

# 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 have to 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 an important part of every environmental issue. 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>B.A. Degree</b>	<b>Both</b>	<b>B.S. Degree</b>
-- 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 there are many examples of ES B.A. alumni securing "science" jobs and B.S. grads becoming lawyers 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)	
<b>Four</b> introductory courses in Environmental Studies	Envs 1, 2, 3 <b>and</b> Envs 40	
<b>One</b> intro micro, macro, or general/environmental Economics	Econ 1 or 2 or 9 or Envs 30	
<b>One</b> general or physical Geography or Earth Science	Geog 3 or 4 or Earth Sci. 2 or 4 or 20	
<b>One</b> introductory Statistics	Pstat 5A or 5LS or 109	
<b>One</b> introductory Ethics & Justice	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.
<b>Culture &amp; Society</b>	<b>One</b> course from broad list of options	<b>One</b> course from a combined list of Culture & Society and Policy and Politics courses
<b>Policy &amp; Politics</b>	<b>One</b> course from list of options	
<b>Math (calculus)</b>	<b>Two</b> quarters: Math 34A or 2A or 3A <b>and</b> Math 34B or 2B or 3B <b>or</b> Envs 25 <i>(Quantitative Thinking in ES)</i>	<b>Two</b> quarters of Calculus w/applications: Math 3A-B (or 2A-2B)
<b>Biology and Ecology</b>	<b>One or Two</b> courses of intro Biology/Ecology: Envs 60 <b>or</b> MCDB 1A-1LL and EEMB 2	<b>Four</b> courses of fundamental Biology w/2 labs: MCDB 1A-1B-1LL and EEMB 2-3-2LL
<b>Chemistry</b>	<b>Two</b> courses + <b>One</b> lab: Chem 1A-AL and 1B <b>or</b> Envs 15A and 15B-BL ( <i>Env Chem series</i> )	<b>Three</b> courses of Intro Chemistry w/labs: Chem 1A-AL, 1B-BL, 1C-CL
<b>Physics</b>	None	<b>Three</b> quarters of introductory Physics: Phys 1-2-3-3L <b>or</b> 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 4<sup>th</sup> years)

Area	Bachelor of Arts (B.A.)	Bachelor of Science (B.S.)
<b>A</b>	<b>13</b> units of Required Upper-division ES courses: ENVS 190 (one unit) <b>and</b> one course from each of three clusters of ES courses.	<b>17-18</b> units of Required Upper-division ES courses: ENVS 190 (one unit), <b>and</b> one course from each of three clusters of ES courses, <b>and</b> an additional upper-division statistics or modeling course.
<b>B</b>	<b>28</b> Upper Division ES Elective units: Any Environmental Studies courses #100-199 not used to satisfy Area A for a total of 28 units.	<b>32</b> 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
<b>C</b>	<b>16</b> Unit Outside Concentration:  Complete any 16 upper-division units from any <b>one</b> College of L&S department or program (double major or official minor will satisfy this area).  <b>OR</b>  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.	<b>16</b> Unit Outside Concentration:  Complete any 16 upper-division units from <b>one</b> 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.  <b>OR</b>  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 2021-22

### 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:**  
 Anthro. 2 or Geog. 5  
 or Global St. 1 or 2  
 or Psychology 1   
 or Relig. St. 1 or 14  
 or Sociology 1

**Chemistry:**  
 Chemistry 1A/1AL    
 and 1B (no 1BL lab)   
 ----- OR -----  
 Env. St. 15A (W qtr)\* and   
 Env. St. 15B/BL(S qtr)

**Quantitative Skills:**  
 Math 34A or 3A (2A)   
**and one course from**  
 Math 34B or 3B (2B)  
 or Env. St. 25 (S qtr)\*

**Statistics:**  
 PSTAT 5A or 5LS  
 or 109   
 (Or Comm. 87, Poli. Sci 15,  
 or Psych. 5 by petition)

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

**Ethics & Justice:**  
 Black St. 4 or  
 Feminist St. 50   
 or Linguistics 50 or  
 Phil. 4 or Pol. Sci. 1

**Policy & Politics:**  
 Hist. 5 or 7 or   
 Poli. Sci. 6 or 7 or 12

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

**Physical Earth Sci.:**  
 Earth Sci. 2 or 4   
 or 20 or Geog. 3 or 4

**Biology & Ecology:**  
 Env. St 60 (S qtr)\*   
 ----- 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. _____	_____
<b>Total = 28</b>	

#### 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 relate to each other and one's desired emphasis. Petition forms are available from the ES website or ES Academic Advisors.

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>.

Outside Concentration Courses	Units
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
<b>Total = 16</b>	

**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

## BACHELOR OF Science (B.S.) WORKSHEET 2021-22

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

Env. St. 1 (F qtr)* <input type="checkbox"/> Env. St. 2 (W qtr)* <input type="checkbox"/> Env. St. 3 (S qtr)* <input type="checkbox"/>	<b>Culture, Society, Policy &amp; Politics:</b> Anthro. 2 or Geog. 5 or Global St. 1 or 2 or Hist. 5 or 7 or <input type="checkbox"/> Poli. Sci. 6 or 7 or 12 or Psychology 1 or Relig. St. 1 or 14 or Sociology 1	Chemistry 1A/AL <input type="checkbox"/> <input type="checkbox"/> Chemistry 1B/BL <input type="checkbox"/> <input type="checkbox"/> Chemistry 1C/CL <input type="checkbox"/> <input type="checkbox"/>	Math 3A or 2A <input type="checkbox"/> Math 3B or 2B <input type="checkbox"/>	PSTAT 5A or 5LS or 109 <input type="checkbox"/> <i>(Or Comm. 87, Poli. Sci 15, or Psych. 5 by petition)</i>
Env. St. 40 (F, W, S qtrs) <input type="checkbox"/>	<b>Physical Earth Sci.:</b> Earth Sci. 2 or 4 <input type="checkbox"/> or 20 or Geog. 3 or 4	<b>Physics 6A/AL</b> <input type="checkbox"/> <input type="checkbox"/> Physics 6B/BL <input type="checkbox"/> <input type="checkbox"/> Physics 6C/CL <input type="checkbox"/> <input type="checkbox"/> ----- OR ----- Physics 1 <input type="checkbox"/> Physics 2 <input type="checkbox"/> Physics 3/3L <input type="checkbox"/> <input type="checkbox"/>	MCDB 1A (F qtr)* <input type="checkbox"/> MCDB 1B (W qtr)* <input type="checkbox"/> MCDB 1LL (W, Sum qtrs)* <input type="checkbox"/> EEMB 2 (W qtr)* <input type="checkbox"/> EEMB 2LL (F, S qtrs)* <input type="checkbox"/> EEMB 3 (S qtr)* <input type="checkbox"/>	<b>Ethics &amp; Justice:</b> Black St. 4 or Feminist St. 50 <input type="checkbox"/> or Linguistics 50 or Phil. 4 or Pol. Sci. 1
<b>Economics:</b> Env. St. 30 (F qtr)* or <input type="checkbox"/> Economics 1 or 2 or 9				

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: Geog. 172; EEMB 146, 179; PSTAT 120A

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: ES 101, 103A<sup>^</sup>, 105, 111<sup>^</sup>, 113<sup>^</sup>, 114A-B<sup>^</sup>, 119<sup>^</sup>, 120A, 120B, 121, 128<sup>^</sup>, 130C<sup>^</sup>, 133<sup>^</sup>, 134, 141, 142, 144<sup>^</sup>, 147, 149<sup>^</sup>, 152<sup>^</sup>, 154, 157, 158<sup>^</sup>, 162<sup>^</sup>, 163A, 166BT<sup>^</sup>, 166DC, 166FP<sup>^</sup>, 167<sup>^</sup>, 168<sup>^</sup>, 169<sup>^</sup>, 171<sup>^</sup>, 193CP, 193CS, 193EB<sup>^</sup>, 193FE, 193ST, 193SW, 193TF, 197. <sup>^</sup> denotes cross-listed course w/ another dept.

Courses	Units
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____
5. _____	_____

**Section B-2:** Any 12 UD units of ES courses 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 units taken for the B.S. degree in 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 16 units don't overlap with Areas A or B. Spatial Studies minors must consult an ES Advisor first for proper 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 Advisors or website.

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 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 <<<