

What's the Difference Between the B.A. and B.S. Degree in ES?

If you're thinking about pursuing Environmental Studies (ES) at UC Santa Barbara the first important decision you must make is choosing which degree to pursue, the Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) in Environmental Studies. While both majors are similar in design and stress the importance of understanding the complex interrelationships between the humanities, social sciences, and natural science disciplines, having two-degree options allows students maximum flexibility to choose a major that best fits their environmental interests and long-term goals. In this document we provide a detailed comparison of the academic requirements of the B.A. and B.S. major so one can understand the differences and can make an educated decision. Given your decision will also be based on what you want to do after graduation we thought it might be helpful to also highlight just a few example career paths each degree might lead to. Just remember, no matter which major you choose, your decision should be based on what you believe will ultimately make you happy.

Simply put, the **B.A. degree in ES** is the more interdisciplinary major, requiring a swath of introductory courses in the humanities, social, physical, and natural sciences. It stresses the importance of comprehending basic social, cultural, and scientific theories and understanding how they interact with one another and play a part of every environmental issues. While this degree will make one science literate, the degree offers maximum flexibility to select ES electives and outside concentration courses from just about every academic discipline at UCSB, including: arts, policy, culture, languages, humanities, and economics to name just a few.

The goal of the **B.S. degree in ES** is to train students to become proficient in the natural and physical sciences while still being aware of and understand the important role social and cultural influences have on addressing today's environmental problems. The major curricular differences from the ES B.A. degree are an increased number of chemistry, calculus, biology, and physics courses required in the lower-division and the majority of ES electives and the outside concentration requirements are focused on the physical and natural science disciplines. This is done to enhance the B.S. student's ability to apply scientific concepts in solving environmental problems. *Please see the other side for a comparison of the B.A. vs. B.S. degree requirements.*

What are the general employment differences between B.A. and B.S. majors?

Employment options vary widely depending on individual coursework taken by each student. However, as some career fields are heavily dependent on a strong scientific background those who pursue the B.S. degree would be more qualified for certain scientific/technical opportunities. B.S. majors tend to enter fields where the use of science is instrumental and experience with field and laboratory techniques is preferred. B.A. majors often develop a higher degree of writing proficiency and general communication skills and pursue opportunities dealing with interdisciplinary social, political, and economic issues such as planning and law. Below are just a few example careers one might pursue based on the ES degree chosen:

B.A. Degree	Both	B.S. Degree
-- Urban/Regional Planning	-- Environmental Education	-- Pollution Monitoring, Control and Prevention
-- Green Business	-- Environmental Policy	-- Waste Management Specialist
-- Environmental Law	-- Sustainable Agriculture	-- Environmental Toxicology/Health
-- Non-government Organizing	-- Environmental Consulting	-- Field Scientist/Technician
-- Energy Consultant	-- Environmental Health and Safety Management	-- Conservation/Restoration Biology
-- Environmental Justice	-- Local/State/National Government	-- Renewable Energy Designer
-- Environmental Media, Communication Specialist	-- Computing and Information Technologies	-- Natural Resource Management
-- Sustainability Management	-- Environmental Activism	-- Environmental Engineering
-- Environmental Economist	-- Landscape Designer/Architect	-- Soil Scientist
-- Parks/Recreation Management		-- Wildlife Biologist/Management
-- Waste Management		-- Environmental Risk Assessment
-- Environmental Historian		-- Air Quality Specialist

Note: When thinking about environmental jobs remember the above is an overall generalization. There's a lot of overlap between the two degrees and many examples of ES B.A. alumni securing "science" jobs and B.S. grads becoming lawyers, planners, teachers and businesswomen.

ENVIRONMENTAL STUDIES MAJOR REQUIREMENTS: B.A. vs. B.S.

LOWER-DIVISION FOR THE MAJOR (1st and 2nd years)

Required Courses for Both B.A. and B.S.	UCSB Course(s)
Four introductory courses in Environmental Studies	Envs 1, 2, 3 and Envs 40
One intro micro, macro, or general/environmental Economics	Econ 1 or 2 or 9 or Envs 30
One general or physical Geography or Earth Science	Geog 3 or 4 or Earth Sci. 2 or 4 or 20
One introductory Statistics	Pstat 5A or 5LS or Econ 5
One introductory Ethics & Justice	Envs 70 or Blkst 4 or Femst 50 or Lingst 50 or Phil 4 or Pols 1

Different Lower-division Requirements: B.A. vs. B.S.

	B.A.	B.S.
Culture & Society	One course from broad list of options	One course from a <u>combined</u> list of Culture & Society and Policy and Politics courses
Policy & Politics	One course from list of options	
Math (calculus)	Two quarters: Math 34A or 2A or 3A and Math 34B or 2B or 3B or Envs 25 <i>(Quantitative Thinking in ES)</i>	Two quarters of Calculus w/applications: Math 3A-B (or 2A-2B)
Biology and Ecology	One or Two courses of intro Biology/Ecology: Envs 60 or MCDB 1A-ILL and EEMB 2	Four courses of fundamental Biology w/2 labs: MCDB 1A-1B-1LL and EEMB 2-3-2LL
Chemistry	Two courses + One lab: Chem 1A-AL and 1B or Envs 15A and 15B-BL (<i>Env Chem series</i>)	Three courses of Intro Chemistry w/labs: Chem 1A-AL, 1B-BL, 1C-CL
Physics	None	Three quarters of introductory Physics: Phys 1-2-3-3L or 6A-AL, 6B-BL, 6C-CL

Total Lower-division Units = 61 to 68.5

Total Lower-division Units = 88 to 90

UPPER – DIVISION FOR THE MAJOR (3rd and 4th years)

Area	Bachelor of Arts (B.A.)	Bachelor of Science (B.S.)
A	13 units of Required Upper-division ES courses: ENVS 190 (one unit) and one course from each of three clusters of ES courses.	17-18 units of Required Upper-division ES courses: ENVS 190 (one unit), and one course from each of three clusters of ES courses, and an additional upper-division statistics, data science, or modeling course.
B	28 Upper Division ES Elective units: Any Environmental Studies courses #100-199 not used to satisfy Area A for a total of 28 units.	32 Upper Division ES Elective units from two sections: • B-1: 20 UD ES units which must be taken from a list of environmental “science” courses (see major sheet) • B-2: 12 units from any ES course #100-199 not already used to satisfy the 20 units in B-1 or Area A
C	16 Unit Outside Concentration: Complete any 16 upper-division units from any one College of L&S department or program (double major or official minor will satisfy this area). OR Choose an interdisciplinary concentration of courses from more than one department forming a coherent environmental emphasis of their choice. Students can use courses from any department/programs or abroad.	16 Unit Outside Concentration: Complete any 16 upper-division units from one of the following STEM departments (dbl. mjr. or minor o.k.): Brain Science, Chemistry, EEMB and/or MCDB (bio), Geography, Earth Sci., Math, Statistics, or Physics. OR Choose an interdisciplinary concentration of courses from one or more of the departments listed above, forming a coherent environmental emphasis of choice.

Total Upper-division Units = 57

Total Upper-division Units = 65 to 66

By petition, upper-division Study Abroad and/or Environmental Field Studies units may be transferred and applied to satisfy part or the entire Outside Concentration. Up to 12 abroad units may also apply to the Area B Electives.

BACHELOR OF ARTS (B.A.) WORKSHEET 2022-23

LOWER-DIVISION / PREPARATION FOR MAJOR (1st and 2nd years)

Env. St. 1 (F or Sum qtr)*

Env. St. 2 (W or Sum qtr)*

Env. St. 3 (S or Sum qtr)*

Env. St. 40 (F, W, S qtrs)*

Ethics & Justice:

Env. St. 70 or Black

St. 4 or Fem. St. 50

or Linguistics 50 or

Phil. 4 or Pol. Sci. 1

Culture & Society:

Anthro. 2 or Geog. 5

or Global St. 1 or 2

or Psychology 1

or Relig. St. 1 or 14

or Sociology 1

Policy & Politics:

Hist. 5 or 7 or

Poli. Sci. 6 or 7 or 12

Chemistry:

Chemistry 1A/1AL

and 1B (no 1BL lab)

----- OR -----

Env. St. 15A (W qtr)* and

Env. St. 15B/BL(S qtr)*

Economics:

Env. St. 30 (F qtr)* or

Economics 1 or 2 or 9

Quantitative Skills:

Math 34A or 3A (2A)

and one course from

Math 34B or 3B (2B)

or Env. St. 25 (S qtr)*

Physical Earth Sci.:

Earth Sci. 2 or 4

or 20 or Geog. 3 or 4

Statistics:

PSTAT 5A or 5LS

or Econ 5

(Or Comm. 87, Poli. Sci 15,

or Psych. 5 by petition)

Biology & Ecology:

Env. St 60 (F or Sum qtrs)*

----- OR -----

MCDB 1A/1LL (F qtr)*

and EEMB 2 (W qtr)*

Advanced Placement (AP), International Baccalaureate (IB) and Transfer credit may be substituted for Prep for Major requirements!
Review your *UCSB Course History* on GOLD for automatically articulated credit or see an ES Advisor for assistance.

UPPER-DIVISION (3rd and 4th years)

A. ES REQUIRED COURSES (13 UNITS)

Environmental Studies 190 (1 unit, P/NP only, offered F, W, S qtrs)*

And one course from each cluster of courses below:

1. **Ecosystems & Society:** Env. St. 101 or 130C or 149
2. **Energy, Water, Climate:** Env. St. 115 or 117 or 163A
3. **Built Environment:** Env. St. 116 or 135A or 155

B. ES ELECTIVES (28 UNITS)

Any upper-division ES courses (#100-199) not used in Area A and with no more than one additional course from each cluster.

No more than 8 units comined and 4 units each from Env. St. 192, 194, 199, and 199RA may apply. Up to 12 EAP units may apply by petition.

ES Elective Courses	Units
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____
6. _____	_____
7. _____	_____

Total = 28

Outside Concentration Courses	Units
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____

Total = 16

C. OUTSIDE CONCENTRATION (16 UNITS)

There are 2 options for the Outside Concentration:

1) Single department: Complete any 16 upper-division units from any **one** UCSB department or program and they will automatically apply. Completion of a double major will automatically satisfy this area as will an official minor as long as the 16 units don't overlap with Areas A or B.

OR

2) Interdisciplinary emphasis: Combination of 16 upper-division units from more than one department or program outside the ES Program may be used to create a concentration of study as long as they form a coherent focus or emphasis. A student pursuing this option must submit a *Request to Petition Degree Requirements* form to the ES Program justifying how courses taken relate to each other and one's desired emphasis. Petition forms are available from the ES website: <https://es.ucsb.edu/degreerequirements>

A list of some example environmental emphases/concentrations one might use is available from the ES Advisors or at: <https://www.es.ucsb.edu/forms>

NOTE: Study Abroad or Environmental Field Studies units may be used to satisfy part or all of Area C. Units earned must be UC transferable, upper-division level, and relate to a student's chosen emphasis using either option 1 or 2 above. A *Request to Petition Degree Requirements* must be approved by the ES Program before units will be accepted. See an ES Academic Advisor or ES website for additional info: <https://www.es.ucsb.edu/advising> .

NOTE: All courses, including cross-listed (either version), may apply to one area only in any part of the major. Courses taken to fulfill any major requirement must be taken for a letter grade unless only offered P/NP.

* Denotes specific quarter a course is to be offered; accurate for current academic year ONLY & subject to change year to year

>>> See the other side for more info <<<

BACHELOR OF Science (B.S.) WORKSHEET 2022-23

LOWER-DIVISION / PREPARATION FOR MAJOR (1st and 2nd years)

Env. St. 1 (F qtr)*
Env. St. 2 (W qtr)*
Env. St. 3 (S qtr)*

**Culture, Society,
Policy & Politics:**

Anthro. 2 or Geog. 5
or Global St. 1 or 2
or Hist. 5 or 7 or
Poli. Sci. 6 or 7 or 12
or Psychology 1
or Relig. St. 1 or 14
or Sociology 1

Chemistry 1A/AL
Chemistry 1B/BL
Chemistry 1C/CL

Math 3A or 2A
Math 3B or 2B

PSTAT 5A or 5LS
or Econ 5
(Or Comm. 87, Poli. Sci 15,
or Psych. 5 by petition)

Env. St. 40 (F, W, S qtrs)*

Physical Earth Sci.:

Earth Sci. 2 or 4
or 20 or Geog. 3 or 4

Physics 6A/AL
Physics 6B/BL
Physics 6C/CL

MCDB 1A (F, Sum qtrs)*
MCDB 1B (W, Sum qtrs)*
MCDB 1LL (W, Sum qtrs)*
EEMB 2 (W, Sum qtrs)*
EEMB 2LL (S, F qtrs)*
EEMB 3 (S, F qtrs)*

Ethics & Justice:

Env. St. 70 or Black
St. 4 or Fem. St. 50
or Linguistics 50 or
Phil. 4 or Pol. Sci. 1

Economics:

Env. St. 30 (F qtr)* or
Economics 1 or 2 or 9

----- OR -----
Physics 1 (Math 4A
Physics 2 required)
Physics 3/3L

**Advanced Placement (AP), International Baccalaureate (IB) and Transfer credit may be substituted for Prep for Major requirements!
Review your UCSB Course History on GOLD for automatically articulated credit or see an ES Advisor for assistance.**

UPPER-DIVISION (3rd and 4th years)

A. ES REQUIRED COURSES (17-18 UNITS)

Environmental Studies 190 (1 unit, P/NP, offered F, W, S qtrs)*
One course from: Env. St. 193SW; Geog. 172; EEMB 146, 179;
PSTAT 120A (Math 4A required)

And one course from each cluster of courses below:

1. **Ecosystems & Society:** Env. St. 101 or 130C or 149
2. **Energy, Water, Climate:** Env. St. 115 or 117 or 163A
3. **Built Environment:** Env. St. 116 or 135A or 155

B. ES ELECTIVES (32 UNITS)

32 total upper-division ES units from courses (#100-199) not used in Area A and **with no more** than one additional course from each cluster.

Section B-1: At least 20 units must be taken from this list: Env. St. 101, 103A^, 105, 111^, 113^, 114A-B^, 119^, 120A, 120B, 121, 128^, 130C^, 133^, 134, 141, 142, 144^, 145 (new), 147, 148 (193TF), 149^, 152^, 154, 162^, 163A, 166DC, 167^, 168^, 169^, 171^, 193CP, 193CS, 193EB^, 193FE, 193ST, 193SW, 197. ^ denotes cross-listed course w/ another dept.

Courses **Units**

- | | |
|----------|-------|
| 1. _____ | _____ |
| 2. _____ | _____ |
| 3. _____ | _____ |
| 4. _____ | _____ |
| 5. _____ | _____ |

Section B-2: Any 12 UD units of ES courses (#100-199) excluding units used to fulfill Area A or the first 20 units applying to section B-1.

- | | |
|----------|-------|
| 6. _____ | _____ |
| 7. _____ | _____ |
| 8. _____ | _____ |

No more than 8 units combined and 4 units each from Env. St. 192, 194, 199, and 199RA may apply. **Total = 32**

- | | |
|----------|-------|
| 1. _____ | _____ |
| 2. _____ | _____ |
| 3. _____ | _____ |
| 4. _____ | _____ |

Total = 16

C. OUTSIDE CONCENTRATION (16 UNITS)

There are 2 options for the Outside Concentration:

1) Single department: Complete any 16 upper-division units from any **one** of the following **STEM** departments: Chemistry & Biochemistry, EEMB and/or MCDB (Bio), Earth Sciences, Geography (only courses that apply to the B.S. Physical Geog. major), Math, Statistics, Physics, or Psychological & Brain Sciences. Completion of a double major or minor from the above depts will satisfy this area. If pursuing an official minor make sure the 16 units don't overlap with Areas A or B. Spatial Studies minors must consult an ES Advisor first to assure proper STEM course selection.

OR

2) Interdisciplinary emphasis: Combination of 16 upper-division units from more than one department listed above may be used to create a concentration of study as long as they form a coherent focus or emphasis. A student pursuing this option must submit a *Request to Petition Degree Requirements* to the ES Program justifying how proposed courses relate to each other and the desired emphasis. Petition forms are available from the ES website: <https://es.ucsb.edu/degreerequirements>

A list of some example environmental emphases/concentrations one might use is available from the ES website at: <https://www.es.ucsb.edu/forms>

NOTE: Study Abroad or Environmental Field Studies units may be used to satisfy part or all of Area C using either option 1 or 2 above. Units earned must be UC transferable, upper-division, and relate to a student's chosen emphasis. A *Request to Petition Degree Requirements* must be approved by Environmental Studies before units will be accepted. See an ES Academic Advisor or the ES website for additional info: <https://www.es.ucsb.edu/advising>

NOTE: All courses, including cross-listed (either version), may apply to one area only in any part of the major. Courses taken to fulfill any major requirement must be taken for a letter grade unless only offered P/NP.

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