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  114  116  191  192
   Math 2A  2B
   Math 2D OR 3A
   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, 116, 190C, 198 or H198; (ESS 199/H199 may be counted only once)
Physics: 51A, 51B, 115A, 120, 134A, 137, 144, 145
Mathematics: 2D or 3A (may be counted only once), 3D, 105A, 112A, 115
Mechanical and Aerospace Engineering (MAE): 91, 130A, 164, 180, 185
Civil and Environmental Engineering (CEE): 156, 162, 171, 172, 176, 178
Biological Sciences: 93, 94, 98, D105, E106, E167, E179, E179L, E186, E189, M133
Criminology, Law and Society: C148;
Planning, Policy, and Design: 133, 138, 139;
Public Health: 161

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.)
Four courses from the following: ESS 101  112  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  138  150

Optional Specialization in Oceanography
(Courses may be used to fulfill electives in section B, where overlap exists.)
Four courses from the following: ESS 101  112  130  144  148  170  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  150

Optional Specialization in Hydrology and Terrestrial Ecosystems
(Courses may be used to fulfill electives in section B, where overlap exists.)
Four courses from the following: ESS 132  140  164  168  174  198/H198/199/H199A-B-C
(ESS 198/H198/199/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  150

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  143A  143B  148 and two quarters of Education 158