

ENVIRONMENTAL SCIENCE GRADUATE PROGRAM

MISSION

The Environmental Science Graduate Program provides interdisciplinary understanding and appreciation of the interdependent relationships between social and natural systems, and the skills to analyze, synthesize, manage, and disseminate environmental knowledge and research to find practical solutions to complex environmental problems.

VISION

The Environmental Science Graduate Program will have a national reputation in preparing students for successful careers in environmental professions and contributing to the advancement of environmental science.

To accomplish this, we will:

- Provide an interdisciplinary, but focused, curriculum that enables students to participate effectively in addressing environmental problems;
- Provide skills necessary to conduct and present environmental research; and
- Gain the support of alumni, employers, internship sponsors, and friends in our efforts at continuous improvement.

CORE VALUES

Excellence - We seek excellence in all our endeavors and are committed to continuous improvement.

Intellectual Freedom - We believe in ethical and scholarly questioning in an environment that respects the rights of all to pursue knowledge freely.

Integrity - We are committed to the principles of truth and honesty and we will be equitable, ethical, and professional.

Service - We believe that serving others is a noble and worthy endeavor.

Diversity - We respect and value diversity of opinion, freedom of expression, and other ethnic and cultural backgrounds.

Resource Stewardship - We are dedicated to the efficient and effective use of resources. We accept the responsibility of the public's trust and are accountable for our actions.

Sustainability - We are committed to promoting societal development that is environmentally, economically, and socially sustainable.

Interdisciplinary Education and Research - We recognize that environmental education, research, and service require an interdisciplinary understanding of the interactions and interdependencies between humans and nature; thus, we seek to incorporate interdisciplinary knowledge in our courses and interdisciplinary collaboration in our research.

GOALS, CRITICAL SUCCESS FACTORS, OBJECTIVES, AND STRATEGIES

Goal One. Provide an interdisciplinary, but focused, curriculum that enables students to participate effectively in addressing environmental problems through the application of appropriate methods, technologies, and decision processes.

Critical Success Factors

- The overall curriculum includes courses from at least 20 departments from all colleges
- Each student's committee includes faculty members from at least 2 of the 5 recognized disciplinary groups (biological sciences, physical sciences, social sciences, humanities, teacher education)
- Each student's plan of study includes courses from at least 3 disciplinary groups
- Each student's plan of study includes at least 2 interdisciplinary, problem-solving courses developed as ENVR courses
- The curriculum is judged as adequately preparing students for environmental careers as judged by external reviewers and alumni every 5 years, by the Environmental Science Curriculum Committee each year, and by graduating students at their exit interviews

Objectives

Objective 1.1: Identify program priorities based on a match of program strengths to professional opportunities and needs.

Strategies:

- Identify program strengths based on a review of courses taught by faculty affiliated with the environmental science program and plans of study pursued by environmental science graduate students.
- Survey recent ES graduates to identify the careers that they are pursuing.
- Consult with the Environmental Programs Advisory Board (EPAB), Council of Environmental Deans and Directors (CEDD) databases, environmental careers guides, employment/internship sponsor database, and other sources to define current and future environmental career opportunities and needs.
- Define program priority areas based on the results of the steps listed above.

Objective 1.2: Define a common core curriculum that provides an integrated understanding of sustainability principles.

Strategies:

- Define a core curriculum that addresses sustainability principles and methods for using these principles to solve complex environmental problems.

Objective 1.3: Define specialized core curricula that address program priorities.

Strategies:

- Define tailored curricula for formal specializations tied to program priority areas.
- Develop new core courses as necessary to provide the course background necessary to prepare the student for entry into specialized professions.
- Establish capstone courses that students take at the conclusion of their other coursework that requires them to integrate knowledge obtained from these courses in addressing problems that they may face in their careers.
- Expand requirement for internships.

Objective 1.4: Ensure compliance with core curricula requirements.

Strategies:

- Educate environmental faculty on common and specialized core curricula and include assessments of progress in their annual reviews of student progress.
- Inform students on need to comply with common and specialized core curricula via their admissions letters.
- Ensure that all plans of study comply with curricular requirements.

Goal Two. Provide skills necessary to conduct and present environmental research.

Critical Success Factors

- Each student successfully completes at least 1 research methods course
- Each student successfully develops and defends an interdisciplinary research project that addresses a complex environmental problem
- Each student delivers at least 1 professional conference presentation of his/her research
- Each doctoral student publishes at least 1 peer-reviewed article or book chapter

Objectives

Objective 2.1: Ensure adequate knowledge of research literature related to specializations.

Strategies:

- Encourage research advisors to ensure that their students are exposed to a broad range of academic literature related to their area of specialization.
- Students must demonstrate adequate knowledge of appropriate research literature in their research proposals.

Objective 2.2: Ensure acquisition of adequate skill in research methods.

Strategies:

- Require research advisors to ensure that their students are trained in those research methods and skills appropriate to their area of specialization.
- Students must demonstrate successful application of appropriate research method skills during the conduct of their research, as judged by their research advisors.

Objective 2.3: Ensure ability to think critically about research designs and findings.

Strategies:

- Require research advisors to ensure that students are trained to think critically (i.e., analytically, synthetically, and systemically) about research within their areas of specialization.
- Students must demonstrate critical thinking abilities in their research reports and during their thesis and dissertation defenses.

Objective 2.4: Ensure ability to communicate research findings.

Strategies:

- Encourage research advisors to ensure that students are trained in oral and written communication, including techniques for presenting and authoring research findings.

- Require that all students present their research at professional conferences.
- Require that doctoral students publish their research in journals.

Goal Three: Achieve and sustain a reputation of excellence.

Critical Success Factors

- Annual ratings of program quality by committee chairs, students, and recent graduates are no lower than “average” and achieve a mean score of “good” using a 5-point scale (poor – below average – average – good – excellent)
- Pentennial ratings of program quality by alumni, employers, and program supporters achieve a mean score of “good” on a 5-point scale

Objectives

Objective 3.1: Improve program reputation among faculty, alumni, employers, and supporters.

Strategies:

- Increase admission standards to improve the quality of entering students (e.g., set GRE guidelines, set undergraduate GPA guidelines, increase stringency of prerequisite courses).
- Increase quantity and quality of recruitment efforts by increasing recruitment travel, improving the quality of our website, improving the quality and quantity of recruitment materials, linking our website to other relevant websites, and solicit support of alumni in recruitment.
- Increase productivity of students by improving mentoring and creating incentives for success to both students and faculty and by meeting often with students to ensure that their needs are being met.
- Increase visibility of the program through advertisement of its successes, both internally (e.g., presentations, publications, grants, awards) and externally (e.g., positions occupied by alumni and noteworthy accomplishments).

Objective 3.2: Improve program reputation among current students.

Strategies:

- Obtain an Integrated Graduate Education and Research Traineeship (IGERT) grant.
- Encourage more faculty to hire environmental science graduate students on their grants.
- Obtain travel funds to offset student’s costs to present their research at professional conferences.
- See outside support for graduate fellowships and internships from alumni, EPAB, and other contacts.
- Seek opportunities to include ES graduate students in national forums and state planning efforts that concern the environment.
- Encourage the formation of an OSU student chapter of the National Association of Environmental Professionals.

- Encourage student-employer relations through student and career databases, alumni activities, and awards ceremonies.

Goal Four: Obtain support necessary to ensure a successful program.

Critical Success Factors

- The environmental faculty and employee databases double in the number of entries
- Establish an environmental science alumni association and hold an alumni meeting each year during Earth Week
- Double the membership of the Society of Environmental Scientists
- Add alumni, employer, and advisory board webpages to the program website
- Build a base of donors to support the program and reach a total of \$30K raised annually by the end of the 5th year

Objectives

Objective 4.1: Gain institutional support for the program.

Strategies:

- Meet with environmental faculty and administration to describe the program, answer questions, and explain how support of the program can enhance the reputation of their departments, their colleges, and the university.
- Recruit environmental faculty to enroll in the environmental faculty databases (teaching and research).
- Work with the Graduate Dean to increase the budget for the program.

Objective 4.2: Establish productive relations with potential employers and internship sponsors.

Strategies:

- Advertise the existence and utility of the employment/internship database.
- Recruit potential employers and internship sponsors from among alumni, those who have hired alumni, members of Environmental Programs Advisory Board, members of the Environmental Federation of Oklahoma, and others known to engage in hiring environmental professionals.
- Build positive relationships with employers and internship-sponsors by carefully mentoring internships, meeting with potential employers at professional meetings such as the Environmental Federation of Oklahoma, and working with the Environmental Programs Advisory Board.

Objective 4.3: Encourage program support by alumni and friends.

Strategies:

- Contact alumni and friends via websites, newsletters, and awards banquets to inform them of our successes and ask for their support.
- Build positive relationships with alumni via an alumni association.

Objective 4.4: Increase student support of the program.

Strategies:

- Work with the Society of Environmental Scientists to ask for their support and to work with the program director to identify their needs and help implement initiatives to respond to these needs.
- Encourage students to become more active in environmental activities both on and off campus that will bring credit to the program.
- Sponsor a student activity each semester to build morale and encourage student interaction.