

# BACHELOR OF ARTS (BA) DEGREE WITH A MAJOR IN EARTH, ENVIRONMENTAL AND PLANETARY SCIENCES

## Program Learning Outcomes for the BA Degree with a Major in Earth, Environmental and Planetary Sciences

Upon completing the BA degree with a major in Earth, Environmental and Planetary Sciences, students will be able to:

1. Demonstrate comprehensive knowledge of how the Earth, and also terrestrial planetary systems, operate over geologic and modern timescales.
2. Demonstrate the ability to make and record observations in the field, and to analyze and interpret these data in the context of the geologic history.
3. Demonstrate effective oral and written communication skills.
4. Demonstrate the ability to apply critical thinking and problem-solving skills to evaluate published research in the Earth, Environmental and Planetary sciences.

## Requirements for the BA Degree with a Major in Earth, Environmental and Planetary Sciences

For general university requirements, see [Graduation Requirements \(https://ga.rice.edu/undergraduate-students/academic-policies-procedures/graduation-requirements/\)](https://ga.rice.edu/undergraduate-students/academic-policies-procedures/graduation-requirements/). Students pursuing the BA degree with a major in Earth, Environmental and Planetary Sciences must complete:

- A minimum of 20 courses (60-63 credit hours, depending on course selection) to satisfy major requirements.
- A minimum of 120 credit hours to satisfy degree requirements.
- A minimum of 9 courses (31 credit hours) taken at the 300-level or above.

The courses listed below satisfy the requirements for this major. In certain instances, courses not on this official list may be substituted upon approval of the major's academic advisor or, where applicable, the department's Director of Undergraduate Studies. (Course substitutions must be formally applied and entered into Degree Works by the major's Official Certifier (<https://registrar.rice.edu/facstaff/degreeworks/officialcertifier/>)). Students and their academic advisors should identify and clearly document the courses to be taken.

### Summary

Code	Title	Credit Hours
Total Credit Hours Required for the Major in Earth, Environmental and Planetary Sciences		60-63
Total Credit Hours Required for the BA Degree with a Major in Earth, Environmental and Planetary Sciences		120

## Degree Requirements

Code	Title	Credit Hours
<b>Core Requirements</b>		
MATH 101 or MATH 105	SINGLE VARIABLE CALCULUS I AP/OTH CREDIT IN CALCULUS I	3
MATH 102 or MATH 106	SINGLE VARIABLE CALCULUS II AP/OTH CREDIT IN CALCULUS II	3
CHEM 121 or CHEM 111	GENERAL CHEMISTRY I AP/OTH CREDIT IN GENERAL CHEMISTRY I	3
CHEM 123 or CHEM 113	GENERAL CHEMISTRY LABORATORY I AP/OTH CREDIT IN GENERAL CHEMISTRY LAB I	1
CHEM 122 or CHEM 112	GENERAL CHEMISTRY II AP/OTH CREDIT IN GENERAL CHEMISTRY II	3
CHEM 124 or CHEM 114	GENERAL CHEMISTRY LABORATORY II AP/OTH CREDIT IN GENERAL CHEMISTRY LAB II	1
<i>Select 1 course from the following:</i>		3-4
EEPS 101	THE EARTH	
EEPS 106	INVESTIGATING EARTH'S SURFACE	
EEPS 107 / ENST 201	CLIMATE CHANGE AND EXTREME WEATHER	
EEPS 108	NATURAL DISASTERS	
EEPS 109	OCEANOGRAPHY	
EEPS 110	THE EARTH SYSTEM, ENVIRONMENT, AND SOCIETY	
EEPS 111	INHABITING PLANET EARTH	
EEPS 115	THE PLANETS	
EEPS 116	THE EARTH AND THE SOLAR SYSTEM	
EEPS 321	EARTH AND PLANETARY SURFACE ENVIRONMENTS	4
EEPS 322	EARTH AND PLANETARY CHEMISTRY AND MATERIALS	4
EEPS 323	EARTH AND PLANETARY STRUCTURE AND DYNAMICS	4
EEPS 325	OCEANS, ATMOSPHERES AND CLIMATE	4
EEPS 334	THE EARTH LABORATORY	3
<b>Elective Requirements</b>		
Directed Electives in Fields Outside Earth, Environmental and Planetary Sciences		
<i>Select 2-4 courses from either Group A or Group B:</i>		6-8
<b>Group A</b>		
<i>Select 1 from the following:</i>		
BIOS 201 & BIOS 202	INTRODUCTORY BIOLOGY I and INTRODUCTORY BIOLOGY II	
PHYS 101 & PHYS 103 & PHYS 102 & PHYS 104	MECHANICS (WITH LAB) and MECHANICS DISCUSSION and ELECTRICITY & MAGNETISM (WITH LAB) and ELECTRICITY AND MAGNETISM DISCUSSION	
PHYS 125 & PHYS 126	GENERAL PHYSICS (WITH LAB) and GENERAL PHYSICS II (WITH LAB)	
PHYS 141 & PHYS 142	CONCEPTS IN PHYSICS I and CONCEPTS IN PHYSICS II	

Group B	
Select 2 from the following Option Categories:	
Option Category - 1	
Select 1 from the following:	
PHYS 101 & PHYS 103	MECHANICS (WITH LAB) and MECHANICS DISCUSSION
PHYS 125	GENERAL PHYSICS (WITH LAB)
PHYS 102 & PHYS 104	ELECTRICITY & MAGNETISM (WITH LAB) and ELECTRICITY AND MAGNETISM DISCUSSION
PHYS 126	GENERAL PHYSICS II (WITH LAB)
PHYS 141	CONCEPTS IN PHYSICS I
Option Category - 2	
BIOS 211 & BIOS 213	INTERMEDIATE EXPERIMENTAL CELLULAR AND MOLECULAR BIOSCIENCES and INTRODUCTORY LAB IN ECOLOGY & EVOLUTION
Option Category - 3	
MATH 211	ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA
Option Category - 4	
Directed Electives in Earth, Environmental and Planetary Sciences	
EEPS 220	INTRODUCTION TO COMPUTATION IN THE EARTH, ENVIRONMENT AND PLANETARY SCIENCES
or CMOR 220INTRODUCTION TO ENGINEERING COMPUTATION	
Select 4 courses from Earth, Environmental and Planetary Sciences departmental (EEPS) course offerings at the 300-level or above. <sup>1</sup>	12
Directed Electives in Natural Science and Engineering	
Select 2 courses from the School of Natural Sciences or the School of Engineering course offerings at the 200-level or above. <sup>2</sup>	6
Total Credit Hours Required for the Major in Earth, Environmental and Planetary Sciences	60-63
Additional Credit Hours to Complete Degree Requirements *	26-29
University Graduation Requirements ( <a href="https://ga.rice.edu/undergraduate-students/academic-policies-procedures/graduation-requirements/">https://ga.rice.edu/undergraduate-students/academic-policies-procedures/graduation-requirements/</a> ) *	31
Total Credit Hours	120

Footnotes and Additional Information

\* **Note:** University Graduation Requirements include 31 credit hours, comprised of Distribution Requirements (Groups I, II, and III), FWIS, and LPAP coursework. In some instances, courses satisfying FWIS or distribution requirements may additionally meet other requirements, such as the Analyzing Diversity (AD) requirement, or some of the student’s declared major, minor, or certificate requirements. Additional Credit Hours to Complete Degree Requirements include general electives, coursework completed as upper-level, residency (hours taken at Rice), and/or any other additional academic program requirements.

<sup>1</sup> Students may select any course from Earth, Environmental and Planetary Sciences departmental (EEPS) course offerings between course numbers EEPS 300:399, EEPS 407:476, EEPS 495:499 to fulfill the 4 courses (minimum of 12 credit hours) from departmental (EEPS) course offerings.

<sup>2</sup> Courses must be approved by the department undergraduate advisor. Courses from the School of Natural Sciences or the School of Engineering include the following subject codes: ASTR, BIOS, BIOE, CEVE, CHBE, CHEM, CMOR, COMP, DSCI, EDES, EEPS, ELEC, ENGI, ENST, GLHT, HEAL, KINE, MATH, MECH, MSNE, NEUR, NSCI, PHYS, STAT.

Policies for the BA Degree with a Major in Earth, Environmental and Planetary Sciences

Program Restrictions and Exclusions

Students pursuing the BA Degree with a Major in Earth, Environmental and Planetary Sciences should be aware of the following program restrictions:

- As noted in Majors, Minors, and Certificates (<https://ga.rice.edu/undergraduate-students/academic-opportunities/majors-minors-certificates/>), under *Declaring Majors, Minors and Certificates*, students may not obtain both a BA and a BS in the same major. Students pursuing the BA Degree with a Major in Earth, Environmental and Planetary Sciences may not additionally pursue the BS Degree with a Major in Earth, Environmental and Planetary Sciences.
- As noted in Majors, Minors, and Certificates (<https://ga.rice.edu/undergraduate-students/academic-opportunities/majors-minors-certificates/>), students may not major and minor in the same subject.

Transfer Credit

For Rice University’s policy regarding transfer credit, see Transfer Credit (<https://ga.rice.edu/undergraduate-students/academic-policies-procedures/transfer-credit/>). Some departments and programs have additional restrictions on transfer credit. The Office of Academic Advising maintains the university’s official list of transfer credit advisors (<https://oaa.rice.edu/advising-network/transfer-credit-advisors/>) on their website: <https://oaa.rice.edu>. Students are encouraged to meet with their academic program’s transfer credit advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the major in Earth, Environmental and Planetary Sciences should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director (and/or the program’s official transfer credit advisor) on an individual case-by-case basis.

Additional Information

For additional information, please see the Earth Environmental and Planetary Sciences major page, on the Department of Earth, Environmental and Planetary Sciences website: <https://eeps.rice.edu/undergraduate/>.

# Opportunities for the BA Degree with a Major in Earth, Environmental and Planetary Sciences

## Academic Honors

The university recognizes academic excellence achieved over an undergraduate's academic history at Rice. For information on university honors, please see [Latin Honors \(https://ga.rice.edu/undergraduate-students/honors-distinctions/university/\)](https://ga.rice.edu/undergraduate-students/honors-distinctions/university/) (*summa cum laude, magna cum laude, and cum laude*) and [Distinction in Research and Creative Work \(https://ga.rice.edu/undergraduate-students/honors-distinctions/university/\)](https://ga.rice.edu/undergraduate-students/honors-distinctions/university/). Some departments have department-specific Honors awards or designations.

## Undergraduate Independent Research

The department encourages, but does not require, Earth, Environmental and Planetary Sciences (EEPS) undergraduate majors to pursue independent supervised research in EEPS 481. This can also be carried out as part of the Earth, Environmental and Planetary Sciences Honors Thesis Program (described below), or independently with a faculty mentor. Undergraduates enrolled in the Honors Research program automatically will be eligible for consideration for the university honor, the [Distinction in Research and Creative Work \(https://ga.rice.edu/undergraduate-students/honors-distinctions/university/\)](https://ga.rice.edu/undergraduate-students/honors-distinctions/university/). Other students who wish to be considered for this honor within the EEPS majors should discuss with an EEPS major advisor at the beginning of their senior year.

## Honors Research

Undergraduates are encouraged to embark on an undergraduate honors thesis. The purpose of the honors thesis is for students to develop and demonstrate their creative and independent research potential. Students are recommended to begin in the fall of their junior year to provide ample time for research projects to be developed, executed, and written. However, honors theses must commence during the fall semester of senior year. Students are expected to enroll in at least two semesters of the course EEPS 481, spanning their senior year. Juniors who have identified a research project and mentor can also enroll in EEPS 481. Students should sign up for EEPS 481 for 3 credit hours.

## Requirements and Recommendations for Completing an Undergraduate Honors Thesis

### Fall Semester of Senior Year

At the beginning of the fall semester, seniors interested in the honors thesis program must identify a thesis advisor, a thesis topic, and enroll in the required courses. During the semester, students will participate in meetings with other honors thesis candidates to discuss basic research protocols and philosophies, and meet independently with their chosen scientific advisor, and generate data, experiments or models. At the end of the semester, students must submit final versions of their proposals, describing motivation, hypothesis, methodology, and preliminary results. The honors thesis committee will evaluate the proposals, and if approved, students can continue in the honors thesis program. Required courses:

Code	Title	Credit Hours
EEPS 401	SEMINAR: UNDERGRADUATE HONORS THESIS	1
EEPS 481	UNDERGRADUATE RESEARCH IN EARTH, ENVIRONMENTAL AND PLANETARY SCIENCES	1-6

### Spring Semester of Senior Year

A mid-semester progress report must be submitted to the thesis committee for feedback. At the end of the spring semester, students submit their final theses, and give public oral exit talks. To complete the honors thesis program, student theses must be approved by the honors thesis committee. Required courses:

Code	Title	Credit Hours
EEPS 401	SEMINAR: UNDERGRADUATE HONORS THESIS	1
EEPS 481	UNDERGRADUATE RESEARCH IN EARTH, ENVIRONMENTAL AND PLANETARY SCIENCES	1-6

Further details about the program, and expectations and criteria for the thesis proposal and final thesis can be found on the Department of Earth, Environmental and Planetary Sciences website (<https://eeps.rice.edu/eeps-honor-thesis/>).

### Other Points of Consideration

Students who are accepted into the Rice Undergraduate Scholars Program (RUSP) can substitute EEPS 481 courses for semesters 2 and 3 with HONS 470 and HONS 471. However, the students will have to meet all other requirements of the honors thesis set by the department.

## Additional Information

For additional information, please see the Earth, Environmental and Planetary Sciences major page, on the Department of Earth, Environmental and Planetary Sciences website: <https://eeps.rice.edu/undergraduate/>.