B.S. EARTH SYSTEM SCIENCE DEGREE REQUIREMENTS

Basic Requirements:

A. **One course from the following:**
   ESS 1_____ 3_____ 5_____

**All of the following courses:**

ESS 51_____ 53_____ 55_____
ESS 114 OR 115_____ 116_____ 192_____  
Math 2A_____ 2B_____ Stats 7_____  
Chem 1A_____ 1B_____ 1C_____; 1LC_____ 1LD_____ OR  
Chem H2A_____ H2B_____ H2C_____; H2LA_____ H2LB_____ H2LC_____
Physics 3A_____ 3B_____ 3C_____; 3LB_____ 3LC_____ OR  
Physics 7C_____ 7E_____; 7LC_____  

B. **Additional Electives** (seven courses from the following; at least 4 must be ESS courses)

Earth System Science: Any four-unit upper-division course (100-199) except 114, 115, 116, 198 or H198;  
(ESS 199/H199 may be counted only once)  
Chemistry: 51A, 51B/LB, 51C/LC, 141  
Physics: 115A  
Mathematics: 2D, 3A, 3D, 105A, 112A, 115  
Mechanical and Aerospace Engineering (MAE): 91, 130A, 164  
Civil and Environmental Engineering (CEE): 162, 171, 172, 176, 178  
Biological Sciences: 93, 94, 98, D105, E106, E120, E150, E179, E179L, E189  
Public Health: 161, 163, 167, 171, 172, 173  
Urban Planning and Public Policy (UPPP): 133, 139, 145  
Computing Skills (one of the following may be counted toward the degree): ICS 31, EECS10, MAE 10, Physics 53, or another approved programming course

Optional **Specialization in Atmospheric Science**  
(Courses may be used to fulfill electives in section B, where overlap exists.)  
Three courses from the following: ESS 122_____ 124_____ 142_____ 198/H198/199/H199A-B-C_____  
(ESS 198/H199/199/H199A-B-C must be focused on atmospheric research and may be counted only once)  
**AND One** advanced tools course selected from the following: ESS 118_____ 134_____ 138_____  

Optional **Specialization in Oceanography**  
(Courses may be used to fulfill electives in section B, where overlap exists.)  
Three courses from the following: ESS 130_____ 144_____ 148_____ 171_____ 198/H198/199/H199A-B-C_____  
(ESS 198/H199/199/H199A-B-C must be focused on oceanographic research and may be counted only once)  
**AND One** advanced tools course selected from the following: ESS 118_____ 138_____  

Optional **Specialization in Hydrology and Terrestrial Ecosystems**  
(Courses may be used to fulfill electives in section B, where overlap exists.)  
Three courses from the following: ESS 132_____ 133 OR 140_____ 156_____ 198/H198/199/H199A-B-C_____  
(ESS 198/H199/199/H199A-B-C must be focused on terrestrial research and may be counted only once)  
**AND One** advanced tools course selected from the following: ESS 118_____ 134_____ 138_____  

Optional **Concentration in Geosciences Education with Secondary Teaching Certification**  
This concentration allows students pursuing the B.S. in Earth System Science to earn a bachelor’s degree and complete the required course work and field experience for a California Preliminary Single Subject Teaching Credential at the same time. In addition to the major requirements listed above, **all of the following must be completed:**  
ESS 7 OR 140_____; Physics 20A OR 20B_____; Physical Sciences 5_____ 105_____;  
Chemistry/Physics 193_____; LPS 60_____  
Education 55_____ 109_____ 143AW_____ 143BW_____ 148_____ and two quarters of Education 158_____  

Effective Fall 2023