

## ENVIRONMENTAL CHEMISTRY (CH34)

Major Requirements for the ENVIRONMENTAL CHEMISTRY B.S. Degree Starting Fall 2017 and After

Students have an option of earning a B.S. in the Environmental Chemistry that is ACS-Certified or not. The ACS certified version is recommended for those who intend to apply to graduate school in Chemistry. The Non-Certified program is designed to prepare students to enter the industrial, government, or legal workforce, or to continue studies in some of the environmental sciences.

**The following courses must be taken for a letter grade:**

### Lower-Division Requirements

1. General Chemistry (CHEM 6A, 6B & 6C or 6AH, 6BH & 6CH)
2. General Chemistry Laboratory (CHEM 7L or CHEM 7LM)
3. Physics (PHYS 2A, 2B & 2C or 2D)
4. Physics Laboratory (PHYS 2BL or 2CL or 2DL)
5. Calculus (MATH 20A, 20B, 20C & 20D)
6. Organic Chemistry (CHEM 40A & 40B or 40AH & 40BH)
7. Organic Chemistry Laboratory (CHEM 43A or 43AM)

### Upper-Division, mostly, Requirements

1. Physical Chemistry: (CHEM 130, 131 & 132 recommended; CHEM 126A & 126B acceptable)
2. Required Laboratory Courses (must take all 3):
  - o Analytical Chemistry Laboratory (CHEM 100A)
  - o Instrumental Chemistry Laboratory (CHEM 100B)
  - o Physical Chemistry Laboratory (CHEM 105A)
3. Environmental Chemistry I & II (CHEM 171 and 172)
4. Atmospheric Chemistry (CHEM 173)
5. Marine Chemistry (CHEM 174)
6. Environmental Electives (Select 4 of the following options. At least 2 of the 4 must be upper division. It is your responsibility to make sure you take the appropriate upper division electives to meet the 48-Unit Residency Requirement):
  - o Biochemical Structure and Function (CHEM 114A)
  - o Inorganic Chemistry I (CHEM 120A)
  - o Organic Chemistry III (CHEM 40C)
  - o Advanced Organic Chemistry Lab (CHEM 143C)
  - o The Cell (BILD 1)\*
  - o Multicellular Life (BILD 2)\*
  - o Organismic and Evolutionary Biology (BILD 3)\*
  - o Ecology Laboratory (BIEB 121)
  - o Biodiversity (BIEB 140)
  - o Other courses (including labs and 4-units of CHEM 195 or 199) may be considered by petition.
  - o Conservation & the Human Predicament (BIEB 176)
  - o Environmental Biology (ESYS 101)
  - o Intro to Earth & Environmental Sciences (SIO 50)
  - o California Coastal Oceanography (SIO 101)
  - o Introduction to Geochemistry (SIO 102)
  - o Introduction to Geophysics (SIO 103)
  - o Introduction to Isotope Geochemistry (SIO 144)
  - o Statistical Methods (Math 183)

*\*BILD 1, 2 and 3 must be satisfied with course work. Advanced placement (AP), A-Level, and International Baccalaureate (IB) credits will not be accepted toward the elective requirements*

### For ACS Certification

Replace the 4 electives listed above with 5 of the following courses:

1. ACS Electives (must take all 3):
  - o Organic Chemistry III (CHEM 40C)
  - o Biochemical Structure & Function (CHEM 114A)
  - o Inorganic Chemistry I (CHEM 120A)
2. ACS Laboratories (select 2 of the following):
  - o Organic Chemistry Laboratory II (CHEM 143B)
  - o Advanced Organic Chemistry Lab (CHEM 143C)
  - o Molecular Design & Synthesis Lab (CHEM 143D)
  - o Advanced Physical Chemistry Laboratory (CHEM 105B)
  - o Protein Biochemistry Laboratory (CHEM 108)
  - o Recombinant DNA Laboratory (CHEM 109)
  - o Advanced Inorganic Chemistry Lab (CHEM 123)

## Suggested Program for Environmental Chemistry B.S. Major

FALL	WINTER	SPRING
<b>FRESHMAN YEAR</b>		
CHEM 6A	CHEM 6B	CHEM 6C
MATH 20A	MATH 20B	MATH 20C
		CHEM 7LM or 7L
<b>SOPHOMORE YEAR</b>		
CHEM 40A	CHEM 40B	PHYS 2C or 2D
MATH 20D	CHEM 43AM or CHEM 43A	PHYS 2BL, 2CL or 2DL
PHYS 2A	PHYS 2B	
<b>JUNIOR YEAR</b>		
CHEM 126A	CHEM 126B	CHEM 105A
CHEM 171	CHEM 172	CHEM 173
CHEM 100A		
<b>SENIOR YEAR</b>		
Chemistry Elective	CHEM 100B	CHEM 174
Chemistry Elective	Chemistry Elective	Chemistry Elective

### IMPORTANT NOTES:

- Courses listed above only include **major requirements**. Speak with your college advisor for planning completion of general education and university requirements.
- The plan above does not include classes required for ACS certification. To receive ACS certification, you must follow the instructions above under the "For ACS Certification" section.
- The quarter in which a course is offered is subject to change based on space and instructor availability. Please check the department website (<https://chemistry.ucsd.edu/ext/ugcourses.html?year=2019-2020>) each academic year to see a projection of classes offered by quarter.
- The best time to study abroad is Fall quarter of Sophomore or Junior Year. Education Abroad Program deadlines for upcoming year vary by country. See [EAP website](#). See the Chemistry & Biochemistry Undergraduate Advisor for assistance in planning to study abroad.
- It is your responsibility to ensure that you meet the 48 upper-division unit requirement for your major. Check your degree audit to ensure you will meet this requirement. Transfer students should be especially careful with checking for completion of this requirement.
- Many courses have enforced prerequisites or are offered once per year. It is your responsibility to know which prerequisites are needed for each course. <https://www.ucsd.edu/catalog/courses/CHEM.html>