

Conservation and Resource Studies

Bachelor of Science (BS)

The Conservation and Resource Studies (CRS) major is a self-designed interdisciplinary program for students interested in environmental issues and areas of interaction among natural resources, population, energy, technology, societal institutions, and cultural values. Students draw on the course offerings of the entire campus and appropriate community resources in the development of individual programs of study.

The major's orientation is toward flexibility and an individualized educational approach to understanding the structure and dynamic functions of complex environmental systems within our society and biosphere. It encourages interaction among students, faculty, and community. The major's offerings are designed to help each student formulate an area of interest, but are not in any way meant to limit the range of options available. Sample topics include environmental justice and education, sustainable development of world populations, energy and environmental policy, conservation and culture, global environmental politics, and ecological restoration and policy.

Graduates are well-prepared for careers in fields such as environmental consulting, education, health, law, community, urban or regional planning, and other related areas of environmentalism in public agencies, nonprofit conservation organizations, and private companies. Graduates are well qualified for a variety of graduate programs, including law school.

Admission to the Major

Advice on admission for freshmen and transfer students can be found on the Rausser College of Natural Resources Admissions Guide website (<http://guide.berkeley.edu/undergraduate/colleges-schools/natural-resources/#admissionstext>) or Prospective Student website (<https://nature.berkeley.edu/prospective-students/>). Freshman students may apply directly to the major, or they may select the Rausser College's undeclared option and declare the major by the end of their fourth semester. Transfer students may apply directly to the major through the UC application.

Information for current Berkeley students who would like to declare the major after admission, including information on a change of major or change of college, please see Chapter 6 of the Rausser College of Natural Resources Undergraduate Student Handbook (<https://nature.berkeley.edu/handbook/>). (<https://nature.berkeley.edu/handbook/>)

Honors Program

Students with a GPA of 3.6 or higher may enroll in Rausser College's honors program (H196) once they have reached upper division standing. To fulfill the program requirements, students design, conduct, and report on an individual research project working with a faculty sponsor. For further information on registering for the honors symposium and on honors requirements, please see Rausser College's website (http://nature.berkeley.edu/site/honors_program.php).

Minor Program

The department offers a minor in Conservation and Resource Studies. For information regarding how to declare the minor, please contact the department.

Other Majors and Minors Offered by the Department of Environmental Science, Policy, and Management

Environmental Sciences (<http://guide.berkeley.edu/undergraduate/degree-programs/environmental-sciences/>) (Major only)

Ecosystem Management and Forestry (<http://guide.berkeley.edu/undergraduate/degree-programs/ecosystem-management-forestry/>) (Major and Minor)

Molecular Environmental Biology (<http://guide.berkeley.edu/undergraduate/degree-programs/molecular-environmental-biology/>) (Major only)

Society and Environment (<http://guide.berkeley.edu/undergraduate/degree-programs/society-environment/>) (Major only)

In addition to the university, campus, and college requirements, listed on the College Requirements tab, students must complete the below requirements specific to their major program.

General Guidelines

1. All courses taken to fulfill the major requirements below must be taken for graded credit, other than courses listed which are offered on a *Pass/No Pass* basis only. Other exceptions to this requirement are noted as applicable.
2. A minimum cumulative grade point average (GPA) of 2.0 is required.
3. A minimum GPA of 2.0 in upper division major requirements is required.
4. At least 15 of the 36 required upper division units must be taken in the Rausser College of Natural Resources (except for students majoring in environmental economics and policy; please see the EEP major adviser for further information).
5. A maximum of 16 units of independent study (courses numbered 97, 98, 99, 197, 198, and 199) may count toward graduation, with a maximum of 4 units of independent study per semester.
6. No more than 1/3 of the total units attempted at UC Berkeley may be taken Pass/Not Pass. This includes units in the Education Abroad Program and UC Intercampus Visitor or Exchange Programs.
7. A maximum of 4 units of physical education courses will count toward graduation.
8. For information regarding residence requirements and unit requirements, please see the College Requirements tab.
9. A minimum of 120 units is needed to confer your degree.

Lower Division Major Requirements

Breadth Requirements

Students must fulfill

- One course in the Social and Behavioral Sciences (<https://lsadvising.berkeley.edu/seven-course-breadth/>) or International Studies (<https://lsadvising.berkeley.edu/seven-course-breadth/>) breadth
- One course in the Physical Sciences (<https://lsadvising.berkeley.edu/seven-course-breadth/>) breadth

- One course in the Arts and Literature (<https://lsadvising.berkeley.edu/seven-course-breadth/>), Historical Studies (<https://lsadvising.berkeley.edu/seven-course-breadth/>), or Philosophy & Values (<https://lsadvising.berkeley.edu/seven-course-breadth/>) breadth.

Core Requirements

ESPM Environmental Science Core

Select one course from the following:

ESPM 2	The Biosphere [3]
ESPM 6	Environmental Biology [3]
ESPM C10	Environmental Issues [4]
ESPM 15	Introduction to Environmental Sciences [3]
ESPM C46	Climate Change and the Future of California [4]

ESPM Social Science Core

Select one course from the following:

ESPM 5	FROM FARM TO TABLE: FOOD SYSTEMS IN A CHANGING WORLD [4]
ESPM C11	Americans and the Global Forest [4]
ESPM C22AC	Fire: Past, Present and Future Interactions with the People and Ecosystems of California [4]
ESPM 50AC	Introduction to Culture and Natural Resource Management [4]
ESPM C52	History of Native American Land, Colonialism, and Heritage Preservation [3]
ESPM 60	Environmental Policy, Administration, and Law [4]

General Biology

Select one course from the following, with lab:

BIOLOGY 1A & 1AL	General Biology Lecture and General Biology Laboratory
BIOLOGY 1B	General Biology Lecture and Laboratory [4] (recommended)

Calculus or Statistics

Select one course from the following:

MATH 16A	Analytic Geometry and Calculus [3]
MATH 16B	Analytic Geometry and Calculus [3]
MATH 1A	Calculus [4]
MATH 1B	Calculus [4]
PB HLTH 142	Introduction to Probability and Statistics in Biology and Public Health [4]
POL SCI 3	Introduction to Empirical Analysis and Quantitative Methods [4]
STAT 2	Introduction to Statistics [4]
STAT C8	Foundations of Data Science [4]
STAT 20	Introduction to Probability and Statistics [4]
STAT 21	Introductory Probability and Statistics for Business [4]

Courses Preparatory to the Area of Interest

Select two courses, in consultation with adviser. Prerequisites for area of interest classes may be applied toward this requirement.

Core Lower and Upper Division Major Requirements

ESPM 90	Introduction to Conservation and Resource Studies Major (recommended spring semester of sophomore year)	2
ESPM 100	Environmental Problem Solving	4
ESPM 194A	Senior Seminar in Conservation and Resource Studies ¹	2

Select eight area of interest classes, minimum 24 units (see below for specific requirements)

¹ Recommended in the final semester at UC Berkeley. This requirement may be replaced by ESPM 195 or ESPM H196; see major adviser for details.

Area of Interest (AOI)

Sample topics include, but are not limited to, marine resource management; sustainable agriculture in the developing world; environmental justice and education; wildlife conservation and management; energy and environmental policy; population and conservation policy; urban environmental law; public health and environmental pollution; sustainable landscape design; community organization for resource conservation; bioethics and technology; tropic conservation and medical epidemiology; urban environmental education; and environmental business.

Requirements:

1. A minimum of eight faculty-approved upper division courses are required (at least 24 semester units total).
2. No AOI course may be taken prior to reaching junior status (60 semester units).
3. At least six of the eight courses must be taken on the UC Berkeley campus (Forestry Camp courses = UCB courses).
4. A maximum of two courses may be taken through the Education Abroad Program.
5. A maximum of two AOI courses (6-8 units) may be structured field studies (e.g. Moorea or Summer Forestry Camp).
6. Each course must be upper division and taken for a letter grade. Each must be 2 units or above.
7. ESPM 197, ESPM 198 and ESPM 199 courses will not be accepted as one of the eight AOI courses.

Students who have a strong interest in an area of study outside their major often decide to complete a minor program. These programs have set requirements.

General Guidelines

1. All minors must be declared by the RRR week of the student's Expected Graduation Term (EGT). To declare a minor, complete the Rausser College of Natural Resources (<https://nature.berkeley.edu/sites/default/files/Minor%20Declaration%20Form.pdf>) Minor Declaration Form (<https://nature.berkeley.edu/sites/default/files/Minor%20Declaration%20Form.pdf>), have it signed by your major advisor, and email it to crs.emf.ugrad@berkeley.edu.

- All courses taken to fulfill the minor requirements below must be taken for graded credit.
- A minimum grade point average (GPA) of 2.0 is required for courses used to fulfill the minor requirements.
- No more than one course may be used to simultaneously fulfill requirements for a student's major and minor programs
- No substitutions to the courses listed below will be permitted, including UCEAP courses.
- Students cannot meet the lower-division requirement through AP coursework
- All four upper-division courses must be taken at Berkeley within the Department of Environmental Science and Policy Management. The only possible exceptions are cross-listed courses with ESPM.
- Only one course from Forestry Camp (ESPM 105A-D) and/or Moorea (ESPM 109A-E) can be applied

Students minoring in Conservation and Resource Studies are encouraged to be intentional with their upper division course selection and consider the interdisciplinary relations between the courses. For example, having a Wildlife Conservation focused CRS minor compiled of ESPM 114 Wildlife Ecology, ESPM 152 Global Change Biology, ESPM 106 American Wildlife Policy, and ESPM C126 Animal Behavior.

Requirements:

Lower Division

Minor core course, select one of the following:

ESPM 2	The Biosphere [3]
ESPM 6	Environmental Biology [3]
ESPM C10	Environmental Issues [4]
ESPM 15	Introduction to Environmental Sciences [3]
ESPM C22AC	Fire: Past, Present and Future Interactions with the People and Ecosystems of California [4]
ESPM 50AC	Introduction to Culture and Natural Resource Management [4]
ESPM 52	History of Native American Land, Colonialism, and Heritage Preservation [3]
ESPM 60	Environmental Policy, Administration, and Law [4]

Upper Division

Select any four ESPM courses 3-4
each

Reading and Composition (<http://guide.berkeley.edu/undergraduate/colleges-schools/natural-resources/reading-composition-requirement/>)

In order to provide a solid foundation in reading, writing and critical thinking all majors in the College require two semesters of lower division work in composition. Students must complete a first-level reading and composition course by the end of their second semester and a second-level course by the end of their fourth semester.

Foreign Language (<http://guide.berkeley.edu/undergraduate/colleges-schools/natural-resources/foreign-language-requirement/>): **EEP Majors only**

The Foreign Language requirement is only required by Environmental Economics and Policy (EEP) majors. It may be satisfied by demonstrating proficiency in reading comprehension, writing, and conversation in a foreign language equivalent to the second semester college level, either by passing an exam or by completing approved course work.

Quantitative Reasoning (<http://guide.berkeley.edu/undergraduate/colleges-schools/natural-resources/quantitative-reasoning-requirement/>): **EEP Majors only**

The Quantitative Reasoning requirement is only required by Environmental Economics and Policy (EEP) majors. The requirement may be satisfied by exam or by taking an approved course.

Undergraduate Breadth

Undergraduate breadth provide Berkeley students with a rich and varied educational experience outside of their major program and many students complete their breadth courses in their first two years. Breadth courses are built into the Rausser College major requirements and each major requires a different number of breadth courses and categories. The EEP major is the only college major that requires the entire 7 course breadth. Refer to the major snapshots on each Rausser College major page (<https://nature.berkeley.edu/advising/majors-minors/>) for additional information.

High School Exam Credit

Rausser College students may apply high school exam credit (Advanced Placement, International Baccalaureate, A-Level Exam) towards many College and Major Requirements. See AP Exam Equivalency Chart and Higher Level IB Exam Equivalency Chart (<https://nature.berkeley.edu/advising/courses-grades/#AP%20Exam%20Equivalency%20Chat>) in the Rausser College Student Handbook (<https://nature.berkeley.edu/handbook/>) for more information.

Unit Requirements

Students must complete at least 120 semester units of courses subject to certain guidelines:

- At least 36 units must be upper division courses, including a minimum of 15 units of upper division courses in the Rausser College.
- A maximum of 16 units of Special Studies coursework (courses numbered 97, 98, 99, 197, 198, or 199) is allowed towards the 120 units; a maximum of four is allowed in a given semester.
- A maximum of 4 units of Physical Education from any school attended will count towards the 120 units.
- Students may receive unit credit for courses graded P (including P/ NP units taken through EAP) up to a limit of one-third of the total units taken and passed on the Berkeley campus at the time of graduation. Courses taken for P/NP in the Spring 2020 semester will not count toward this limit.

Semester Unit Minimum

All Rausser College students must enroll in at least 12 units each fall and spring semester.

Semester Unit Maximum

To request permission to take more than 20.5 units in a semester, please see the major adviser.

Semester Limit

Students admitted as freshmen must graduate within 8 fall/spring semesters at UC Berkeley. Students admitted as transfer students must graduate within 4 fall/spring semesters at UC Berkeley. Students who go on EAP and UCDC can petition for additional semesters. Other UC-affiliated programs, such as the Gump Station in Moorea, may also be considered. Summer session, UC Extension and non-UC study abroad programs do not count towards this semester limit. Students approved for double majors or simultaneous degrees in two colleges may be granted an additional semester. Rausser College does not limit the number of total units a student can accrue.

Senior Residence Requirement

Once you achieve and exceed 90 units (senior status), you must complete at least 24 of the remaining 30 units in residence at the Rausser College of Natural Resources over at least 2 semesters. To count as residence, a semester must consist of at least 6 passed units taken while the student is a member of Rausser. At least one of the two terms must be a fall or spring semester. Senior residence terms do not need to be completed consecutively. All courses offered on campus for the fall, spring, and summer terms by Berkeley departments and programs and all Berkeley online ('W') courses count. Inter-campus Visitor, Education Abroad Program, UC Berkeley Washington Program, and UC Berkeley Extension units do not count toward this requirement.

Students may use Summer Session to satisfy one semester of the Senior Residence Requirement, provided that 6 units of coursework are completed.

Modified Senior Residence Requirement

Participants in a fall, spring or summer UC Education Abroad Program (UCEAP), Berkeley Summer Abroad, or the UC Berkeley Washington Program may meet a modified Senior Residence Requirement by completing 24 of their final 60 semester units in residence (excluding UCEAP). At least 12 of these 24 units must be completed after senior status is reached. International travel study programs sponsored by Summer Sessions and education abroad programs offered outside of the UC system do not qualify for modified senior residence.

Most students automatically satisfy the residence requirement by attending classes here for four years. In general, there is no need to be concerned about this requirement, unless students go abroad for a semester or year or want to take courses at another institution or through University Extension during their senior year. In these cases, students should make an appointment to see an advisor to determine how they can meet the Senior Residence Requirement.

Grade Requirements

- A 2.0 UC GPA is required for graduation.
- A 2.0 average in all upper division courses required of the major program is required for graduation.
- A grade of at least C- is required in all courses for the major. Major and minor coursework taken in Spring 2020, Fall 2020, and Spring 2021 may be completed with P/NP grading option. See more details below.

Changes in Policies and Procedures during the COVID-19 Pandemic

Fall 2020, Spring 2021, SUMMER 2021

After much consultation across the colleges of UC Berkeley, and via our college Executive Committee, the following decisions have been made about the selection of the P/NP grade option (CPN) by undergraduate students during the Fall 2020 & Spring 2021 semesters for the Rausser College of Natural Resources.

- College Course Requirements: Reading and Composition, Quantitative Reasoning, and Foreign Language requirements normally satisfied with letter grades may be met with a passed (P) grade during the Fall 2020 semester. This does not include the system-wide Entry Level Writing requirement. College Writing R1A must be taken for a letter grade and completed with a C or better to fulfill the Entry Level Writing requirement.
- Requirements to Graduate: No changes in policy.
 - Rausser College students must have at least a 2.0 cumulative UC GPA to declare a Rausser College major.
 - Non-Rausser College students must have at least a 3.0 cumulative UC GPA to change to or add a Rausser College major.
 - Students must have at least a 2.0 cumulative UC GPA to graduate, both overall and in the upper-division courses required for the major.
- Academic Probation: The terms for Academic Probation (AP) have been modified.
 - Rausser CNR students currently in good standing who earn all "P" grades will remain in good standing.
 - Students currently in good standing who earn NP grades, Incompletes, or failing letter grades for more than 50% of units will be placed on academic probation and will be required to meet with their college advisor and complete an Academic Success Plan for the subsequent semester.
 - Students on AP must take all coursework for letter grades. Students on AP may be removed from probationary status with sufficient letter graded course work to raise their cumulative GPA above 2.0.
 - Students on Academic Probation who do not attain sufficient letter-graded coursework to be removed from AP (ie. enough grade points to raise cumulative GPA above 2.0 cumulative GPA) will remain on AP for the subsequent semester and must complete an Academic Success Plan with their college advisor.
 - Students on Academic Probation who earn NP grades, Incompletes, or failing letter grades for more than 50% of units will be Subject to Dismissal and will be required to meet with their college advisor and complete an Academic Success Plan for the subsequent semester.
- Term Probation: Students in this category are placed on academic probation if their GPA falls below 1.5 in any fall or spring semester ("Term"). To get back into good standing, you must earn a UC Berkeley term GPA of 2.0 the following regular semester (fall/

spring) and maintain an overall GPA of 2.0. If you fail to meet these conditions, you will be subject to dismissal from the University. For Fall 2020 & Spring 2021, the terms for Term Probation have been modified.

- Rausser CNR students currently in good standing who earn all “P” grades will remain in good standing and will not be placed on Term Probation.
- Transferring Credit: If you are taking coursework through another institution in Fall 2020 & Spring 2021, P grades earned will be accepted for all degree requirements. Note: This does not include the systemwide Entry Level Writing requirement. College Writing R1A must be taken for a letter grade and completed with a C or better to fulfill the Entry Level Writing requirement.

For additional information, please see Changes to Policies and Procedures for Fall 2020, Spring 2021, & Summer 2021 (<https://nature.berkeley.edu/advising/AY-2020-2021-policy-adjustments/>).

Spring 2020

In light of the substantial disruptions to instruction caused by the novel coronavirus emergency, the Berkeley Division of the Academic Senate made changes to grading options for the Spring 2020 semester. Rausser College adjusted college requirements as follows:

- College Course Requirements: All passing course work taken in Spring 2020 may be used for college requirements regardless of the grading option selected.
- Requirements to Graduate: To graduate, Rausser College students usually must have at least a 2.0 cumulative UC GPA to graduate, both overall and in the upper-division courses required for their major. For Spring 2020, students with at least a 1.9 cumulative GPA overall and in the upper-division courses required for their major to graduate will be considered as having met the requirement.
- Academic Probation: Recognizing the challenges to teaching and learning during the COVID-19 pandemic, Rausser College of Natural Resources will not be penalizing any students' academic progress for Spring 2020.
 - Students in good academic standing who earn all “P” grades will remain in good standing.
 - Students, who are in good standing, who earn NP grades, Incompletes, or failing grades for more than 50% of units will be required to meet with their college advisor and complete an Academic Success Plan for Fall 2020 by September 11, 2020, but will not be placed on Academic Probation.
 - Students on Academic Probation may be removed from probationary status with sufficient letter graded course work to raise their cumulative GPA above 2.0.
 - Students on Academic Probation who do not attain sufficient letter-graded coursework to be removed from AP (ie. enough grade points to raise cumulative GPA above 2.0 cumulative GPA) will remain on AP for Fall 2020 and must complete an Academic Success Plan with their college advisor by September 11, 2020.
- Term Probation: Recognizing the challenges to teaching and learning during the COVID-19 pandemic, Rausser College of Natural

Resources will not be penalizing any students' academic progress for Spring 2020.

- Students in good academic standing who earn all “P” grades will remain in good standing.
- Students on Term Probation, but not AP, may be removed from probationary status with passing grades in at least 50% of units for Spring 2020.
- Students on Term Probation at the start of Spring 2020 who earn NP, Incomplete, or failing grades for more than 50% of units must complete an Academic Success Plan with their college advisor by September 11, 2020 and will remain on Term Probation.
- Transferring Credit: If you are taking coursework through another institution in Spring 2020 (i.e. through Concurrent Enrollment or instead of being enrolled in Spring 2020 at UC Berkeley) and that institution has moved to a P/NP-default or P/NP-only grading model, P grades earned will be accepted for all degree requirements.

For additional information, please see Changes to Policies and Procedures for Spring 2020 (<https://nature.berkeley.edu/advising/spring-2020-changing-policies-faq/>).

Mission

Conservation and Resource Studies (CRS) is an interdisciplinary major designed for students interested in environmental issues and interactions among disciplines related to natural resources, population, energy, technology, societal in situations, and cultural values. Because CRS students draw on the course offerings of the entire campus, they have the flexibility to incorporate any combination of courses in the social sciences, biological sciences, physical sciences, or humanities to address complex environmental problems. Students may also draw upon appropriate community resources in the development of individual programs of study. Despite the flexibility and breadth, all CRS curricula share a demonstrable commitment to gaining a truly interdisciplinary education.

Learning Goals for the Major

1. Understand environmental issues and interactions among disciplines related to natural resources, population, energy, technology, societal institutions, and cultural values:
 - Understand the ways in which natural resources are central to the continued welfare of human society and the non-human world.
 - Critically analyze the ways in which human population growth affects natural resources and human well-being and survival.
 - Recognize the ways in which energy growth and energy systems affect the long-term welfare of both the earth and its human inhabitants.
 - Evaluate the ways in which industrial, biological, and appropriate technologies and technological scales impact human society and life on Earth.
 - Understand the interactions among social, political, and cultural institutions and values and how they affect the conservation of natural resources.
2. Comprehend the different ways in which the social sciences, biological sciences, physical sciences, and humanities address complex environmental problems:
 - Recognize the frameworks and methods used by the social sciences in approaching and resolving environmental problems.

- Grasp the methods and analytical concepts used in the biological and physical sciences in solving environmental problems.
 - Be able to explain the role and importance of the humanities in resolving environmental problems.
 - Identify the aim of one's own education as truly interdisciplinary and select the courses that will allow its achievement.
3. Have the ability to draw upon appropriate community resources in the development of approaches to environmental problem-solving:
- Know how to identify and find local organizations that are working to improve the environment.
 - Develop the skills that will assess the value of community efforts and methods regarding conservation and environmental issues.
 - Use access to community groups to introduce ideas that may be applicable to the particular problems with which they are engaged.
 - Advance an argument for a policy or regulatory action on any issue in the environmental field with a technical or scientific component.
4. Be able to address diversity in both human society and the environment:
- Explain the historical and cultural origins of diversity within human societies.
 - Understand how power, prejudice, and poverty can create disparities within society and how these disparities might be overcome.
 - Assess the importance of biotic diversity for conservation and human welfare.
 - Understand how biological diversity and cultural diversity can interact in ways that can conserve life on the planet.
 - Learn to live with biodiversity and cultural diversity in all aspects of life.

- Know how to obtain the information that will lead to informed choices and decisions about the impact and importance of natural resources in maintaining a viable planet for future generations.

Major Maps help undergraduate students discover academic, co-curricular, and discovery opportunities at UC Berkeley based on intended major or field of interest. Developed by the Division of Undergraduate Education in collaboration with academic departments, these experience maps will help you:

- **Explore** your major and gain a better understanding of your field of study
- **Connect** with people and programs that inspire and sustain your creativity, drive, curiosity and success
- **Discover** opportunities for independent inquiry, enterprise, and creative expression
- **Engage** locally and globally to broaden your perspectives and change the world
- **Reflect** on your academic career and prepare for life after Berkeley

Use the major map below as a guide to planning your undergraduate journey and designing your own unique Berkeley experience.

View the Conservation and Resource Studies Major Map PDF. (https://ue.berkeley.edu/sites/default/files/conservation_and_resource_studies.pdf)

Skills

1. Apply basic skills in research, knowledge of literature, analysis, and communication:
- Write clearly, demonstrating the ability to focus and elaborate on chosen topics.
 - Read critically and assess arguments in professional, public, and advocacy literature.
 - Have strong communication skills (written and oral) through presentations, facilitation of discussion, and written assignments.
 - Produce written analyses and reports based on literature, scientific and field studies, and community resources.
 - Have strong library and internet research skills in order to conduct research on environmental topics potentially relevant to work in future careers.
 - Have advocacy writing skills in order to communicate scientific ideas and environmental perspectives to a broader public through a media outlet.
 - Be able to work cooperatively in team settings to connect with others and prepare for global citizenship.
2. Lifetime skills:
- Show concern for the natural environment and its biotic and abiotic components.
 - Be able to engage in the conservation of natural resources as a responsible citizen of the community and the world.