

# Environmental Science Major

## Program Requirements

• **Total units required:** 52-56

The Department of Earth, Environmental, and Planetary Sciences (EEPS) offers majors in Earth Science, Environmental Science, and Planetary Science. The curriculum is broad, and the requirements are flexible enough to accommodate diverse needs and interests. Many courses present hands-on, problem-oriented experiences, including ample opportunity for fieldwork, laboratory work, and the use of state-of-the-art computational facilities and research instrumentation. All majors are required to complete certain core courses as well as electives and a capstone experience that must be presented at the Spring EEPS Undergraduate Research Symposium.

### Requirements for All Majors

#### Required Core Courses

Students pursuing any Earth, Environmental, and Planetary Sciences major must complete the following courses:

Code	Title	Units
Chem 105	Principles of General Chemistry I	3
EEPS 202	Introduction to Earth, Environmental, and Planetary Science	3
Math 131	Calculus I	3
Math 132	Calculus II	3
Physics 191	Physics I	3
SDS 2200 or SDS 3200	Elementary Probability and Statistics Elementary to Intermediate Statistics and Data Analysis	3
<b>Total Units</b>		<b>18</b>

#### Additional Electives

In addition to the disciplinary electives below, which are specific to each major, students must choose three L19 EEPS elective courses at the 300, 400, or 500 level, excluding the following courses: EEPS 390 Independent Study, EEPS 490 Independent Study, EEPS 493 Internship, and EEPS 499 Honors Research.

#### Skills Course

Students must complete one of the following:

Code	Title	Units
EEPS 387	Geospatial Science	4
EEPS 400	Special Topics	3
EEPS 492	Field Camp	6
EEPS 496	Field Geology	3
EnSt 380	Applications in GIS	3
EnSt 364	Field Methods for Environmental Science	3

#### Capstone Experience

Students completing any Earth, environmental, and planetary sciences major must also build a portfolio of their work from projects completed in courses such as EEPS 496 Field Geology, EnSt 405 Sustainability Exchange: Community and University Practicum, EnSt 539 Interdisciplinary Environmental Clinic, or EnSt 452 International Climate Negotiation Seminar; internship experiences; or research. All capstones must be presented at the Spring EEPS Undergraduate Research Symposium.

#### Disciplinary Required Courses

Students must complete all of the requirements listed above for all majors as well as the following two courses:

Code	Title	Units
EEPS 340 or EEPS 353	Minerals, Rocks, Resources and the Environment Earth Forces	4
EEPS 342	Environmental Systems	3

#### Disciplinary Elective Courses

Students select five of the following courses:

Code	Title	Units
Biol 381	Introduction to Ecology	3
Econ 451 or Pol Sci 2010	Environmental Policy Introduction to Environmental Policy	3
EECE 101	Introduction to Energy, Environmental and Chemical Engineering	3
EEPS 308	Topics in Environmental Sustainability	3
EEPS 317	Soil Science	3
EEPS 323	Biogeochemistry	3
EEPS 386	The Earth's Climate System	3
EEPS 407	Remote Sensing	3
EEPS 409	Surface Processes	3
EEPS 428	Hydrology	3
EEPS 442	Aqueous Geochemistry	3
EEPS 454	Exploration and Environmental Geophysics	4
EEPS 486	Paleoclimatology	3

## Additional Information

- A grade of C- (C for summer field camp) is the minimum acceptable performance for each unit of credit for each required course, including those in mathematics, chemistry, and physics. Courses with grades of D may fulfill the College's 120 total hours requirement, but they do not meet the departmental requirements. A grade of C- is also the minimum acceptable performance for each unit of credit for any course required as a prerequisite to enrolling in advanced or sequential courses.
- If a student has two majors, only introductory (100- and 200-level) courses may be counted, when relevant, toward the requirements of both majors. All advanced (300- and 400-level) courses must be unique to each major; in other words, no advanced course may "double-count" for the course work needed to fulfill the minimal requirements for either major. Should both major programs require the same course, a departmentally sanctioned elective must be chosen to replace the course in one of the programs.
- Credits to be transferred from another institution must have prior approval from the Director of Undergraduate Studies in the relevant Arts & Sciences department.
- Students may transfer up to nine credits (or three courses, whichever is greater) of advanced coursework (course numbers 300 or above) toward the completion of a major in the Department of Earth, Environmental, and Planetary Sciences. Students may transfer up to three credits (or one course, whichever is greater) of advanced coursework (course numbers 300 or above) toward the completion of a minor in the Department of Earth, Environmental, and Planetary Sciences. This policy includes credit earned for courses taken while studying abroad or studying at another US institution. Credits earned through the completion of an approved field camp do not count toward this limit.
- Students may not place out of the chemistry, physics, or math requirements for the EEPS major. These courses must be taken at Washington University or at another accredited institution.
- In the Department of Earth, Environmental, and Planetary Sciences, both Latin Honors and Departmental Distinctions require the completion of a senior thesis:
  - In the spring of their junior year, the student should select a faculty member to guide the generation of this thesis. The student should then enroll in EEPS 499 Honors Research (GPA > 3.65) or EEPS 490 Independent Study (GPA < 3.65) with that faculty member for the fall of their senior year. At that time, the student and faculty advisor should meet and choose the two additional readers for the student's thesis (the thesis committee) and establish a set of goals for the fall semester's work. The student should fill out the Senior Honors Topic Form.
  - The student may also (but is not required to) enroll in EEPS 499 Honors Research/EEPS 490 Independent Study in the spring semester of their senior year. The faculty adviser will determine, with the student, a date by which a complete draft is to be given to the faculty readers for review, such that the readers have ample time to review the work prior to

issuing their evaluations. These drafts will be due no later than the Tuesday following Spring Break. A final copy containing revisions required by the committee is due by the first day of the finals period.

- An oral presentation of the senior honors research is expected to be presented to the department, usually late in the senior's last semester. The thesis document must be prepared following the department's formatting guidelines, which are available from the Director of Undergraduate Studies. All theses must be submitted in PDF to Kelley Oldham prior to graduation for online archiving.

## Undergraduate Department Awards

- **The Ernest L. Ohle, Jr., Prize** is presented to the senior judged to have the greatest promise for a successful career in Earth, environmental, or planetary sciences and who has demonstrated superior academic achievement. The prize is funded by an endowed donation from Dr. Ernest L. Ohle, Jr., an alumnus who had a distinguished career as a mining geologist.
- **The Courtney Werner Memorial Prize** is awarded to a senior student who has majored in Earth, environmental, and planetary sciences and who has demonstrated outstanding academic achievement. Courtney Werner was an associate professor in the Department of Geology and Geological Engineering at Washington University. He joined the department in 1923, having worked as a geologist for Gulf Oil Company. The prize is funded by endowed donations from his friends and former students.
- **The Harold Levin Award** is for undergraduate students who have done outstanding jobs as assistants to the instructor. Professor Levin was a paleontologist who specialized in study of microscopic fossils as indicators of environmental conditions during deposition of sedimentary rocks. He was an outstanding teacher at all levels, ensuring through dynamic lectures and discussions that students remained engaged in his courses.
- **The Margaret E. Bewig Memorial Field Camp Award** is presented to an EEPS major selected by the faculty from those attending summer field camp based on a combination of academic merit and financial need. The award may be used to defray part of the cost of summer field camp. Margaret Bewig was the department secretary and later the administrative assistant from 1963 to 1986. She died on May 26, 1991. The award is funded by endowed donations from her friends, faculty, and former students.

Website: <https://eeps.wustl.edu/>