## Physics, B.A.

### Requirements

The Bachelor of Arts with a major in physics requires a minimum of 120 s.h., including at least 44 s.h. of work for the major (minimum of 24 s.h. in physics plus 20 s.h. in supporting course work). Students must maintain a g.p.a. of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences General Education Program.

The major is designed for students who wish to build a foundation of knowledge in physics but do not plan a research-oriented career in the discipline. It also is good preparation for students interested in secondary school science teaching; see "B.A. with Teacher Licensure" below.

The B.A. program requires fewer physics courses than the B.S. program does, giving students a wider choice of electives. Bachelor of Arts students take calculus in addition to physics courses, which include a laboratory. They also take science courses in a thematic area or the physics course work required for teacher licensure, and the department encourages them to do additional work.

Students who wish to earn a double major in physics and astronomy must choose their course work carefully; see "B.A.: Double Major in Physics and Astronomy" below. Bachelor of Arts students majoring in physics who are interested in science teaching and in earning a graduate degree may enroll in a joint degree program offered by the College of Liberal Arts and Sciences and the College of Education; see "Joint B.A./M.A.T. with Science Education Subprogram" below.

The B.A. with a major in physics requires the following courses or their equivalents. Many upper-level physics courses have prerequisites; students should consult their advisors when choosing courses 3000 or above.

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physics Courses</strong></td>
<td></td>
</tr>
<tr>
<td>One of these sequences:</td>
<td></td>
</tr>
<tr>
<td>PHYS:1611-</td>
<td>Introductory Physics I-II</td>
</tr>
<tr>
<td>PHYS:1612</td>
<td></td>
</tr>
<tr>
<td>PHYS:1701 &amp;</td>
<td>Physics I-II - Physics III</td>
</tr>
<tr>
<td>PHYS:1702 &amp;</td>
<td>(strongly preferred)</td>
</tr>
<tr>
<td>PHYS:2703</td>
<td></td>
</tr>
<tr>
<td>All of these:</td>
<td></td>
</tr>
<tr>
<td>PHYS:2704</td>
<td>Physics IV</td>
</tr>
<tr>
<td>PHYS:3756</td>
<td>Intermediate Laboratory</td>
</tr>
<tr>
<td>Three additional physics courses numbered 3000-4999 approved by the advisor, excluding PHYS:4761, PHYS:4762, PHYS:4905, and PHYS:4990</td>
<td>9-10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supporting Course Work</td>
<td></td>
</tr>
<tr>
<td>This sequence:</td>
<td></td>
</tr>
<tr>
<td>MATH:1850 &amp;</td>
<td>Calculus I-II</td>
</tr>
<tr>
<td>MATH:1860</td>
<td></td>
</tr>
<tr>
<td>One of these:</td>
<td></td>
</tr>
</tbody>
</table>

Additional science courses in a thematic area, approved by the advisor

Course work required for teacher licensure

Undergraduate majors who plan to pursue graduate study are advised to go as far as they can beyond the minimum requirements listed above, including further work in mathematics. In planning this work, they should be guided by the College of Liberal Arts and Sciences maximum hours rule: Students earning a B.A. may apply a maximum of 56 s.h. earned in one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward requirements for the major; students who earn more than 56 s.h. from one department may use the additional semester hours to satisfy requirements for the major (if the department accepts them), and the grades they earn become part of their grade-point average; but they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

### B.A.: Double Major in Physics and Astronomy

Students working toward a Bachelor of Arts with a double major in physics and astronomy must complete all requirements for both majors and must earn a minimum of 56 s.h. outside the Department of Physics and Astronomy in order to graduate. Students interested in earning a double major should consult with their advisors. See Requirements for a Bachelor's Degree on the College of Liberal Arts and Sciences website.

### B.A. with Teacher Licensure

Majors interested in earning licensure to teach in elementary and/or secondary schools must complete the College of Education's Teacher Education Program (TEP) in addition to the requirements for the major and all requirements for graduation. The TEP requires several College of Education courses and student teaching. Contact the Office of Student Services for details.

Students must satisfy all degree requirements and complete Teacher Education Program licensure before degree conferral.

Students with a strong interest in science teaching may complete a science education major. Students choose one of five emphases—biology, chemistry, earth science, physics, or all-science—and earn a Bachelor of Science degree. They may apply for admission to the Teacher Education Program. See B.S. in Science Education in the Teaching and Learning (College of Education) section of the Catalog.

### Joint B.A./M.A.T. with Science Education Subprogram

Bachelor of Arts students in physics who are interested in pursuing a graduate degree in teaching may apply to the Joint Bachelor of Arts/Master of Arts in Teaching program offered by the College of Liberal Arts and Sciences and the College of Education. Designed for undergraduates majoring in biology, chemistry, environmental sciences, or physics, the joint program enables students to earn a B.A. and M.A.T. in five years by beginning to earn graduate credit during their fourth year of undergraduate study and by counting up to 18 s.h. of qualifying credit toward both degrees. For more information, see "Joint B.A./M.A.T. with Science Education Subprogram" under Science Education in the Master of Arts
in Teaching (College of Education) section of the Catalog. Interested students should consult an advisor.

**Honors**

**Honors in the Major**

Students majoring in physics have the opportunity to graduate with honors in their major. They must maintain a University of Iowa g.p.a. of at least 3.33. Students must earn 6-8 s.h. in PHYS:4999 Undergraduate Research during their junior and senior years and conduct an investigation under the guidance of a faculty member. They must present a written report of their research (honors thesis) and describe their research results at a departmental seminar.

**University of Iowa Honors Program**

In addition to honors in the major, students have opportunities for honors study and activities through membership in the University of Iowa Honors Program. Visit Honors at Iowa to learn about the University’s honors program.

Membership in the UI Honors Program is not required to earn honors in the physics major.

**Academic Plans**

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan. Courses in the major are those required to complete the major; they may be offered by departments other than the major department.

**Before the third semester begins:** calculus II and physics II

**Before the fifth semester begins:** physics III-IV and up to four more courses in the major

**Before the seventh semester begins:** two to four more courses in the major and at least 90 s.h. earned toward the degree

**Before the eighth semester begins:** two or three more courses in the major

**During the eighth semester:** enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**Sample Plan of Study**

**Physics (B.A.)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS:1701</td>
<td>Physics I (also GE: Natural Sciences with a lab)</td>
<td>4</td>
</tr>
<tr>
<td>MATH:1850</td>
<td>Calculus I (also GE: Quantitative or Formal Reasoning)</td>
<td>4</td>
</tr>
<tr>
<td>RHET:1030</td>
<td>Rhetoric (GE: Rhetoric or other General Education course)</td>
<td>4</td>
</tr>
<tr>
<td>GE: Diversity and Inclusion</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS:2703</td>
<td>Physics III</td>
<td>4</td>
</tr>
<tr>
<td>Major: additional science course in chosen thematic area</td>
<td></td>
<td>3-4</td>
</tr>
<tr>
<td>GE: World Languages or elective course</td>
<td></td>
<td>3-5</td>
</tr>
<tr>
<td>Elective course</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Elective course</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td><strong>Third Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS:3756</td>
<td>Intermediate Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>Major: physics elective course numbered 3000 or above</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>GE: Historical Perspectives</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>GE: World Languages or elective course</td>
<td></td>
<td>3-5</td>
</tr>
<tr>
<td>Elective course</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Fourth Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major: additional science course in chosen thematic area</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Major: physics elective course numbered 3000 or above</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>GE: Literary, Visual, and Performing Arts</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Elective course</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Elective course</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Spring</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major: additional science course in chosen thematic area</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>
### Major: physics elective course numbered 3000 or above

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective course</td>
<td>3</td>
</tr>
<tr>
<td>Elective course</td>
<td>3</td>
</tr>
<tr>
<td>Elective course</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Hours**: 15

**Total Hours**: 120-128

1. General Education (GE) courses may be completed in any order unless used as a prerequisite for another course. Students should consult with an advisor about the best sequencing of courses. For more information, view the General Education Program.

2. Students may use their elective courses to complete a double major, minors, or certificates.

3. Students who have completed four years of a single language in high school have satisfied the College of Liberal Arts and Sciences GE: World Languages requirement. Enrollment in world languages courses requires a placement exam, unless enrolling in a first-semester-level course.

### Career Advancement

Physics and astronomy graduates have mastered skills that are readily transferable to a number of fields. They might choose to work in research, engineering, software development, teaching, finance, biomedical research, or consulting.

The B.A. degree leads to careers in medicine, law, science-related administration, business, or technical writing. It also is good preparation for students interested in secondary school science teaching.

About 70 percent of physics and astronomy graduates go on to graduate school. With help from the department’s in-house recruiting office, they win acceptance to some of the best graduate programs in the country.

The Pomerantz Career Center offers multiple resources to help students find internships and jobs.