**Sample Program--- B.S. in Earth System Science**

**Concentration in Geosciences Education with Secondary Teaching Certification**

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| --- | --- | --- | --- | --- | --- |
| **FRESHMAN** | Units |  | Units |  | Units |
| **Fall**  |  | **Winter** |  | **Spring** |  |
| Math 2A | 4 | Math 2B | 4 | Math 2D or 3A | 4 |
| Chemistry 1A | 4 | Chemistry 1B | 4 | Chemistry 1C, 1LC | 6 |
| EarthSS 1 | 4 | Physics 20A | 4 | Gen. Ed.  | 4 |
| Elective | 4 | Phys Sci 5: Intro to Sci/Math Teaching | 3 | Elective | 4 |
|  | ***16*** |  | ***15*** |  | ***18*** |
| **SOPHOMORE** |  |  |  |  |  |
| **Fall** |  | **Winter** |  | **Spring** |  |
| EarthSS 51 | 4 | EarthSS 53 | 4 | EarthSS 55 | 4 |
| P.S. 105: Middle School Sci/Math Teaching | 3 | Physics 3B, 3LB | 5.5 | Physics 3C, 3LC | 5.5 |
| Chem 1LD | 2 | Chem/Physics 193: Research Methods | 4 | History 60/LPS 60: Making of Modern Science \*\* | 4 |
| Physics 3A | 4 |  |  | EarthSS 191 | 1 |
|  | ***13*** |  | ***13.5*** |  | ***14.5*** |
| **JUNIOR** |  |  |  |  |  |
| **Fall** |  | **Winter** |  | **Spring** |  |
| EarthSS 116 | 4 | EarthSS Elective | 4 | EarthSS 114 | 4 |
| EarthSS 191 | 1 | Approved Elective | 4 | EarthSS Elective | 4 |
| Educ 55: Know & Learn Sci/Math  | 5 | Educ 143AW: Classroom Interactions I | 4 | Educ 148: Complex Pedagogical Design | 6 |
| Gen. Ed.  | 4 | Elective | 4 |  |  |
|  | ***14*** |  | ***16*** |  | ***14*** |
| **SENIOR** |  |  |  |  |  |
| **Fall** |  | **Winter** |  | **Spring** |  |
| EarthSS 140 | 4 | EarthSS Elective | 4 | EarthSS Elective | 4 |
| Gen. Ed. | 4 | Educ 109: Read & Writing in Sec. Classroom | 4 | Approved Elective | 4 |
| Educ 143BW: Classroom Interactions II (I-UDW/VII) | 4 | Educ 158: Student Teaching in Math & Science | 6 | Education 158: Student Teaching in Math & Science | 6 |
|  |  |  |  |  |  |
|  | **12** |  | **14** |  | **14** |

**Major Requirements**

A.   Required Major Courses: Complete the following courses: ESS 1 or ESS 3 or ESS 5, ESS 51, 53, 55, 114, 116, 191, 192, Math 2A-2B, Math 2D or Math 3A.

B.   Sequences and Labs: One sequence and accompanying labs from: Chem 1A-B-C, Chem 1LC-LD or Chem H2A-2B-2C, Chem H2LA-H2LB-H2LC. One sequence and accompanying labs from Physics 3A-3B-3C, Physics 3LB-3LC or Physics 7C-7E, Physics 7LC.

C.   ESS Electives: Seven electives from the following (at least four must be ESS courses): Bio Sci 93, 94, 98, Bio Sci D105, E106, E179, E197L, E186, E189, Bio Sci M133, Chem 51A, Chem 51B-51LB, Chem 51C-51LC, Chem H52A-H52LA, Chem H52B-H52LB, Chem H52C, Chem 131A-B-C, CRM/LAW C148, Engrcee 156, 162, 171, 172, 176, 178, Engrmae 60, 91, 130A, 164, 185, Math 2D, 3D, 105A, 112a, 115, Physics 51A-B, 115A, 120, 134A, 137, 144, 145, PP&D 139, Pubhlth 161.

 \* All 4-unit upper-division ESS courses except [ESS 114](http://catalogue.uci.edu/search/?P=EARTHSS%20114), [ESS 116](http://catalogue.uci.edu/search/?P=EARTHSS%20116), ESS 190C, and ESS 198 or [ESS H198](http://catalogue.uci.edu/search/?P=EARTHSS%20H198) ([ESS 199](http://catalogue.uci.edu/search/?P=EARTHSS%20199) or one quarter of H199A-B-C may count only once toward the elective requirement)

D. Computing Skills: One of the following may be counted: EECS 10, Engrmae 10, I&C Sci 31, Physics 53, or approved programming course.

\*\* Also offered during Winter quarter

**Cal Teach Courses**

* **PS 5/BS 14** Intro to Science & Math Teaching (F,W,S)- Fieldwork
* **PS 105/BS 101** Middle School Teaching (F,W,S)- Fieldwork
* **Chem 193/Physics 193/BS 108** Research Methods (W)
* **LPS 60/Hist 60** Making of Modern Science (science majors only W, S, Summer)
* **Math 8** (math majors only, S, summer)
* **ED 55** Knowing and Learning (F)
* **ED 143AW** Classroom Interactions I (W, ED 55 prereq)-Fieldwork
* **ED 148** Complex Pedagogical Design (S, ED 143AW prereq)-Fieldwork
* **ED 143BW** Classroom Interactions II (F, ED 148 prereq)- Fieldwork
* **ED 109** Reading & Writing in Sec. Classroom (W, ED 148 prereq)
* **ED 158** Student Teaching I (W, ED 109 coreq, ED 143BW prereq)- Fieldwork
* **ED 158** Student Teaching II (S, ED 158 I prereq)- Fieldwork