**New Course Proposal**

**Submit completed form electronically**

1. **Course prefix and course number:** ES 330

1. **Course title:** Environmental Field Methods
2. **Abbreviated title for class schedule** (30 characters or less): Env. Field Research
3. **Credit hours:** 4

*(note: if credits are variable, list range of credits (e.g. 1-8 credits)*

1. **Catalog description:** Environmental Field Methods introduces essential field and laboratory methods in environmental science & policy. The course consists of a series of group field exercises conducted in local terrestrial, aquatic, and policy-based contexts. Students will gain a working knowledge of the techniques commonly used by environmental professionals to acquire, process, and interpret measurements of environmental data.
2. **Prerequisites (*to add each additional prerequisite, start a new line*):**

**(***See attached Note for samples***)**

**A. (course prefix, (space) and number)** ES 310 or       or       or       or

**B. (course prefix, (space) and number)** MTH 243 or       or       or       or

**C**. **(course prefix, (space) and number)**       or       or       or       or

1. **Co-requisites (including labs, if any):**

**A. (course prefix, (space) and number)** 330L or       or       or       or

1. **Major/Class restrictions: Please indicate any class or major restrictions:** None
2. **Is course repeatable? Yes** **No X If Yes, list maximum credits:**
3. **Labs requirements: If course includes a lab: # of hours lecture:** 3 **; # of hours lab:** 3
4. **Fees: List any course fees:** $100.00
5. **Grade Mode: Graded only:** **Pass/No Pass only:** **Option: X**
6. **CIP Code: Six-digit CIP code** (check with your Division Director):
7. **Special qualifications; Is course proposed for (yes/no):**

A. University Studies?       If yes, list Strand(s)

B. Honors?

1. **Cross-listing: List any cross-listing:**       and       and       and       and
2. **Strategic justification for proposed course:**

**Rationale**: What is the overall strategic rationale for offering this course? For several years, the environmental science & policy program has worked to emphasize research methods as a component of our core courses. Increasingly, students and employers recognize that disciplinary knowledge is important but professional skills are essential. In an interdisciplinary program like ours, we cannot possibly provide all the disciplinary content that would be useful in the range of careers students pursue. However, we can provide the professional skills necessary to be successful as researchers and practitioners in our discipline. One of our program learning objectives is, “Students will be able to analyze hypotheses and environmental problems utilizing statistical and data analyses.” We currently assess this through work in ES 310 as students develop researchable questions and library reviews as well as ES 386 wherein students analyze environmental data statistically. We also assess analysis in capstone. While students can explore field methods exclusively through their selected capstone project, this course will allow us to teach and assess students’ ability to conduct research in a range of contexts beyond capstone.

1. **Alignment**:

1. How does this course align with the unit’s mission plan? As noted above, this course will address one of our primary learning objectives. It will also address student feedback to focus more heavily on field skills.

2. How does the course fit into the rest of the unit’s curriculum? The course will be included in our ES&P gateway core requirements along with other research courses. The courses will be sequenced as follows:

ES 310: Development of research questions, research design, core methods concepts, literature review, scientific argument, scientific writing

ES 349: Map and cartography skills necessary for effective visual communication of scientific findings as well as spatial analysis of environmental data.

ES 330: Students will conduct weekly labs wherein they practice specific methods used in the environmental sciences and in environmental policy development. Course will focus on practical application of concepts introduced in ES 310 and ES 349

ES 386: Students analyze data gathered through field research. Students learn applied statistics, spatial statistics, data visualization, and quantitative reasoning

ES 494abc: Captone: Students apply what they have learned to a research project of their creation.

1. **Enrollment**: What is the new course’s estimated enrollment each time it is offered over a three-year period? Year 1 30; Year 2 33; Year 3 35
2. **Resource evaluation:** What resources – faculty, equipment, lab space, etc. -- will be needed to offer this course and how will those resources be obtained?

1. *Faculty*:

* 1. Who will teach the course? The course will be led by our new faculty hire in ES&P. That search is currently underway. The course could also be led by any instructor on the current faculty. All research faculty in the program will be asked to contribute expertise to the development of field labs.
  2. Evaluate unit’s faculty availability and/or needs and the impact on other teaching obligations. We have decreased required electives by one course in the major to free up faculty resources and student time to include this course.
  3. If additional faculty members are needed, how will that need be met?

2. *Facilities*: Cite any additional need for classrooms, equipment or lab space; explain how that need(s) will be met. The course will need to be taught in Science 066. We will also need to have available vans for the course. Additional small materials and supplies will also be purchased to run field labs. We currently have an equipment reserve fund for some of these purchases. We will also be requesting a $100.00 course fee on the course. ($80.00 for transportation and $20.00 for lab supplies)

3. *Other*:

a. Are Hannon Library resources sufficient to meet the needs of this course? YES. We have reached out to our librarian for a full assessment.

b. Are any other resources needed to support this course? Some small equipment purchases will be necessary.

If so, please explain how they will be obtained. We have a small amount of money reserved for small equipment purchases (binoculars, quadrats, measuring tapes, stream gauge, etc.)

E. **External impact**:

1. What is the expected effect of this course on existing programs elsewhere in the university? This course is designed exclusively for ES&P majors. We are not restricting the course to ES&P majors as we do occasionally have students from other undergraduate and graduate programs complete our upper division courses.

**NOTE:**  Please document your contact with other academic programs which may be affected by this new course and the response you received.

2. Will any of your prerequisites affect other academic programs? The prerequisites for this course will be ES 310 and MTH 243. However, MTH 243 is already a requirement for our students. As such, we do not anticipate any impact on other programs.

**NOTE:** Please document your contact with other academic programs which may be affected by this new course and the response you received.

**17. Syllabus (condensed)**

*(Attach an accompanying, condensed syllabus, which should include the following items. Schedules and similar details are* ***not*** *required.)*

1. Course description (same as Catalog description, above)
2. Learning objectives of the course
3. Required texts
4. Course format
5. Other – any other relevant materials needed to explain the goals and teaching methods of this course.

Approvals:

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Signature of Division Director Date

*4/29/16*

**Environmental Field Methods**

ES 330**-** 4 credits

**Course description**

This course introduces essential field and laboratory methods in environmental science & policy. The course consists of a series of group field exercises conducted in local terrestrial, aquatic, and policy-based contexts. Students will gain a working knowledge of the techniques commonly used by environmental professionals to acquire, process, and interpret measurements of environmental data. Students will learn how and why to apply these techniques through a combination of lectures, labs, and field trips. After completing the course, students will be familiar with the use of standard sampling designs and statistical methods to collect and analyze environmental field data. Thus, this course provides an essential foundation for a professional career in the field of Environmental Science & Policy.

**Environmental Science & Policy Program Outcomes:**

1. Students will be able to define and describe the fundamental scientific processes and major national/international laws or protocols relevant to environmental problems in the natural sciences, physical sciences, and social sciences.
2. Students will communicate effectively about environmental issues in writing, speech and visual images.
3. **Students will be able to analyze hypotheses and environmental problems utilizing statistical and data analyses.**
4. Students will be able to construct temporal and spatial models of complex environmental problems and be able to interpret maps and spatial data of natural resource issues.
5. Students will act as global citizens and engage in civic activities in their community addressing sustainability.

**COURSE Learning OBJECTIVES:** Following the completion of this course, you will be able to...

* Compare and contrast the use of common field sampling designs in environmental science. (Critical thinking)
* Apply quantitative methods to collect original ecological data: plants, animals, hydrology, and biodiversity. (Quantitative reasoning)
* Apply qualitative and quantitative methods to the collection of stakeholder data for use in environmental policy and planning. (Quantitative reasoning)
* Interpret your data by preparing technical written documents in the context of the primary literature (books and scientific articles). (Critical thinking, effective writing)
* Discriminate between different modes of inquiry in the biological, physical, and social sciences. (Scientific reasoning, critical thinking)
* Participate in thoughtful discussions with class members and with invited scientists and natural resource professionals about a broad spectrum of environmental science related issues. (Effective oral communication)

**Course structure:** Two lectures and one 3-hr laboratory. We will explore the topic areas through weekly class lectures, reading assignments, class discussions and laboratory projects.

**Course Assessment**

Participation

Field Lab Exercises x 10

Methods Presentation

Mid-Term Exam

Final Exam

**Course Texts**

No textbook will be used in this course. Peer-reviewed scientific research articles will be provided as reading in this course. In addition, we will use several published government documents outlining “standard operating procedures” for data analysis.

**Course Topics/Exercises**

* Hypothesis testing, metrics, sampling design
* Sampling diversity & abundance
* Aquatic habitat sampling & assessment
* Forest measurements: common stand exams and fuels assessment
* Implementing human subject surveys
* Engaging stakeholders in effective dialogue
* Stream flow analysis
* Questionnaire development
* Soil types and profiles
* Bird Surveys
* Insect Netting

**SOU Academic Support/Disability Resources:**

To support students with disabilities in acquiring accessible books and materials, and in planning their study and time management strategies, SOU requires all professors to include information regarding Academic Support and Disability Resources on course syllabi. It is the policy of Southern Oregon University that no otherwise qualified person shall, solely by reason of disability, be denied access to, participation in, or benefits of any service, program, or activity operated by the University. Qualified persons shall receive reasonable accommodation/modification needed to ensure equal access to employment, educational opportunities, programs, and activities in the most appropriate, integrated setting, except when such accommodation creates undue hardship on the part of the provider. These policies comply with Section 504 of the Rehabilitation Act of 1974, the Americans with Disabilities Act of 1990, and other applicable federal and state regulations that prohibit discrimination on the basis of disability.

If you are in need of support because of a documented disability (whether it be learning, mobility, psychiatric, health-related, or sensory) you may be eligible for academic or other accommodations through Disability Resources. See the Disability Resources webpage at <https://inside.sou.edu/dr/index.html> for more information or to schedule an appointment. If you are already working with Disability Resources, make sure to request your accommodations for this course as quickly as possible to ensure that you have the best possible access.

**Participation:**

Your participation is requested in making this course a success. Group assignments, projects, and discussions are much more meaningful when members of the group are engaged and committed to their peers. I will work hard to create an environment where you feel safe and where you feel you will be heard. I expect each of you to do the same for your peers. Please note that participating in class and talking in class are not synonymous. Perhaps the most crucial participatory skill you can learn is to listen!

**Disclaimer:**

I reserve the right to amend or modify this syllabus throughout the term to best serve the learning objectives of the course.

**Academic Honesty Statement and Code of Student Conduct**

Students are expected to maintain academic integrity and honesty in completion of all work for this class. According to SOU’s Student Code of Conduct: “Acts of academic misconduct involve the use or attempted use of any method that enables a student to misrepresent the quality or integrity of his or her academic work and are prohibited”.

Such acts include, but are not limited to: copying from the work of another, and/or allowing another student to copy from one’s own work; unauthorized use of materials during exams; intentional or unintentional failure to acknowledge the ideas or words of another that have been taken from any published or unpublished source; placing one’s name on papers, reports, or other documents that are the work of another individual; submission of work resulting from inappropriate collaboration or assistance; submission of the same paper or project for separate courses without prior authorization by faculty members; and/or knowingly aiding in or inciting the academic dishonesty of another.

Any incident of academic dishonesty will be subject to disciplinary action(s) as outlined in SOU’s Code of Student Conduct: https://inside.sou.edu/assets/policies/CodeofStudentConduct.pdf

In case of loss, theft, destruction or dispute over authorship, always retain a copy of any work you produce and submit for grades. Retain all written work that has been graded and handed back to you.

**SOU Cares:**

SOU has a wide range of resources to help you succeed. Our faculty, staff, and administration are dedicated to providing you with the best possible support. The SOU Cares Report allows us to connect you with staff members who can assist with concerns, including financial, health, mental health, wellbeing, legal concerns, family concerns, harassment, assault, study skills, time management, etc. You are also welcome to use the SOU Cares Report to share concerns about yourself, a friend, or a classmate at <https://inside.sou.edu/ssi/index.html>. These concerns can include reports related to academic integrity, harassment, bias, or assault. Reports related to sexual misconduct or sexual assault can be made anonymously or confidentially. Student Support and Intervention provides recourse for students through the Student Code of Conduct, Title IX, Affirmative Action, and other applicable policies, regulations, and laws.

**Statement on Title IX and Mandatory Reporting**

Federal law requires that employees of institutions of higher learning (faculty, staff and administrators) report to a Title IX officer any time they become aware that a student is a victim or perpetrator of gender-based bias, sexual harassment, sexual assault, domestic violence, or

stalking. Further, Oregon law requires a mandatory report to law enforcement of any physical

or emotional abuse of a child or other protected person, including elders and people with disabilities, or when a child or other protected person is perceived to be in danger of physical or emotional abuse. If you are the victim of sexual or physical abuse and wish to make a confidential disclosure please use the confidential advising available at

<https://inside.sou.edu/ssi/confidential-advisors.html>, or use Southern Oregon University's Anonymous Harassment, Violence, and Interpersonal Misconduct Reporting Form: <https://jfe.qualtrics.com/form/SV_7R7CCBciGNL473L>

**Emergency Notifications**

SOU is committed to a safe community. Student, faculty and staff emails are automatically enrolled in SOU Alert, the campus emergency communication system. In the event of emergency, closure, or other significant disruption to campus operations, such as inclement weather, messages are delivered via SOU Alert. To ensure timely notification, students, faculty, staff are **strongly** encouraged to visit InsideSOU to register their cell phone numbers and/or add family members to the system. Campus Public Safety is available 24 hours/day by dialling 541-552-6911. CPS responds to safety concerns, incidents, and emergencies and can provide safety escorts to on-campus locations. CPS works in collaboration with Ashland Police and Fire.

**Peer Reviews:**

We will be working through several peer reviews this semester. This peer review process is meant to teach you to critically review your peers’ work and thinking. While peer reviews are taught as part of the successful writing process, I will be placing emphasis on the review process more than the writing process. Your ability to contribute to the success of another may be one of the most universally important skills you can learn.