Astronomy, B.A.

Learning Outcomes

Astronomy majors will be able to:

- demonstrate understanding of the fundamental concepts in astrophysics such as gravity, the nature of light, the physical characteristics of matter, and the motions of astronomical objects in the night sky;
- demonstrate proficiency in each of the major areas of astronomy—cosmology, galaxies, accretion and compact objects, the life cycle, and properties of stars and solar system science;
- show a working knowledge of a broad array of astrophysical phenomena that are based upon fundamental concepts; and
- gain familiarity with astronomical observations, instrumentation, computational methods, and software.

Requirements

The Bachelor of Arts with a major in astronomy requires a minimum of 120 s.h., including at least 49 s.h. of work for the major. The B.A. program requires fewer physics and mathematics courses than the B.S. program does, giving students a wider choice of electives.

The program is designed for students who wish to build considerable knowledge in astronomy but do not plan a research-oriented career in the field. It is appropriate for students planning careers in secondary school science teaching or science-related administration; see B.S. in Science Education in the Department of Teaching and Learning (College of Education) in the Catalog. It also is appropriate for those planning to earn professional degrees.

Bachelor of Arts students take calculus in addition to physics and astronomy courses, which include laboratories. Students also must complete the College of Liberal Arts and Sciences GE CLAS Core.

Students who want to earn a double major in physics and astronomy must choose their course work carefully; see “Double Major in Physics and Astronomy” below.

The B.A. with a major in astronomy requires the following courses or their equivalents.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mathematics Courses</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Astronomy Courses</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Physics Courses</td>
<td>24-29</td>
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<tr>
<td></td>
<td>Total Hours</td>
<td>49-54</td>
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Required Courses

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td></td>
<td>One of these sequences:</td>
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<tr>
<td>PHYS:1611-1612</td>
<td>Introductory Physics I-II</td>
<td>8</td>
</tr>
<tr>
<td>PHYS:1701 &amp; PHYS:1702 &amp; PHYS:2703</td>
<td>Physics I-II - Physics III (strongly preferred)</td>
<td>12</td>
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<tr>
<td></td>
<td>All of these:</td>
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<tr>
<td>ASTR:1771-1772</td>
<td>General Astronomy I-II</td>
<td>8</td>
</tr>
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</table>

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.

Double Major in Physics and Astronomy

Students working toward a Bachelor of Arts with a double major in physics and in 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.

Honors

Honors in the Major

Students majoring in astronomy 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 astronomy 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:** math through calculus I-II and physics I-II

**Before the fifth semester begins:** physics III-IV and at least one more course in the major

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

**Before the eighth semester begins:** nine courses in the major

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

**Career Advancement**

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. Some graduates plan for careers in secondary school science teaching or science-related administration or plan to earn professional degrees.

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.