



## ENVIRONMENTAL SCIENCES GRADUATE PROGRAM AREA OF CONCENTRATION IN ENVIRONMENTAL EDUCATION

### PURPOSE

The Environmental Sciences Graduate Program provides a graduate major for M.S., M.A., and Ph. D. students. Graduate students majoring in Environmental Sciences choose an Area of Concentration in order to focus coursework and research within the broad theme of environmental sciences. Areas of Concentration currently recognized include Ecology, Biogeochemistry, Quantitative Analysis (mathematical), Social Sciences, and Water Resources and Environmental Education.

The Area of Concentration in Environmental Education is designed for students who have a strong natural science background and want to develop capabilities in environmental education to go with this background. The Environmental Education track focuses on merging strengths in basic science with pedagogical skills, communication skills, and research or projects.

Teaching and communicating information about environmental issues requires special training in basic science, teaching and communication. The purpose of this track is to prepare environmental science students for careers that involve explaining environmental issues, interpreting and communicating results of environmental assessments, and for assessing the effectiveness of environmental education efforts. Those students choosing the Environmental Education track will be environmental scientists with focused skills in environmental education.

Students completing the track will find careers in many fields including teaching in community colleges, working as naturalists, serving as agents of extension or public outreach, and working in public relations in both the public and private sectors.

The track in Environmental Education will not result in producing certified teachers, although such teachers may participate in the program. The proposed Environmental Education track is intended to complement existing and related graduate programs. Existing academic graduate programs related to environmental education at OSU include the following majors: Adult Education (School of Education), Agricultural Education (Dept. of Agricultural Education and General Agriculture), Education (School of Education), Environmental Health Management (Dept. of Public Health), Health Education (Dept. of Public Health), Science Education (Dept. of Science and Mathematics Education), Scientific and Technical Communication (College of Liberal Arts), and Teaching (School of Education).

### PROGRAM OF STUDY

The Environmental Education track has five components: ES Core courses; Methods and Numerical Skills courses; Scientific Focal Area courses; Elective courses; and Thesis/Dissertation/Project. Total credits required are a minimum of 45 Cr for the M.S. and M.A. degree and 108 Cr for the Ph. D. degree. The courses listed in the subject areas below are not required or prescriptive. The courses listed below are intended to serve as examples of the kinds of courses that would meet programmatic goals. Typical ES Graduate Programs will include minimum credits as follow:

<u>Subject Area</u>	<u>M.S. &amp; M.A. Degrees</u>	<u>Ph. D. Degree</u>
ES Core Courses	9-12 Cr	10-12 Cr
Methods and Numerical Skills	6 Cr	9 Cr
Science Focal Area Skills	6 Cr	15 Cr
Pedagogical Skills Courses	6 Cr	9 Cr
Communications Courses	6 Cr	9 Cr
Electives	3-6 Cr	6-20 Cr
Thesis	6-9 Cr	36-50 Cr
Total	45 Cr	108 Cr

## **CORE COURSES**

9-12 Cr. for the M.S and M.A. degree (required are ENSC 515, 520, 508 and one class from the approved list of core courses- below) and 10-12 Cr. for the Ph. D. degree. (required are ENSC 515, 520, 508 and classes from the approved list of core courses- below). These courses include Environmental Perspectives, Environmental Analysis, Environmental Profiles, and the Joint-Campus Workshop in Environmental Science, Studies, and Policy.

### **Approved Core Course List:**

ANTH 581	Natural Resources and Community Values
ANTH 582	World Food and the Cultural Implications of International Development
BI/BOT 589	Analysis of Environmental Issues
BI 570	Community Structure and Analysis
BI 670	Community Structure and Analysis
Comm 540	Theories of Conflict and Conflict Management
EC 539	Public Policy Analysis
FOR 561	Forest Policy Analysis
FS520	Posing Researchable Questions
FS521	Natural Resource Research Plan
FS565	Forest Ecosystem Management
FS646	Ecosystem Analysis and Evaluation
FW515	Model Selection and Inference
GEO 520	Geography of Resource Use
H524	Health Data Analysis
H525	Intro Epidemiology
H526	Epidemiological Methods
H549	Health Risk Communication
H575	Evaluation
H576	Proposal Writing
HIST 569	History of the Pacific Northwest
LA 607	Experimental Seminar in Biocomplexity and Alternative Futures
MRM515	Coastal Resources Management
PS 574	Bureaucratic Politics and Policy
PS 575	Politics of Environmental Problems
PS 576	Science and Politics
RNG 650	GIS Watersheds Analysis
SED 580	Research and Evaluation
SOC 581	Society and Natural Resources
Z582	Molecular Methods in Ecology and Evolution

## **METHODS AND NUMERICAL SKILL COURSES**

6 Cr for the M.S. and M.A. degree and 9 Cr for the Ph. D. degree. Courses in social science methods are intended to develop student background in either qualitative or quantitative methods and are equivalent to numerical skills courses. Quantitative methods, qualitative methods, and statistical methods courses are to be selected by consensus of the graduate advisor, advising committee, and student.

## **SCIENCE FOCAL AREA COURSES**

6 Cr for the M.S. and M.A. degree and 15 Cr for the Ph. D. degree. Courses in the science focal area are to supplement the science background that was the student's strength upon entering the program. Science focal area courses may be selected from life science, physical science, or social science disciplines. Science focal area courses may be selected from the Ecological Area of Concentration, other ES areas of concentration, or courses from the Colleges of Science, Agricultural Sciences, Oceanic and Atmospheric Sciences, Forestry, or Engineering. The combination of science courses taken prior to admission to the program, and science focal area courses, are intended to develop a coherent area of scientific study. Science focal area courses are to be selected by consensus of the graduate advisor, advising committee, and student.

## **PEDAGOGICAL SKILLS COURSES**

6 Cr for the M.S. and M.A. degree and 9 Cr for the Ph. D. Degree. Pedagogical skills courses are intended to ensure ES students in the Environmental Education Area of Concentration will have the academic background and ability to teach complex environmental issues. The Pedagogical skills courses should reflect the area of environmental science in which the ES graduate student is founded, and the type of students or groups the ES

graduate student anticipates will be taught. Courses that will satisfy the pedagogical skills requirement will be chosen by the graduate advisor, advising committee, and the student, and may include the following courses:

ED 527 Alternative Assessment  
ED 531 Instructional Systems Design  
HLED 583 Introduction to Health Ed. Pedagogy and Method  
HLED 584 Curriculum Design and Community Involvement  
MTH 682 Teaching and Learning Probability and Statistics  
SED 512 Technology Foundations for Teaching Math and Science  
SED 516 Methods Foundations for Teaching Math and Science  
SED 599 Topics in Science Education  
SED 596 Methods of College Teaching in Math and Science

### **COMMUNICATIONS COURSES**

6 Cr for the M.S. and M.A. degree and 9 Cr for the Ph. D. degree. Communications skills courses are intended to ensure ES students in the Environmental Education Area of Concentration will have advanced communication skills. Communication skills are broadly interpreted to include the arts, speech, written materials, and computer aided communication. Communication skills should reflect the area of environmental science in which the ES student is founded, and the type of students or groups the ES graduate student anticipates will be taught. Courses that will satisfy the communication skills requirement will be chosen by the graduate advisor, advising committee, and the student, and may include the following courses:

ART 515 Art for Teachers  
COMM 526 Intercultural Communication: Theories and Issues  
COMM 532 Gender and Communication  
COMM 540 Theories of Conflict and Conflict Management  
COMM 546 Communication in International Conflict and Disputes  
COMM 554 Advanced Argumentation  
COMM 564 Rhetorical Criticism  
ED 521 Cross-Cultural Communications  
ED 596 Technology for Teachers  
ED 599 Web-based Design  
ED 567 Leadership Development and Human Relations  
FOR 593 Environmental Interpretation  
H 549 Health Risk Communication

### **ELECTIVE COURSES**

0 Cr for the M.S or M.A. degrees and 0-14 Cr for the Ph. D. degree. Students will work with their graduate advisor and committee to select elective courses to develop necessary background to add breadth and depth to the student's ES Graduate Program.

### **THESIS:**

The thesis requirement includes 6-9 Cr (ENSC 503) for the M.S. and the M.A. degree. The dissertation requirement includes 36-50 Cr (ENSC 603) for the Ph. D. degree. Masters students completing the non-thesis option must complete a project for 6 Cr.