making; and Apply negotiation and mediation skills to address organizational or community challenges. [MPH]
- Communication: Select communication strategies for different audiences and sectors; Communicate audience-appropriate public health content, both in writing and through oral presentation; and Describe the importance of cultural competence in communicating public health content. [MPH]
- Interprofessional Practice: Perform effectively on interprofessional teams. [MPH]
- Systems Thinking: Apply systems thinking tools to a public health issue. [MPH]
- BS Learning Outcomes: Explain the physical, biological, and chemical structure and function of ecosystems; Examine the causes and consequences of environmental change at local to global scales; Apply scientific knowledge to evaluate policy, management, and other solutions that aim to enhance environmental sustainability; and Create an action plan for leading a professional and personal life that promotes environmental sustainability. [MPH]
- Explain the physical, biological, and chemical structure and function of ecosystems. [BS - no concentration]
- Examine the causes and consequences of environmental change at local to global scales. [BS - no concentration]
- Apply scientific knowledge to evaluate policy, management, and other solutions that aim to enhance environmental sustainability. [BS - no concentration]

- Create an action plan for leading a professional and personal life that promotes environmental sustainability. [BS - no concentration]
- Articulate the foundational principles of natural and social sciences and humanities essential to solving environmental problems. [both no concentration and Environmental Health concentration]
- Critically evaluate the accuracy and credibility of information relating to environmental topics. [both no concentration and Environmental Health concentration]
- Employ knowledge and skills to design and implement solutions that contribute to a just and sustainable world. [both no concentration and Environmental Health concentration]
- Exemplify the values of environmental and social justice through actions to care for our common home and one another. [both no concentration and Environmental Health concentration]
- Apply the tools of public health to characterize the impacts on community health using a planetary health perspective. [Environmental Health concentration]
- Integrate environmental regulatory policies to evaluate the health impacts at local and global scales. [Environmental Health concentration]
- Incorporate critical public health and environmental health justice perspectives into environmental and human dimensions. [Environmental Health concentration]
- Examine the sources of environmental degradation and their impacts on health. [Environmental Health concentration]

## 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.

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