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 follows:

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>M.S. &amp; M.A. Degrees</th>
<th>Ph. D. Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES Core Courses</td>
<td>9-12 Cr</td>
<td>10-12 Cr</td>
</tr>
<tr>
<td>Methods and Numerical Skills</td>
<td>6 Cr</td>
<td>9 Cr</td>
</tr>
<tr>
<td>Science Focal Area Skills</td>
<td>6 Cr</td>
<td>15 Cr</td>
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<tr>
<td>Pedagogical Skills Courses</td>
<td>6 Cr</td>
<td>9 Cr</td>
</tr>
<tr>
<td>Communications Courses</td>
<td>6 Cr</td>
<td>9 Cr</td>
</tr>
<tr>
<td>Electives</td>
<td>3-6 Cr</td>
<td>6-20 Cr</td>
</tr>
<tr>
<td>Thesis</td>
<td>6-9 Cr</td>
<td>36-50 Cr</td>
</tr>
<tr>
<td>Total</td>
<td>45 Cr</td>
<td>108 Cr</td>
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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 570 Community Structure and Analysis
BI 670 Community Structure and Analysis
CE 513 GIS in Water Resources
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
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

COMUNICATIONS 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.