## Physics Teaching Option

This option is offered within the following major(s):

- Education - College of Education (http://catalog.oregonstate.edu/college-departments/education/education-ba-bs-hba-hbs)

This option is for students wanting to earn a bachelor's degree in Education and qualify for an Oregon Teaching License to teach physics at the high school level (grades 9–12).

### Pre-Education Level

Students at this level will be taking general education prerequisite courses and required content work.

**Note:** Pre-Education students should meet with the Double Degree Advisor at least once a year in order to ensure they are on track to meet the prerequisite and content mastery requirements prior to applying to the Professional Level.

All Pre-Education General course work is taken prior to Professional Level.

### Code | Title | Hours
--- | --- | ---
ED 216 | *Purpose, Structure, and Function of Education in a Democracy | 3
ED 219 | Civil Rights and Multicultural Issues in Education | 3
ED 253 | Learning Across the Lifespan | 3
ED 309 | Field Practicum | 3
ED 472 | Foundations of ESOL Education | 3
ED 479 | Linguistics for Teachers (Prerequisite ED 472) | 3

### Physics Content Mastery Courses

**Standard 1. Introductory Physics Sequence**

Select one of the following options: 15

**Option 1:**
- PH 201 | *General Physics | 
- PH 202 | *General Physics | 
- PH 203 | *General Physics | 

**Option 2:**
- PH 211 & PH 221 | *General Physics with Calculus and Recitation for Physics 211 | 
- PH 212 & PH 222 | *General Physics with Calculus and Recitation for Physics 212 | 
- PH 213 & PH 223 | *General Physics with Calculus and Recitation for Physics 213 | 

**Standard 2. Introductory Chemistry Sequence**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</table>
| CH 231 | General Chemistry | 5
| & CH 261 | *Laboratory for Chemistry 231 | |
| CH 232 | General Chemistry | 5
| & CH 262 | *Laboratory for Chemistry 232 | |
| CH 233 | General Chemistry | 5
| & CH 263 | *Laboratory for Chemistry 233 | |

**Standard 3. Advanced Physics**

Select from the following courses: 10

- PH 422 | Paradigms in Physics: Static Fields | 
- PH 423 | Paradigms in Physics: Energy and Entropy | 
- PH 424 | Paradigms in Physics: Oscillations and Waves | 
- PH 425 | Paradigms in Physics: Quantum Fundamentals | 
- PH 426 | Paradigms in Physics: Central Forces | 
- PH 427 | Paradigms in Physics: Periodic Systems | 

**Standard 4. Modern Physics and Electives**

7-8

Chose from the following courses:

- PH 411 | Electronics | 
- PH 415 | Computer Interfacing and Instrumentation | 
- PH 465 | Computational Physics | 
- PH 481 | Physical Optics | 
- PH 482 | Optical Electronic Systems | 
| or ECE 482 | Optical Electronic Systems | 
- PH 483 | Guided Wave Optics | 
| or ECE 483 | Guided Wave Optics | 

**Standard 5. Science Education**

SED 413 | Inquiry in Science and Science Education | 3

Total Hours: 68-69

1. Not required if you have taken HDFS 311 Infant and Child Development, HDFS 313 Adolescent Development and HDFS 314 Adult Development and Aging with a 3.0 or higher GPA.

2. Can be waived with 60 hours supervised/document volunteer service.

3. Complete prior to the Professional Level. Most of this course work will meet student's first degree requirements.

- Must have 3.0 accumulative GPA on all course work to fulfill content mastery requirements.
- All grades must be taken as A–F graded courses; no P/N or S/U grades accepted for content mastery courses. All grades must be at C– or above.

* Baccalaureate Core Course
^ Writing Intensive Course (WIC)

### Professional Level

To be accepted into the Professional Level, a student must have completed the required Pre-Education General Courses and the Content Mastery Requirements with a minimum 3.0 GPA or by special petition. In addition, students need two letters of recommendation and passing scores on all required Oregon licensure exams.

The following courses are taken during the Professional year-long program.

### Code | Title | Hours
--- | --- | ---
ED 340 | *Supportive Differentiated Environments | 3
ED 407 | Seminar | 1
ED 409 | Practicum/clinical Experience (September Experience) | 2
ED 409 | Practicum/clinical Experience (Fall Practicum) | 3
### Physics Teaching Option

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ED 410</td>
<td>INTERNSHIP/WORK EXPERIENCE (Part-time Student Teaching)</td>
<td>3</td>
</tr>
<tr>
<td>ED 410</td>
<td>INTERNSHIP/WORK EXPERIENCE (Full-time Student Teaching)</td>
<td>10</td>
</tr>
<tr>
<td>ED 412</td>
<td>LEARNING STYLES AND NEEDS IN ADOLESCENCE</td>
<td>2</td>
</tr>
<tr>
<td>ED 424</td>
<td>TEACHER AS REFLECTIVE PRACTITIONER</td>
<td>2</td>
</tr>
<tr>
<td>ED 425</td>
<td>CURRICULUM IMPLEMENTATION AND INSTRUCTIONAL STRATEGIES 7-12</td>
<td>4</td>
</tr>
<tr>
<td>ED 427</td>
<td>ALTERNATIVE ASSESSMENT FOR MIDDLE AND HIGH SCHOOL</td>
<td>2</td>
</tr>
<tr>
<td>ED 493</td>
<td>READING, LITERATURE, AND LANGUAGE DEVELOPMENT IN THE CONTENT</td>
<td>2-3</td>
</tr>
<tr>
<td>or ED 473</td>
<td>INSTRUCTIONAL APPROACHES FOR ESOL EDUCATION</td>
<td></td>
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<tr>
<td>ED 494</td>
<td>CONTENT STANDARDS AND CURRICULUM DEVELOPMENT FOR HIGH SCHOOL</td>
<td>3</td>
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</tbody>
</table>

**Total Hours**: 37-38

* Baccalaureate Core Course
^ Writing Intensive Course (WIC)

**Option Code**: 69