ENVIRONMENTAL SCIENCE AND POLICY (BS)

Tourism, Environment, and Sustainable Societies

Environmental Science and Policy (ESP) is an interdisciplinary program that explores the past, current, and future status of Earth's ecosystems, biodiversity, and processes, and how changes to our planet affect humans. ESP courses include extensive outdoor, laboratory and project-based learning that trains students for early career jobs spanning many environmental disciplines. In the core curriculum, students develop broad, applied understanding of the science behind environmental issues and policy-based approaches to resolving them. In the major options (Science or Policy and Planning), students gain deeper, specialized knowledge that includes engagement with off-campus partners and opportunity for research and internships. An ESP degree provides a springboard toward careers and graduate education in forestry, geology, water resources, environmental health services, waste management, and sustainable food systems, among others.

Students customize their experience in the program by pursuing one of two program options: **Policy and Planning** or **Science**. Specialized courses distinguish each option. Both options lead to a Bachelor of Science (B.S.) degree.

- **Policy and Planning**: courses focus on regulatory and human behavior approaches to environmental challenges.
- **Science:** courses focus on measuring, monitoring and surveying the natural world to identify and understand the mechanisms that cause environmental changes.

Degree Requirements

All students pursuing a B.S. degree in Environmental Science and Policy complete the core courses. In addition, all students complete courses in either the ***Policy and Planning Option*** or the ***Science*** **Option**. Students must declare an Option when joining the Environmental Science and Policy program, but this choice can be changed at any time.

Enrollment in Math courses is determined by a Math Placement Assessment: https://www.plymouth.edu/mathematics/math-placement-assessment (https://nam12.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.plymouth.edu%2Fmathematics%2Fmath-placement-assessment&data=05%7C01%7Ctblabrosse%40plymouth.edu%7C436742e8ed0043cae24e08db66019ccc%7Cd6241893512d46dc8d2bbe47e25f5666%7C0%7C0%7C638215929328508922%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=l963r3h3zQ9up4ExV%2BBbPe6UBI2VX6E3O4t27n%2BNbWM%3D&reserved=0)). Depending on a student's Assessment score or credit transfers, some preparatory math courses may be needed before completing required courses in the ESP major.

Course	Title	Credits
Major Requirements		
ESP 1010	Science Toolkit: Skills for Success	1
ESP 1500	Introduction to Field Techniques	3
ESP 2100	Introduction to Environmental Science and Policy I	4
ESP 2110	Introduction to Environmental Science and Policy II	4
ESP 2305	Foundations of Environmental Policy (WRCO)	4
BI 3240	Conservation (DICO,GACO)	3
ESP 3201	Energy and Society	4
ESP 3326	Climate, Risk, and Adaptation (GACO)	3
ESP 3335	Environmental Geology (TECO)	4
ESP 4550	Environmental Science and Policy Seminar (WRCO)	4
ESP	3000/4000 level electives in ESP/EPL/GE/SU minimum of 3 credits in ESP	9
GE 2050	GIS I: Introduction to Geographic Information Systems (QRCO,TECO)	4
or CS 2010	Computing Fundamentals (TECO)	
or CS 2521	Introduction to Electromechanical Technology	
General Education (https://coursecatalog.plymouth.edu/general-education/)		
EN 1400	Composition	4
IS 1115	Tackling a Wicked Problem	4
MA 2300	Statistics I (QRCO) (Quantitative Reasoning in the Discipline Connection)	3
CTDI (https://coursecatalog.plymouth.edu/general-education/#CTDI)	Creative Thought Direction	3-4
PPDI (https://coursecatalog.plymouth.edu/general-education/#PPDI)	Past and Present Direction	3-4
SSDI (https://coursecatalog.plymouth.edu/general-education/#SSDI)	Self and Society Direction	3-4
Directions (choose from CTDI, PPDI, SSDI) (https://coursecatalog.plymouth.edu/general-education/) [1]		3-4
WECO (https://coursecatalog.plymouth.edu/general-education/#WECO)	Wellness Connection	3-4
IS 4220	Signature Project (INCO,INCP)	4
Required Options in this Major		
Complete one option:		
Science Option		
Policy and Planning Option		
Total Credits		**77-82**

Complementary Courses

Students pursuing the Environmental Science and Policy degree are encouraged to consider an undergraduate research project, an internship, a GIS Certificate, or one or more minors. Free electives and up to 2 courses in the ESP major can be used to fulfill requirements in a minor such as Chemistry, Sustainability, Biology or Business, among others.

[1] Directions in this major should total a minimum of 16 credits, excluding SIDI which is waived. Students who choose all 4-credit

Directions courses can satisfy this Gen Ed requirement with 4 courses, total. Choosing any one 3-credit Directions course will necessitate at least 5 Directions courses to reach the 16 credit minimum.

Science Option of BS Environmental Science and Policy

Course	Title	Credits
Environmental Science Option Requirements		
CH 2335	General Chemistry I (QRCO)	4
ESP 3310	Hydrology	4
CH 2340	General Chemistry II	4
or PH 2110	College Physics I	
Science Elective		
Complete one course from the following:		3-4
ESP 3401	Life in the Universe	
ESP 3550	Environment and Health (WECO)	
ESP 3610	Special Topics in Environmental Science	
ESP 3700	Medical Geology (WECO)	
ESP 3900	Oceanography (GACO)	
ESP 4310	Advanced Conservation Ecology	
ESP 4200	Natural Hazards: Science and Policy	
ESP 4441	Climate Change	
BI	3000/4000 level Biology course	
General Education: Math Foundation **Choose one**		
MA 2130	Precalculus (QRCO)	4
or MA 2550	Calculus I (QRCO)	
Total Credits		**19-20**

Policy and Planning Option of BS Environmental Science and Policy

Course	Title	Credits
Environmental Policy and Planning Option Requirements		
EPL 2105	Community Planning	4
SU 3115	Economic and Ecological Sustainability (GACO,QRCO)	4
or ESP 3340	Introduction to Ecological Economics	
ESP 4325	Decision Making in Environmental Management	4
Policy and Planning Electives		
Complete one course from the following:		3-4
ESP 3600	Special Topics in Environmental Policy	
ESP 3310	Hydrology	
ESP 3550	Environment and Health (WECO)	
ESP 3800	Food Systems: Social, Economic and Environmental Impacts of Modern Agriculture (DICO,WECO)	
ESP 4200	Natural Hazards: Science and Policy	
ESP 4305	Land Conservation Techniques	
ESP 4310	Advanced Conservation Ecology	
EPL 3100	Environmental Planning	
SO 4415	Methods of Social Research (TECO)	
LAW 3300	Real Estate Law	
PO 2025	Public Administration (DICO)	
PO 3060	Political Analysis and Policy (WRCO)	
CH 2335	General Chemistry I (QRCO)	
CH 2340	General Chemistry II	
PH 2110	College Physics I	
BI	3000/4000 level Biology course	
General Education: Math Foundation		
MA 1800	College Algebra	3
Total Credits		**18-19**

Recommended Course Sequence

Not all courses are offered every year. The course sequences listed below are recommendations only. To complete the bachelor's degree in 4 years, you must successfully complete a minimum of 15 credits each semester or have a plan to make up credits over the course of the 4 years. For example, if you take 14 credits one semester, you need to take 16 credits in another semester. Credits completed must count toward your program requirements (major, option, minor, certificate, general education or free electives).

Policy and Planning Option of BS Environmental Science and Policy

Check all course descriptions for prerequisites before planning course schedule. Course sequence is suggested but not required.

Course	Title	Credits
Year One		
ESP 1010	Science Toolkit: Skills for Success	1
ESP 1500	Introduction to Field Techniques	3
ESP 2100	Introduction to Environmental Science and Policy I	4
ESP 2110	Introduction to Environmental Science and Policy II	4
GE 2050 or CS 2010 or CS 2521	GIS I: Introduction to Geographic Information Systems (QRCO,TECO) or Computing Fundamentals (TECO) or Introduction to Electromechanical Technology	4
IS 1115	Tackling a Wicked Problem	4
EN 1400	Composition	4
MA 1800	College Algebra	3
Directions (choose from CTDI, PPDI, SSDI) (https://coursecatalog.plymouth.edu/general-education/)		4
	Credits	**31**
Year Two		
EPL 2105	Community Planning	4
ESP 2305	Foundations of Environmental Policy (WRCO)	4
ESP 3335	Environmental Geology (TECO) [3]	4
MA 2300	Statistics I (QRCO)	3
BI 3240	Conservation (DICO,GACO)	3
Directions (choose from CTDI, PPDI,SSDI) (https://coursecatalog.plymouth.edu/general-education/)		12
	Credits	**30**
Year Three		
ESP 3326	Climate, Risk, and Adaptation (GACO)	3

ESP 3201	Energy and Society	4
ESP 3340 or SU 3115	Introduction to Ecological Economics or Economic and Ecological Sustainability (GACO,QRCO)	3-4
ESP	3000/4000 level ESP/EPL/GE /SU elective (3 cr must be ESP)	3-4
WECO (https://coursecatalog.plymou general-education/#WECO)	Wellness Connection	3-4
Option Elective		3-4
Electives		8
	Credits	**27-31**
Year Four		
ESP 4550	Environmental Science and Policy Seminar (WRCO)	4
ESP 4310 or BI @3 or @4	Advanced Conservation Ecology or or	3-4
ESP	3000/4000 level ESP/EPL/GE/SU elective (MIN of 3cr. in ESP)	5-6
INCP (https://coursecatalog.plymouth.edu/general-education/#INCP)	Integrated Capstone	4
Electives		11-12
	Credits	**27-30**
	Total Credits	**120**

[1] Directions should total 16-17 credits because SIDI is waived for BS Environmental Science and Policy, Policy Option.
[2] For all students who have completed ESP 2100.
[3] For all students who have completed ESP 3335.

Science Option of BS Environmental Science and Policy

Check all course descriptions for prerequisites before planning course schedule. Course sequence is suggested but not required.

Course	Title	Credits
Year One		
ESP 1500	Introduction to Field Techniques	3
ESP 2100	Introduction to Environmental Science and Policy I	4
ESP 2110	Introduction to Environmental Science and Policy II	4
IS 1115	Tackling a Wicked Problem	4
EN 1400	Composition	4
MA 2550 or MA 1800 ***and*** MA 2130	Calculus I (QRCO) or College Algebra ***and*** Precalculus (QRCO)	4
MA 2130 or MA 1800 ***and*** MA 2130	Precalculus (QRCO) or College Algebra ***and*** Precalculus (QRCO)	4
CH 2335	General Chemistry I (QRCO) [1]	4
CH 2340 or PH 2110	General Chemistry II [1] or College Physics I	4
GE 2050 or CS 2010 or CS 2521	GIS I: Introduction to Geographic Information Systems (QRCO,TECO) or Computing Fundamentals (TECO) or Introduction to Electromechanical Technology	4
	Credits	**39**
Year Two		
ESP 3335	Environmental Geology (TECO)	4
ESP 2305	Foundations of Environmental Policy (WRCO)	4
PPDI (https://coursecatalog.plymou general-education/#PPDI)	Past and Present Direction	3-4
MA 2300	Statistics I (QRCO)	3
SSDI (https://coursecatalog.plymou general-education/#SSDI)	Self and Society Direction	3-4
Elective		6-8
	Credits	**23-27**
Year Three		
ESP 3201	Energy and Society	4
ESP 3310	Hydrology	4
ESP 3325	Climate, Risk, and Adaptation (GACO,INCO)	3
ESP	3000/4000 level Elective in ESP/EPL/GE/SU	3
BI 3240	Conservation (DICO,GACO)	3
CTDI (https://coursecatalog.plymou general-education/#CTDI)	Creative Thought Direction	3-4
Directions (choose from CTDI, PPDI, SSDI) (https://coursecatalog.plymouth.edu/general-education/) [1]		4-8
WECO (https://coursecatalog.plymou general-education/#WECO)	Wellness Connection	3-4
Elective		0-2
	Credits	**27-35**
Year Four		
ESP 4550	Environmental Science and Policy Seminar (WRCO)	4
ESP 4310	Advanced Conservation Ecology	
ESP	3000/4000 level elective in ESP/EPL/GE/SU	5-6
INCP (https://coursecatalog.plymou general-education/#INCP)	Integrated Capstone	4
Electives		11-12
	Credits	**24-26**
	Total Credits	**120**

[1] Directions should total 16-17 credits because SIDI is waived for BS Environmental Science and Policy, Policy Option.

Learning Outcomes

- Integrate natural and social science concepts, theories, and methods to address interdisciplinary environmental issues
- Value, incorporate and practice diverse, inclusive perspectives on environmental issues
- Demonstrate open, critical and systems thinking when evaluating and solving environmental problems
- Work effectively within a team to understand and assess environmental systems, policies, and management plans
- Identify and describe key environmental policy and regulations as they relate to environmental issues
- Identify and incorporate stakeholders in local, state, and federal environmental issues
- Integrate natural and social science methods to monitor, evaluate, and manage environmental systems
- Understand the processes by which environmental policy and regulation is created and revised
- Conduct qualitative and quantitative environmental research and report findings to peers, environmental professionals (e.g. managers, policy makers), and public audiences

Career Pathways

Students graduating with a BS degree in Environmental Science and Policy find rewarding careers in state and federal environmental agencies, non-profit organizations, and private consulting firms. Prior to joining the workforce or while employed, some graduates choose to pursue graduate degrees and/or post-bac certificates. Common positions include:

- Seasonal/Permanent Field Technician
- Lab Technician
- Environmental Quality Analyst
- Environmental Consultant
- Environmental Stewardship Coordinator
- Environmental Educator
- Environmental Scientist
- Hydrologist/Hydrologic Technician
- Fish Biologist
- Aquatic Ecologist
- Physical Scientist
- Environmental Protection Agency Inspector
- Park Ranger
- Planner
- Environmental Compliance Analyst
- Sustainability Coordinator