

## Track 1

This pathway is designed for students who aim to build a strong, integrated earth and environmental science foundation to inform discussions and work in policy, education, law, advocacy, community engagement, conservation, finance, etc. but do not aim to work as practicing scientists. This pathway pairs well with programs in Climate and Environmental Studies, Environmental Sociology, Communication of Science and Technology, Secondary Education, and other non-STEM majors that, together, will prepare students for the interdisciplinary nature of addressing the Earth and Environmental challenges of our future.

**A major in Earth & Environmental Sciences on Track 1 requires at least 36 hours of coursework. The requirements and options for the major are as follows:**

**Category 1: EES Foundations** – two classes, one with lab (7 credit hours)

- EES 1510 (+1510L): Dynamic Earth (+ lab)
- EES 1030 (+ 1030L): Oceanography (+ lab)
- EES 1081 (+ 1081L): Earth & the Atmosphere (+ lab)
- AP credit for Environmental Science, with permission from the DUS

**Category 2: EES Core** - one class (4 credit hrs)

- EES 2510: Earth Systems thru Time (category 1 plus lab prerequisite)

**Category 3: STEM Foundations** – three classes (9 credit hours)

- Quantitative and Computational Reasoning – two classes (6 credit hours)
  - One class in scientific Computing:
    - DS 1100/CS 1100: Applied Programming and Problem Solving with Python
  - One class in Statistics:
    - MATH 1011: Probability and Statistical Inference (Math 1010 prereq)
    - DS 2100: Statistics for Data Science
    - BSCI 3270: Statistical Methods in Biology
    - ECON 1500: Economic Statistics
    - ECON 1510: Intensive Economic Statistics
    - MATH 2810: Probability and Statistics for Engineering
    - MATH 2820: Intro Probability and Mathematical Statistics
    - MATH 2821: Introduction to Applied Statistics
    - SOC 2100: Statistics for Social Scientists
- Additional supporting STEM course – one class (3 credit hours)
  - any additional course from CHEM, PHYS, ASTR, BSCI, MATH, CS, DS excluding any 1111 course and BSCI 1400 (science pedagogy). Courses from the School of Engineering may count with approval from the EES Director of Undergraduate Studies.

**Category 4: EES Focus** - 5 classes (at least 15 credit hours)

*to be chosen once student has identified an area of interest, referencing Pathway Planning Documents available online*

- any EES courses numbered above 3000 (includes EES 2050 for study abroad and transfer students), at least 8 credit hours of which must be experiential, which includes the following:
  - lab classes (4 credit hours each): EES 3220, 3260, 3280, 3310, 3330, 3340
  - field-based classes/experiences: EES 3865 (can be 3-4 credit hour sections of EES 3865 and/or can include any class paired with 1 credit hour EES 3865, with permission)
  - EES 3875: Community Engaged Science
  - can include up to 3 credit hours of research or internships: EES 3841, 3842, 3880, 3881, 4998, 4999
- must include at least two classes at 4000 level

**Category 5: Earth Science Communication** - 1 class (0-3 credit hours)

*can double count with courses in other categories*

- any CSET course
- any 1111 or (W) course in EES, CHEM, PHYS, or BSCI
- one course chosen from the following:
  - SCED 2330: Pedagogy Seminar (2 credit hours)
  - EES 4233: Conservation Biology (3 credit hours)
  - EES 3875: Community Engaged Science (3 credit hours)
  - EES 4680: Paleoclimates (3 credit hours)
  - EES 4996 AND 4997: Honors Seminar I and II (1 credit hour each, 2 in total)

**Category 6: Capstone** – 1 class (1 credit hour)

- EES 4961: Senior Seminar

## Track 2

This pathway is designed to prepare students for careers as earth and environmental scientists, including entering the workforce after graduation and/or pursuing postgraduate academic work.

Given the broad and interdisciplinary nature of EES, it is important that students design an academic plan in consultation with their adviser and referencing the EES Disciplinary Pathway documents, to ensure appropriate preparation for their area of interest. Preparing to be competitive for graduate programs may include additional coursework beyond the major requirements, particularly advanced math, computing, chemistry, biosciences or physics, depending on disciplinary interest. Students on this pathway are encouraged to pursue research, particularly if aimed at post-graduate academic work.

Note that prerequisite STEM courses (CHEM 1601, PHYS 1501/1601, MATH 1100/1201/1301) may be taken on an ungraded basis for students above the freshmen level, but students should note that working knowledge of the course content will be required in upper level EES and other STEM courses.

Students who are interested in pursuing minors and/or double majors in other STEM fields should discuss options for this with the DUS, as some coursework in other departments may replace EES coursework if part of an intentionally designed plan made in consultation with the adviser and DUS.

**A major in Earth & Environmental Sciences on Track 2 requires at least 37 hours of coursework. The requirements and options for the major are as follows:**

**Pre-requisites-** three to four classes, 9-12 credit hours

*Students may choose to take these classes on an ungraded basis, as they are not listed as EES major requirements. These can be satisfied with AP credit.*

- CHEM 1601
- PHYS 1501, 1601, or 1911
- Math 1100, 1201, or 1301

**Category 1: EES Foundations** – one class with lab (4 credit hrs)

- EES 1510 (+1510L): Dynamic Earth (+ lab)
- EES 1030 (+ 1030L): Oceanography (+ lab)
- EES 1081 (+ 1081L): Earth & the Atmosphere (+ lab)

**Category 2: EES Core** – three classes, two of which are labs (11 credit hours)

- EES 2510: Earth Systems thru Time (prerequisite: Category 1)
- EES 2550: Earth Materials (co-requisite: Chem 1601)
- One course in Earth physical dynamics, from the following list (all of which have PHYS 1501/1601/1911 and MATH 1100/1201/1301 or equivalent as a prerequisite):
  - EES 2580: Earth System Dynamics
  - EES 4650: Physics of Climate System
  - EES 4420: Geomorphology
  - EES 4550: Transport Processes

**Category 3: STEM Electives** – two classes (6 credit hours)

*to be chosen to intentionally compliment a student's EES area of interest, courses from the School of Engineering may count with approval from the DUS*

- more advanced CHEM, PHYS, MATH and/or courses in BSCI, ASTR, CS, DS
  - CHEM above 1601
  - PHYS 1502, 1602 or higher
  - MATH 2300 or higher
  - BSCI 1510 or higher
  - ASTR 2110 or higher
  - CS 1100 or higher
  - DS 1100 or higher
- one must be quantitative or computational
  - MATH 2300 or higher
  - CS 1100 or higher
  - DS 1100 or higher
  - Introduction to Statistics:
    - DS 2100: Statistics for Data Science
    - BSCI 3270: Statistical Methods in Biology
    - MATH 2810: Probability and Statistics for Engineering
    - MATH 2820: Intro Probability and Mathematical Statistics
    - MATH 2821: Introduction to Applied Statistics

**Category 4: EES Focus** – five classes, at least 15 credit hours

*to be chosen once student has identified an area of interest, referencing Pathway Planning Documents available online*

- any EES courses numbered above 3000 (includes EES 2050 for study abroad and transfer students), at least 8 credit hours of which must be experiential, which includes the following:
  - lab classes (4 credit hours each): EES 3220, 3260, 3280, 3310, 3330, 3340
  - field-based classes/experiences: EES 3865 (can be 3-4 credit hour sections of EES 3865 and/or can include any class paired with 1 credit hour EES 3865, with permission)
  - EES 3875: Community Engaged Science
  - can include up to 3 credit hours of research or internships: EES 3841, 3842, 3880, 3881, 4998, 4999
- must include at least two classes at 4000 level

**Category 5: Earth Science Communication** - 1 class (0-3 credit hours)

*can double count with courses in other categories*

- any CSET course
- any 1111 or (W) course in EES, CHEM, PHYS, or BSCI
- one course chosen from the following:
  - SCED 2330: Pedagogy Seminar (2 credit hours)
  - EES 4233: Conservation Biology (3 credit hours)
  - EES 3875: Community Engaged Science (3 credit hours)
  - EES 4680: Paleoclimates (3 credit hours)
  - EES 4996 AND 4997: Honors Seminar I and II (1 credit hour each, 2 in total)

**Category 6: Capstone – 1 class (1 credit hour)**

- EES 4961: Senior Seminar