Articulation Agreement by Major

Effective during the 2022-2023 Academic Year

To: University of California, Berkeley 2022-2023 General Catalog, Semester	From: De Anza College 2022-2023 General Catalog, Quarter

Environmental Sciences, Lower Division B.S.

PROGRAM

College Admission Requirements for Transfer Students
This major is offered by the Rausser College of Natural Resources.

The **Environmenta1 Sciences (ES)** major is administered by the Department of Environmental Science, Policy, and Management (ESPM). The major prepares students to deal with issues arising from the impact of human activities on natural systems. To address these problems, all ES students acquire strong backgrounds in math, biological sciences, and physical sciences.

Because this is an interdisciplinary major, students may choose to take upper division electives (if they satisfy pre-requisite requirements) in fields such as ecology, conservation biology, energy and resources, environmental health, toxicology, geology, hydrology, meteorology, geography, and engineering, or a social science field such as city planning, policy analysis, environmental economics and policy, environmental justice, and education.

Each ES student completes a year-long senior research project with the support of a mentor in a biological, physical, or interdisciplinary research area.

For more information on this major:

Environmental Sciences:
https://nature.berkeley.edu/advising/majors/environmental-sciences

For more information on the Rausser College of Natural Resources:
http://nature.berkeley.edu

For more information on admission to UC Berkeley:
http://admissions.berkeley.edu

For more information on majors at UC Berkeley:
Berkeley Academic Guide**:** http://guide.berkeley.edu

REQUIREMENTS

PREPARATION FOR TRANSFER AT THE JUNIOR LEVEL

Transfer applicants **must** complete the minimum admissions requirements by the end of the **spring** term preceding fall enrollment at Berkeley, and are encouraged to complete as many additional lower division requirements as possible. Exceptions are highly unlikely. NOTE: The ESPM Environmental Science Core and the ESPM Social Science Core requirements may be taken at UC Berkeley if no course is articulated at student's home institution.

Please pay particular attention to how courses from your community college articulate to UC Berkeley. If courses for a particular subject are articulated as a group (for example, a 3-course series at your college may articulate to a 2-course series at UC Berkeley), you will need to take all of the courses noted in order for the articulation to work. If you have questions about articulation, please contact the Office of Instruction and Student Affairs, Rausser College of Natural Resources at envsci.ugrad@berkeley.edu or call (510) 642-0542.

In general, students will be evaluated on:

- the strength of academic preparation and the completion of lower division requirements in biology, chemistry, and math
- GPA in the required courses
- cumulative GPA
- the personal statement

MINIMUM ADMISSIONS REQUIREMENTS

There are three areas of concentration within the Environmental Sciences major: **Biological Sciences**, **Physical Sciences**, or **Social Sciences**. Applicants should meet the requirements for one concentration.

In addition to the requirements below, students must also complete the **Reading & Composition** requirement.

IGETC Certification will satisfy both halves of the Reading & Composition requirement, the ESPM Social Science Core, and the Social & Behavioral Science and Humanities breadth courses required for the major.

BIOLOGICAL SCIENCES CONCENTRATION
Chemistry 1A & 1AL
Chemistry 3A & 3AL
Biology 1A & 1AL
Biology 1B
Math 16A (or Math 1A)
Math 16B (or Math 1B)
Recommended:
Physics 8A (or Physics 7A)
Environmental Sciences, Policy, and Management 15
Environmental Economics & Policy C1 (A course in micro-economics satisfies this requirement)

SOCIAL SCIENCE CONCENTRATION

Chemistry 1A & 1AL
Chemistry 1B (or Chemistry 3A & 3AL)
Biology 1A & 1AL and Biology 1B (or Biology 11 & 11L, with the upper division biology elective to be taken at Berkeley)
Math 16A (or Math lA)
Math 16B (or Math lB)
Recommended:
Physics 8A (or Physics 7A)
Environmental Sciences, Policy, and Management 15
Environmental Economics & Policy C1 (A course in micro-economics satisfies this requirement)

PHYSICAL SCIENCE CONCENTRATION
Chemistry 1A & 1AL
Chemistry 3A & 3AL
Biology 1A & 1AL and Biology 1B (or Biology 11 & 11L, with the upper division biology elective to be taken at Berkeley)
Math 1A
Math 1B
Physics 7A
Physics 7B
Recommended:
Environmental Sciences, Policy, and Management 15
Environmental Economics & Policy C1 (A course in micro-economics satisfies this requirement)

Please note that substituting AP scores for chemistry and biology coursework is accepted, but not recommended. Students who use AP scores for these requirements may struggle in subsequent coursework.

BIOLOGY
Biology 1A/1AL and Biology 1B satisfies the Biology requirement for **all three** concentrations.

Biology 1B or Biology 11 & 11L satisfies the Biology requirement for the Physical and Social Science concentrations only. The student will be required to take an upper division ecology elective at UC Berkeley for the second half of the requirement.

CHEMISTRY
Chem 1A & 1AL and Chem 3A & 3AL will satisfy the Chemistry requirement for **all three** concentrations.

Chem 1A & 1AL and Chem 1B will satisfy the Chemistry requirement for the Social Sciences concentration **only.**

ECONOMICS
Required for **all** concentrations, if articulated course offered.

Environmental Sciences requires only one course in micro-economics; thus, a course in micro-economics will satisfy the requirement. Macro-economics is OPTIONAL for this major.

Berkeley's ECON 1 covers macro-economics and micro-economics.

HUMANITIES (3-4 UNITS)
One UC-transferable course in Humanities is required for both concentrations.

MATHEMATICS
Math 1A and Math 1B will satisfy the math requirement for **all three** concentrations.

Math 16A and Math 16B will satisfy the math series for the Biological and Social Science concentrations **only.**

PHYSICS
It is highly recommended that you complete the Physics requirement prior to transfer. If an equivalent to the Physics 8 series is unavailable, students should complete the equivalent of the Physics 7 series.

Physics 7A and 7B satisfies the Physics requirement for the Physical Science concentration.

Physics 8A will satisfy the Physics requirement for the Biological and Social Science concentrations **only**. Physics 7A will also satisfy the Physics requirement for the Biological and Social Science concentrations.

NOTE: This institution may cover the topics in Berkeley's PHYSICS 7ABC series in a different order. Students who transfer before completing courses equivalent to the entire 7ABC series may need to enroll in Berkeley's PHYSICS 49 to complete missing topics such as wave motion (7A) or heat (7B).

READING & COMPOSITION
Students must complete Reading and Composition prior to transfer. Courses comparable to Berkeley's Reading & Composition (R&C) 1A & 1B**.**

SOCIAL & BEHAVIORAL SCIENCES (3-4 UNITS)
One UC-transferable course in Social and Behavioral Sciences is required for both concentrations.

To ensure full articulation of transfer coursework: if a series of courses at a community college is required (e.g., Chemistry 101 + 102 + 103 = Chemistry 1A,1AL + 1B at UC Berkeley), all the courses in the series must be completed, and must (unless otherwise indicated) be completed at the same community college. Partial completion of the series (e.g., 2 of the 3 required courses) may result in no credit toward the requirement(s), and completion of series courses at different community colleges is not guaranteed to satisfy the requirement. Courses taken out of series will be evaluated by college faculty during the transfer admissions process.

AP TEST CREDIT

The Environmental Sciences major will accept AP credit for the following courses:

- AP Biology, with a score of 4 or 5 = Bio 1B, or Bio 11 & 11L
- AP Calculus AB, with a score of 3, 4, 5 = Math 1A or Math 16A
- AP Calculus BC, with a score of 3 or 4 = Math 1A or Math 16A
- AP Calculus BC, with a score of 5 = Math 1A/16A and Math 1B/16B
- AP Economics (Micro), with a score of 4 or 5 = Env Econ C1/Econ C3
- AP Chemistry, with a score of 4 or 5 = Chemistry 1A & 1AL

- AP English Literature, with a score of 3 = Entry Level Writing requirement
- AP English Literature, with a score of 4 = First half of Reading & Composition (ENGLISH R1A)
- AP English Literature, with a score of 5 = Both halves of Reading & Composition (ENGLISH R1A and R1B)
- AP English Language, with a score of 3 = Entry Level Writing requirement
- AP English Language, with a score of 4 or 5 = First half of Reading & Composition (ENGLISH R1A)
- AP Environmental Science, with a score of 4 or 5 = ESPM Environmental Science Core

Please note that substituting AP scores for chemistry and biology coursework is accepted, but not recommended. Students who use AP scores for these requirements may struggle in subsequent coursework.

Please refer to the Rausser College of Natural Resources website for more information about substitutions for the English RIA and RIB requirements: http://nature.berkeley.edu/handbook

READING AND COMPOSITION REQUIREMENT

ENGLISH R1A - Reading and Composition (4.00)	←	**EWRT 1A** - Composition and Reading (5.00) **--- Or ---** **EWRT 1AH** - Composition and Reading - HONORS (5.00) **--- Or ---** **ESL 5** - Advanced Composition and Reading (5.00)
ENGLISH R1B - Reading and Composition (4.00)	←	**EWRT 1B** - Reading, Writing and Research (5.00) **--- Or ---** **EWRT 2** - Critical Reading, Writing and Thinking (5.00) **--- Or ---** **EWRT 1BH** - Reading, Writing and Research - HONORS (5.00) **--- Or ---** **EWRT 2H** - Critical Reading, Writing and Thinking - HONORS (5.00)

BIOLOGY

BIOLOGY 1A - General Biology Lecture (Cells, Genetics, Animal Form & Function) (3.00) **--- And ---** **BIOLOGY 1AL** - General Biology Laboratory (2.00)	←	**BIOL 6A** - Form and Function in the Biological World (6.00) **--- And ---** **BIOL 6B** - Cell and Molecular Biology (6.00) **--- Or ---** **BIOL 6AH** - Form and Function in the Biological World - HONORS (6.00) **--- And ---** **BIOL 6B** - Cell and Molecular Biology (6.00)
BIOLOGY 1B - General Biology (Plant Form & Function, Ecology, Evolution) (4.00)	←	**BIOL 6A** - Form and Function in the Biological World (6.00) **--- And ---** **BIOL 6C** - Ecology and Evolution (6.00) **--- Or ---** **BIOL 6AH** - Form and Function in the Biological World - HONORS (6.00) **--- And ---** **BIOL 6C** - Ecology and Evolution (6.00) **--- Or ---** **BIOL 6A** - Form and Function in the Biological World (6.00) **--- And ---** **BIOL 6CH** - Ecology and Evolution - HONORS (6.00) **--- Or ---** **BIOL 6AH** - Form and Function in the Biological World - HONORS (6.00) **--- And ---** **BIOL 6CH** - Ecology and Evolution - HONORS (6.00)
BIOLOGY 1A - General Biology Lecture (Cells, Genetics, Animal Form & Function) (3.00) **--- And ---** **BIOLOGY 1AL** - General Biology Laboratory (2.00) **--- And ---** **BIOLOGY 1B** - General Biology (Plant Form & Function, Ecology, Evolution) (4.00)	←	Articulates as Course-to-Course Only
Courses that satisfy the Biology requirement for the Physical and Social Science concentrations only:	←	No Course Articulated

CHEMISTRY

CHEM 1A - General Chemistry (3.00) **--- And ---** **CHEM 1AL** - General Chemistry Laboratory (2.00)	←	Articulates as a Series Only
CHEM 1B - General Chemistry (4.00)	←	Articulates as a Series Only
CHEM 1A - General Chemistry (3.00) **--- And ---** **CHEM 1AL** - General Chemistry Laboratory (2.00) **--- And ---** **CHEM 1B** - General Chemistry (4.00)	←	**CHEM 1A** - General Chemistry (5.00) **--- And ---** **CHEM 1B** - General Chemistry (5.00) **--- And ---** **CHEM 1C** - General Chemistry and Qualitative Analysis (5.00) • *Regular and honors courses may be combined to complete this series* **--- Or ---** **CHEM 1AH** - General Chemistry - HONORS (5.00) **--- And ---** **CHEM 1BH** - General Chemistry - HONORS (5.00) **--- And ---** **CHEM 1CH** - General Chemistry and Qualitative Analysis - HONORS (5.00) • *Regular and honors courses may be combined to complete this series*
CHEM 3A - Chemical Structure and Reactivity (3.00) **--- And ---** **CHEM 3AL** - Organic Chemistry Laboratory (2.00)	←	**CHEM 12A** - Organic Chemistry (5.00) **--- And ---** **CHEM 12B** - Organic Chemistry (5.00)
CHEM 3A - Chemical Structure and Reactivity (3.00) **--- And ---** **CHEM 3AL** - Organic Chemistry Laboratory (2.00) **--- And ---** **CHEM 3B** - Chemical Structure and Reactivity (3.00) **--- And ---** **CHEM 3BL** - Organic Chemistry Laboratory (2.00)	←	Articulates as Course-to-Course Only

MATHEMATICS

MATH 1A - Calculus (4.00)	←	**MATH 1A** - Calculus (5.00) **--- And ---** **MATH 1B** - Calculus (5.00) • *Regular and honors courses may be combined to complete this series* **--- Or ---** **MATH 1AH** - Calculus - HONORS (5.00) **--- And ---** **MATH 1BH** - Calculus - HONORS (5.00) • *Regular and honors courses may be combined to complete this series*
MATH 1B - Calculus (4.00)	←	**MATH 1B** - Calculus (5.00) **--- And ---** **MATH 1C** - Calculus (5.00) • *Regular and honors courses may be combined to complete this series* **--- Or ---** **MATH 1BH** - Calculus - HONORS (5.00) **--- And ---** **MATH 1CH** - Calculus - HONORS (5.00) • *Regular and honors courses may be combined to complete this series*
MATH 16A - Analytic Geometry and Calculus (3.00)	←	**MATH 1A** - Calculus (5.00) **--- Or ---** **MATH 1AH** - Calculus - HONORS (5.00)
MATH 16B - Analytic Geometry and Calculus (3.00)	←	**MATH 1B** - Calculus (5.00) **--- Or ---** **MATH 1BH** - Calculus - HONORS (5.00)

PHYSICS

Recommended to be completed prior to transfer

PHYSICS 7A - Physics for Scientists and Engineers (4.00)	←	**PHYS 4A** - Physics for Scientists and Engineers: Mechanics (6.00)
PHYSICS 7B - Physics for Scientists and Engineers (4.00)	←	**PHYS 4B** - Physics for Scientists and Engineers: Electricity and Magnetism (6.00) **--- And ---** **PHYS 4C** - Physics for Scientists and Engineers: Fluids, Waves, Optics and Thermodynamics (6.00)
PHYSICS 7A - Physics for Scientists and Engineers (4.00) **--- And ---** **PHYSICS 7B** - Physics for Scientists and Engineers (4.00)	←	Articulates as Course-to-Course Only
PHYSICS 7A - Physics for Scientists and Engineers (4.00) **--- And ---** **PHYSICS 7B** - Physics for Scientists and Engineers (4.00) **--- And ---** **PHYSICS 7C** - Physics for Scientists and Engineers (4.00)	←	Articulates as Course-to-Course Only
PHYSICS 8A - Introductory Physics (4.00)	←	**PHYS 4A** - Physics for Scientists and Engineers: Mechanics (6.00) **--- And ---** **PHYS 4B** - Physics for Scientists and Engineers: Electricity and Magnetism (6.00) **--- Or ---** **PHYS 2A** - General Introductory Physics (5.00) **--- And ---** **PHYS 2C** - General Introductory Physics (5.00)
PHYSICS 8B - Introductory Physics (4.00)	←	**PHYS 4C** - Physics for Scientists and Engineers: Fluids, Waves, Optics and Thermodynamics (6.00) **--- And ---** **PHYS 4D** - Physics for Scientists and Engineers: Modern Physics (6.00) **--- Or ---** **PHYS 2B** - General Introductory Physics (5.00) **--- And ---** **PHYS 2C** - General Introductory Physics (5.00)
PHYSICS 8A - Introductory Physics (4.00) **--- And ---** **PHYSICS 8B** - Introductory Physics (4.00)	←	Articulates as Course-to-Course Only

ECONOMICS

ECON C3 - Introduction to Environmental Economics and Policy (4.00) Same-As: ENVECON C1	←	**ECON 1** - Principles of Macroeconomics (4.00) **--- And ---** **ECON 2** - Principles of Microeconomics (4.00)
--- Or ---		
ECON 1 - Introduction to Economics (4.00)	←	**ECON 1** - Principles of Macroeconomics (4.00) **--- And ---** **ECON 2** - Principles of Microeconomics (4.00) • *Regular and honors courses may be combined to complete this series* **--- Or ---** **ECON 1H** - Principles of Macroeconomics - HONORS (4.00) **--- And ---** **ECON 2H** - Principles of Microeconomics - HONORS (4.00) • *Regular and honors courses may be combined to complete this series*

ESPM ENVIRONMENTAL SCIENCE CORE COURSE

Select 1 Course(s) from the following		
ESPM 2 - The Biosphere (3.00)	←	No Course Articulated
ESPM 6 - Environmental Biology (3.00)	←	No Course Articulated
ESPM C10 - Environmental Issues (4.00) Same-As: LNS C30V	←	**ESCI 19** - Environmental Biology (5.00)
ESPM 15 - Introduction to Environmental Sciences (3.00)	←	**ESCI 1** - Environmental Science (4.00)
ESPM C46 - Climate Change and the Future of California (4.00)	←	No Course Articulated

ESPM SOCIAL SCIENCE CORE COURSE

Select 1 Course(s) from the following		
ESPM C11 - Americans and the Global Forest (4.00) Same-As: LNS C30U	←	No Course Articulated
ESPM C22AC - Fire: Past, Present and Future Interactions with the People and Ecosystems of California (4.00) Same-As: ANTHRO C12AC	←	No Course Articulated
ESPM 50AC - Introduction to Culture and Natural Resource Management (4.00)	←	No Course Articulated
ESPM 60 - Environmental Policy, Administration, and Law (4.00)	←	**E S 6** - Introduction to Environmental Law (4.00)

END OF AGREEMENT