

ENVIRONMENTAL SCIENCES, POLICY AND MANAGEMENT B.S.
Environmental Education and Communication Track

Students in the Environmental Education and Communication track learn how to teach and communicate environmental issues to diverse audiences using a variety of methods. They gain a solid base of knowledge in the environmental sciences, environmental ethics, and the social context of environmental issues, and they develop a practical set of skills for teaching effectively in informal settings and for communicating clearly in written, oral, and electronic forms. They also develop a firm understanding of the challenges involved in educating and communicating about science- and value-based environmental subjects. This concentration is appropriate for students who wish to work at government agencies, nature centers, parks, non-governmental organizations, and similar institutions, as well as for students who wish to gain a broad understanding of the environment, environmental issues, and the choices humans can make to mitigate unwanted impacts of human behavior on the environment.

A. Integrated ESPM Core (12 credits)

- ___ ESPM 1001 Orientation to ESPM: Freshmen Students (1 cr, F)
OR ESPM 1002 Orientation to ESPM: Transfer Students (1 cr, F)
- ___ ESPM 1011 Issues in the Environment (3 cr, F/S)^{E,CPE}
- ___ ESPM 2021 Environmental Sciences – Integrated Problem Solving (3 cr, S)
- ___ ESPM 3000 Seminar on Current Issues in ESPM (1 cr, F/S)
- ___ ESPM 4041W Problem Solving for Environmental Change (4 cr, F)
OR ESPM 4021 Problem Solving: Env Review (4 cr, S) sp '08 or later

B. Communications (7 credits)

- ___ Writ 1301 University Writing (4 cr, F/S)^F
OR Writ 1401 Writing and Academic Inquiry (4 cr, F/S)^F
- ___ Comm 1101 Introduction to Public Speaking (3 cr, F/S)

C. Mathematical Thinking (4 credits)

- ___ Stat 3011 Introduction to Statistical Analysis (4 cr, F/S)^M
OR Soc 3811 Basic Social Statistics (4 cr, F/S)^M
OR ESPM 3012 Statistical Methods for Env. Scientists & Mgrs. (4 cr, F) take only if your CLE mathematical thinking reqt. is satisfied with another course

D. Physical and Basic Biological Sciences (8 credits)

- ___ Biol 1001 Introduction to Biology (4cr, F/S)^{B,E}
OR Biol 1009 General Biology (4 cr, F/S)^B
- ___ Chem 1011 General Principles of Chemistry (4 cr, F/S)^P
OR Chem 1021 Chemical Principles I (4 cr, F/S)^{E,B}

E. Social Sciences (6-7 credits)

- ___ ESPM 3261 Economics & Natural Resources Mgmt (4 cr, F)^{E,SS}
OR ApEc 1101 Principles of Microeconomics (3 cr, F/S)^{SS}
- ___ ESPM 3271 Env. Policy, Law & Human Behavior (3 cr, F)
OR ESPM 3241W Natural Resource & Environmental Policy (3 cr, S)^{CPE,SS,WI}

F. Internship and Field Experience (1-4 credits) (take one)

- ___ ESPM 4096 Professional experience internship (1-3 cr, F/S)
 *Requires approval and supervision of faculty advisor in the track
- OR FR 2101,2102,2104 Forest Plants, Forest Ecology and Forest Measurement Techniques (4cr, Summer, Cloquet)
- OR Similar field course.

G. EEC Track Core Courses (40-51 credits)

EDUCATION AND COMMUNICATION (12-14 CREDITS)

- ___ ESPM 2401 Environmental Education/Naturalist (3 cr, F)
- ___ *Communication (choose one)*
Recommended: Writ 3404 Environmental Communication (3 cr, F)
 Comm 3441 Introduction to Organizational Communication (3 cr, S)
 Comm 3451W Intercultural Communication: Theory & Practice (3 cr, S)^{IP}
 Writ 1152W Writing on Issues of Science and Technology (4 cr, F/S)^{CPE}
 Writ 3221W Theories of Human Communication (4 cr, F/S)^{CPE,SS}
 Writ 3401 Internet Communication: Tools and Issues (3 cr, S)
 Writ 5664 Science Writing for Popular Audiences (3 cr, S)
- ___ *Environmental Education (choose one)*
 ESPM 4811 Environmental Interpretation (3 cr, S)
 CI 5537 Principles of Environmental Education (3 cr, F)
 CI 5747 Global and Environmental Education: Content and Practice (3 cr, S)
 Rec 5301 Wilderness and Adventure Education (4 cr, S)
- ___ *Evaluation and Assessment of Education (choose one)*
 Epsy 5243 Principles and Methods of Evaluation (3 cr, F/S)
 Rec 3281 Research and Evaluation in Recreation, Park and Leisure Studies (3 cr, F)
 RRM 5259 Visitor Behavior Analysis (3 cr, even F)

HUMAN DIMENSIONS (9-11 CREDITS)

- ___ *Environmental Ethics (choose one)*
 ESPM 3011W Ethics & Leadership in Resource Mgmt (3 cr, F/S)^{CPE}
 Phil 3301 Environmental Ethics (4 cr, F)^{CPE,E}
 Writ 3362 Applied Environmental Ethics (3 cr, F)
- ___ *Social & Historical Context of Environmental Issues (choose two)*
- ___ *Second Course*
 ESPM 2041 Natural Resource Consumption & Sustainability (3 cr, S)^{IP,E}
 ESPM 3001 Treaty Rights and Natural Resources (3 cr, S)^{CD,HP}
 ESPM 3202W Environmental Conflict Mgmt/management, Leadership, and Planning (3 cr, S)^{CPE}
 ESPM 3245 Sustainable Land Use Planning and Policy (3 cr, F)^E
 Writ 1315 The Land in American Experience (3 cr, F/S)^{CD,H}
 Writ 3302 Science, Religion, and the Search for Human Nature (3 cr, F/S)^{OH}
 Writ 3383 In Search of Nature (3 cr, F)^{E,OH}
 Geog 3376 Political Ecology of North America (3 cr, F)^{CPE,E}
 Hist 3452 African Conservation Histories (3 cr, S)^{E,OH}
 HSCI 3244 History of Ecology and Environmentalism (3 cr, S)
 CACL/EEB 3361 Visions of Nature: The Natural World and Political Thought (4 cr, F)
 CACL 3366W Landscape, Nature, and Society (3 cr, varies)^{WI,E}
 Pol 4210 Topics: Population, Equity & Env. Change (3-4 cr, S)

NATURAL SCIENCES (15-19 CREDITS)

___ Ecology (choose one)

- Biol 3407 Ecology (3 cr, F)^E
- Biol 3408W Ecology (3 cr, S)^{E, WI}
- EEB 3001 Ecology and Society (3 cr, S)^E
- FR 3104 Forest Ecology (4 cr, F)
- FW 2003: Introduction to Marine Biology (3 cr, S)

___ Physical Environment (choose one)

- EEB 3603 Science, Protection, & Management of Aquatic Environments (3 cr, F)
- ESPM 4061W Water Quality and Natural Resources (3 cr, F/S)^E
- FR 3114 Forest Hydrology and Watershed Management (3 cr, F)
- GEO 1001 Earth and its Environment (4 cr, S)^E
- Phys 1001W Energy and the Environment (4 cr, F/S)^E
- PIPa 3002 Air Pollution, People & Plants (3 cr, F)^{CPE, E}
- Soil 1125 The Soil Resource (4 cr, F)^E

Organismal Biology

(choose three, including at least one plant AND one animal)

___ Plants

- Biol 2022 General Botany (3 cr, F/S)
- FR 1101 Dendrology: Identifying Forest Trees & Shrubs (3 cr, F)
- PBio 4321 Taxonomy of Minnesota Flora (3 cr, F)
- PBio 4511 Flowering Plant Diversity (3 cr, S)

___ Animals

- Biol 2012 General Zoology (4 cr, F/S)
- EEB 4134 Introduction to Ornithology (4 cr, S)
- EEB 4129 Mammalogy (4 cr, F)
- Ent 3005 Insect Biology (3 cr, F)
- FW 3136 Biology of Fishes (4 cr, F)
- FW 4101 Herpetology (4 cr, S)

___ Plants or Animals (see above lists)

COMPLEX HUMAN AND NATURAL SYSTEMS (3 CREDITS)

___ Complex Human and Natural Systems (choose one)

- ESPM 3108 Ecology of Managed Systems (3 cr, F)
- EEB/FR 5146 Science and Policy of Global Environmental Change (3 cr, S)
- FW 4102 Principles of Conservation Biology (3 cr, S)
- FW 2001 Intro to Fisheries, Wildlife and Cons. Biology (3 cr, F/S)^E
- Hort 5071 Restoration and Reclamation Ecology (3 cr, F)^E

H. Liberal Ed. Themes and WI Requirements (9-12 credits)

Students are strongly encouraged to take classes that fulfill multiple liberal education and theme requirements.

Completed through required coursework:

- F – Freshman Composition Requirement
- M – Mathematical Thinking Requirement
- B – Biological Science w/Lab Requirement
- P – Physical Science w/Lab Requirement
- SS – Social Science Requirement #1
- E – Environment Theme
- X – CPE - Citizenship and Public Ethics Theme (3 cr)

Most likely NOT completed through required coursework:

- ___ SS – Social Science Requirement #2
(completed if ESPM 3241W taken instead of ESPM 3271)
- ___ L - Literature (3 cr)
- ___ OH - Other Humanities (3 cr)
- ___ HP - Historical Perspectives (3 cr)
- ___ CD - Cultural Diversity Theme (3 cr)
- ___ IP - International Perspectives Theme (3 cr)

Writing Intensive Courses (WI)

(Required: 4 WI courses, 2 of them 3xxx OR 4xxx, one in your major)

- ESPM 4041W or 4021W
- ___ (completed if ESPM 3241W taken instead of ESPM 3271)
- ___ Additional writing intensive course
- ___ Additional writing intensive course

I. Free Electives: (24-32 credits)

Students are encouraged to make choices that strengthen their expertise in an area and/or provide comparative understanding from another culture or discipline. To this end, students should strongly consider using free electives to complete a University minor, study abroad experience, or a student designed content area. Students construct these expertise areas with the help of their advisors, and such areas can be integrated as contract courses.

Possible elective courses, in addition to courses from Section G that were not taken:

- HECUA 3591, 3592, 3593, Interdepartmental studies
- Writ 1152W Writing on Issues of Science and Technology (4 cr)
- ESPM 3101 Conservation of Plant Biodiversity (3 cr)
- ESPM 3251 Natural Resources in Sustainable Int'l Development (3 cr)
- ESPM 3241W Natural Resource and Environmental Policy: History, Creation, and Implementation (3 cr)
- ESPM 3245 Sustainable Land Use Planning and Policy (3 cr)
- ESPM 3604 Environmental Management Systems and Strategy (3 cr)
- ESPM 3601 Our Home, Our Environment (3 cr)
- ES 5601 Principles of Waste Management (3 cr)
- LA 3501 Environmental Design and Its Biological and Physical Context (3 cr)
- Pol 3872W Global Environmental Cooperation (4 cr)
- Soc 4305 Society and the Environment: A Growing Conflict (3 cr)

Please note:

Students are strongly encouraged to have an international experience before graduation.

Courses completed during an international experience (study, work, volunteer, research) can meet program requirements, liberal education requirements, and/or electives. Discussion with an advisor prior to commencing an international experience is required to plan how courses tie into the ESPM program and Environmental Education and Communication Track