**Sample Program --- B.S. in Biology/Education with Secondary Teaching Certification**

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| --- | --- | --- | --- | --- | --- |
| **FRESHMAN** | Units |  | Units |  | Units |
| **Fall** |  | **Winter** |  | **Spring** |  |
| Bio. Sci. 93 | 4 | Bio. Sci. 94 | 4 | Chemistry 1C, LC | 6 |
| Chemistry 1A | 4 | Chemistry 1B | 4 | Writing/Gen. Ed. | 4 |
| Writing 39A/39B | 4 | Writing 39B/C | 4 | Math 2A | 4 |
| Bio Sci 14: Intro to Sci/Math Teaching | 3 |  |  |  |  |
|  | ***15*** |  | ***12*** |  | ***14*** |
| **SOPHOMORE** |  |  |  |  |  |
| **Fall** |  | **Winter** |  | **Spring** |  |
| Bio 97 | 4 | Bio 98 | 4 | Bio 99 | 4 |
| Chemistry 51A | 4 | Chem 51B, 51LB | 6 | Math 2B | 4 |
| Bio Sci 101: Middle School Sci/Math Teaching | 3 | Bio Sci 108: Research Methods | 4 | History 60/LPS 60: Making of Modern Science (IV)\*\* | 4 |
| Chem 1LD | 2 |  |  |  |  |
|  | ***13*** |  | ***14*** |  | ***12*** |
| **JUNIOR** |  |  |  |  |  |
| **Fall** |  | **Winter** |  | **Spring** |  |
| Bio. Required Major course | 4 | Bio. Required Major Course | 4 | Bio. Required Major Course | 4 |
| Physics 3A | 4 | Physics 3B, 3LB | 5.5 | Physics 3C, 3LC | 5.5 |
| Educ 55: Know & Learn Sci/Math (III) | 5 | Educ 143AW-Classroom Interactions I | 4 | Educ 148: Complex Pedagogical Design | 6 |
| Statistics 8 | 4 | General Ed. | 4 |  |  |
|  | ***17*** |  | ***17.5*** |  | ***15.5*** |
| **SENIOR** |  |  |  |  |  |
| **Fall** |  | **Winter** |  | **Spring** |  |
| U. D. Bio Elective | 4 | U. D. Bio Elective | 4 | Bio. Sci. U.D. Lab | 4 |
| Bio. Sci. U.D. Lab | 4 | Educ 109- Read & Writing in Sec. Classroom | 4 | General Ed. | 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 |
| General Ed. | 4 | General Ed. | 4 |  |  |
|  | **16** |  | **18** |  | **14** |

**School Requirements**

Biological Sciences 2A, 194S; Biological Sciences Core 93, 94, 97, 98, 99, 100; Chemistry 1A-B-C, 1LC-LD or H2A-B-C, H2LA-LB-LC; Chemistry 51A-B-C, 51LB-LC or H52A-B-C, H52LA-LB; Mathematics 2A-B and one course selected from Statistics 7, 8, Mathematics 2D, or 3A; Physics 3A-B-C, 3LB-LC or 7C-D-E, 7LC-LD.

**Major Requirements**

A.   Required Major Courses: Three courses selected from Biological Sciences D103, D104, D105, E106, E109, N110.

B.   Upper-Division Laboratories: Two laboratories required. At least two selected from Biological Sciences D111L, E106L, E112L, E115L, E131L, E161L, E166, E172L, E179L, M114L, M116L, M118L, M121L, M122L, M124L, M127L, M130L, N113L; one laboratory can be satisfied with completion of Excellence in Research in the Biological Sciences.

C.   Upper-Division Biology Electives: Two upper-division, four-unit courses selected from Biological Sciences D103-D190, E106-E190, M114-M190, N110-N190, Pharmaceutical Sciences 170A, 170B, 171, 173, 174, Chemistry 177. Biological Sciences D103, D104, D105, E106, E109, N110 may not be used to satisfy more than one requirement. Chemistry 131A-B-C or Physics 147A-B can be used to partially satisfy the Upper-Division Biology Elective Requirement. Additionally, Psychology/Biological Sciences double majors may also use Psychology 112A-B-C to partially satisfy the Upper-Division Biology Elective Requirement.

\*\* 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