**Sample Program--- B.S. in Physics with**

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

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| --- | --- | --- | --- | --- | --- |
| **FRESHMAN** | Units |  | Units |  | Units |
| **Fall**  |  | **Winter** |  | **Spring** |  |
| Mathematics 2B | 4 | Mathematics 2D | 4 | Mathematics 2E | 4 |
| Physics 7C, 7LC | 5 | Physics 7D, 7LD | 5 | Physics 7E | 4 |
| Gen. Ed. | 4 | Gen. Ed.  | 4 | Gen. Ed.  | 4 |
| Physics 99 | 1 | Phys Sci 5: Intro to Sci/Math Teaching | 3 | Gen. Ed.  | 4 |
|  | ***14*** |  | ***16*** |  | ***16*** |
| **SOPHOMORE** |  |  |  |  |  |
| **Fall** |  | **Winter** |  | **Spring** |  |
| Mathematics 3A | 4 | Mathematics 3D | 4 | Physics 50 | 4 |
| Physics 60 | 4 | Physics 61A | 4 | Physics 61B | 4 |
| Physics 52A | 2 | Physics 52B | 2 | Physics 52C | 2 |
| Phys Sci 105: Middle School Sci/Math Teaching | 3 | Physics 193: Research Methods | 4 | History 60/LPS 60: Making of Modern Science \*\* | 4 |
|  | ***13*** |  | ***14*** |  | ***14*** |
| **JUNIOR** |  |  |  |  |  |
| **Fall** |  | **Winter** |  | **Spring** |  |
| Physics 111A | 4 | Physics 111B | 4 | Physics 53 (or other programming course | 4 |
| Physics 112A | 4 | Physics 112B | 4 | Physics 113A | 4 |
| Educ 55: Know & Learn Sci/Math  | 5 | Educ 143AW: Classroom Interactions I | 4 | Educ 148: Complex Pedagogical Design | 6 |
| General Science | 4 | General Science | 4 |  |  |
| General Science | 4 |  |  |  |  |
|  | **21** |  | **16** |  | **14** |
| **SENIOR** |  |  |  |  |  |
| **Fall** |  | **Winter** |  | **Spring** |  |
| Physics 115A | 4 | Gen. Ed. | 4 | Physics 121W | 4 |
| Educ 143BW: Classroom Interactions II (I-UDW/VII) | 4 | Educ 109: Read & Writing in Sec. Classroom | 4 | Gen. Ed. | 4 |
| General Science | 4 | Educ 158: Student Teaching in Math & Science | 6 | Education 158: Student Teaching in Math & Science | 6 |
|  | **12** |  | **14** |  | **14** |

**Departmental Requirements:**

Physics 7C-D-E with laboratory courses 7LC-LD; Mathematics 2A-B, 2D-E, 3A, 3D; Physics 50; Physics 60; Physics 61A-B\*; Physics 52A-B-C; Physics 53 (or another programming course); Physics 111A-B, 112A-B, 113A, 115A, 121W, and 125A; Physics 194; and five additional coherently related four-unit courses. (The five coherently related courses are normally satisfied by concentrations, specializations, and tracks.)

**Concentration in Physics Education with Secondary Teaching Certification:**

Requirements: Physics 193; Logic and Philosophy of Science 60; Education 55; Physical Sciences 5 and 105; Education 143A-B, 109, 148, and two quarters of 158.

\*\*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