## Requirements for the Bachelor of Science in Astrophysics

**College of Arts and Sciences**

The University of Oklahoma

### Major Requirements

#### Core Area I: Symbolic and Oral Communication (9-22 hours, 3-6 courses)
- 1. English Composition (6 hours, 2 courses)
  - English 1113, Principles of English Composition
  - English 1213, Principles of English Composition, or EXPO 1213, Expository Writing
- 2. Intermediate Course (2000 level, 0-3 hours)
  - One course at the intermediate level or demonstrated competency at that level.
- 3. Mathematics (3 hours, 1 course)
  - Choose from the following approved General Education designators: MATH, PHYS, CHEM, GEOL, GEOG, or ZOO.

### Core Area II: Natural Science (7 hours, 2 courses) including one laboratory component.

- 1. Biological Science
  - Chosen from the following approved General Education designators: BIOL, BOT, HES, MBIO, or ZOO.
- 2. Physical Science
  - Chosen from the following approved General Education designators: ACSC, ASTR, CHEM, GEOC, GEOG, GPHY, METR, or PHYS.

### Core Area III: Social Science (6 hours, 2 courses)
- 1. Political Science 1113, American Federal Government
- 2. ________________

### Core Area IV: Humanities (18 hours, 6 courses)

- a. Understanding Artistic Forms (3 hours, 1 course)
- b. Western Civilization and Culture (6 hours, 2 courses)
  - 1. History 1483, U.S., 1492-1865, or History 1493, U.S., 1865-Present,
  - 2. ________________ (excluding HIST 1483 and 1493)
- c. Non-Western Culture (3 hours, 1 course):
- d. Additional Core IV Humanities courses (6 upper-division hours, 2 courses at the 3000-4000 level). Must be outside the major and selected from Understanding Artistic Forms, Western Civilization and Culture, or Non-Western Culture.

### Core Area V: Senior Capstone Experience (3 hours, 1 course):

- 1. ________________
- 2. ________________

### Major Support Requirements

- College of Arts and Sciences Requirements: College requirements are not automatically fulfilled by a previous degree.

### Computer Literacy Requirement — Students must demonstrate computer proficiency which includes the competent use of a variety of software and networking applications. This requirement may be satisfied by:

1. A high school computer science course that meets curricular requirement; or
2. Completion of a college-level course that requires competent use of computing; or
3. Completion of a university computer proficiency assessment test.

### Minimum Credit Hours and Grade Point Averages Required

<table>
<thead>
<tr>
<th>Total Hours</th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Hours</td>
<td>49</td>
</tr>
<tr>
<td>Grade Point Averages:</td>
<td>Overall &amp; Major: Combined OU/Transfer - 2.00 OU</td>
</tr>
</tbody>
</table>

### 48 Upper-Division Hours REQUIRED

### OU encourages students to complete at least 30 hours of applicable coursework each year to have the opportunity to graduate in four years.

### Some courses required for the major may also fulfill University General Education and/or College of Arts & Sciences Requirements

#### ASTRONOMY
- 2513 Observatory Methods
- 3103 Stars
- 3113 Galaxies and Cosmology
- 4303 Stellar Astrophysics

#### PHYSICS
- 1205 Introductory Physics I for Physics Majors
- 1215 Introductory Physics II for Physics Majors
- 3303 Intro. Physics III: Modern Physics
- 3043 Physical Mechanics I
- 3053 Physical Mechanics II
- 3183 Electricity & Magnetism I
- 3302 Advanced Laboratory I, or
- 3312 Advanced Laboratory II

#### FREE ELECTIVES

- Electives to bring applicable hours to 120 including 48 upper-division hours.

### Additional Requirements

- A grade of C or better must be earned in each required astronomy and physics course and in the required mathematics courses.

### Minimum Credit Hours and Grade Point Averages Required

<table>
<thead>
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<tr>
<td>Grade Point Averages:</td>
<td>Overall &amp; Major:</td>
</tr>
</tbody>
</table>

### Minimum Upper-Division Hours Required

- 48

### Bachelor of Science in Astrophysics

- 1912A
**INFORMATION CONCERNING GENERAL RULES, REGULATIONS AND MINIMUM REQUIREMENTS**

**TOTAL HOURS:** A minimum of 120 semester hours acceptable toward graduation must be completed.

**UPPER-DIVISION HOURS:** A minimum of 48 upper-division semester hours acceptable toward graduation must be completed. OU courses numbered 3000 or above are upper-division. Transfer work is counted as lower-division or upper-division credit depending on the level at which it was offered at the institution where it was earned. Two-year college work is accepted only as lower-division credit.

**ARTS AND SCIENCES HOURS:** At least 80 semester hours of liberal arts and sciences courses are required for a BA degree. At least 55 semester hours of liberal arts and sciences courses are required for a BS degree.

**MAJOR WORK:** A minimum of 30 semester hours must be earned in the major, including a minimum of 15 credit hours at the upper-division level.

**PASS/NO PASS ENROLLMENT:** A maximum of 16 semester hours of free elective credit may be attempted under this option.

**INDIVIDUAL STUDIES (e.g., courses titled “Independent Study”):** A maximum of 12 upper-division semester hours may be counted toward graduation.

**MILITARY, MILITARY IN-SERVICE, SKILLS, APPLIED TECHNOLOGY, AND P.E. COURSES:** A maximum of 16 semester credit hours of basic skills and/or applied technology courses. No physical education activity courses will be counted toward the 120 semester hours of acceptable credit for graduation.

**SENIOR INSTITUTION HOURS:** A minimum of 60 semester hours applied toward graduation must be earned at senior (4-year) institutions.

**RESIDENCY:**
- At least 15 of the final 30 hours applied toward the degree or at least 50 percent of the hours required by the institution in the major field must be satisfactorily completed at the awarding institution.
- At least 15 semester hours of upper-division major work must be completed in residence at OU.
- OU correspondence courses are not considered resident credit.
- Credits earned via examination are neither resident nor nonresident credit.

**GRADE POINT AVERAGES:** Students must earn a minimum overall 2.00 for each of the following: Combined Retention GPA (all college grades), OU Retention GPA, GPA for all major courses, and GPA for all major courses taken at OU. Some schools and departments of the College have higher minimum grade point averages required for their students.

**SPECIAL DEGREES:** Students may qualify for an Honors degree (cum Laude, Magna cum Laude, or Summa cum Laude) by completing specific requirements of the Honors College. A degree will be earned with Distinction if the student completes at least 60 semester hours at OU with at least a 3.60 combined retention GPA and OU retention GPA. A degree will be earned with Special Distinction if the student completes at least 60 semester hours at OU with at least a 3.90 combined retention GPA and OU retention GPA.

**APPLICATION FOR GRADUATION:** Students must apply for graduation during the term in which they complete their degree requirements in order to graduate in that term. The application is valid for three terms. Application forms are available from the College of Arts and Sciences Academic Services office, Ellison Hall, Room 124. The deadline for completion of all coursework to graduate in a particular term is the last day of classes in that term.

Refer to the OU General Catalog for more complete information.

**Suggested Semester Plan of Study — Astrophysics - 1912A**

This plan shows one possible grouping of courses that would allow students to graduate in four years. Please refer to the front of the degree checksheet for official requirements. Students must consult with College of Arts and Sciences and Department of Physics and Astronomy academic advisers to verify that courses selected each semester fulfill the recommended plan and satisfy university, College of Arts and Sciences, and Astrophysics major requirements.

<table>
<thead>
<tr>
<th>Year</th>
<th>FIRST SEMESTER</th>
<th>Hours</th>
<th>SECOND SEMESTER</th>
<th>Hours</th>
</tr>
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<tr>
<td>FRESHMAN</td>
<td>ENGL 1113, Principles of English Composition (Core I)</td>
<td>3</td>
<td>ENGL 1213, Principles of English Composition (Core I), or</td>
<td>3</td>
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<tr>
<td></td>
<td>MATH 1823, Calculus &amp; Analytic Geometry I (Core I)</td>
<td>3</td>
<td>EXPO 1213, Expository Writing (Core I)</td>
<td>3</td>
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<tr>
<td></td>
<td>PHYS 1205, Introductory Physics I for Physics Majors</td>
<td>5</td>
<td>PHYS 2423, Calculus &amp; Analytic Geometry II</td>
<td>3</td>
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<tr>
<td></td>
<td>Beginning Foreign Language (Core I)</td>
<td>3</td>
<td>PHYS 1215, Intro. Physics II for Physics Majors</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Beginning Foreign Language</td>
<td>5</td>
<td>Beginning Foreign Language continued (Core I)</td>
<td>3</td>
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<tr>
<td></td>
<td><strong>TOTAL CREDIT HOURS</strong></td>
<td><strong>16</strong></td>
<td><strong>TOTAL CREDIT HOURS</strong></td>
<td><strong>16</strong></td>
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<tr>
<td>SOPHOMORE</td>
<td>ASTR 2513, Observatory Methods</td>
<td>3</td>
<td>HIST 1483, United States 1492-1865, or</td>
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<tr>
<td></td>
<td>MATH 2433, Calculus &amp; Analytic Geometry III</td>
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<td>1493, United States 1865-Present (Core IV)</td>
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<tr>
<td></td>
<td>PHYS 2203, Intro. Physics III: Modern Physics</td>
<td>3</td>
<td>MATH 2443, Calculus &amp; Analytic Geometry IV</td>
<td>3</td>
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<tr>
<td></td>
<td>Biological Science without lab (Core II)</td>
<td>3</td>
<td>MATH 3413, Physical Mathematics I</td>
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<tr>
<td></td>
<td>Intermediate Foreign Language</td>
<td>3</td>
<td>PHYS 3043, Physical Mechanics I</td>
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<td></td>
<td><strong>TOTAL CREDIT HOURS</strong></td>
<td><strong>15</strong></td>
<td>Social Science (Core III)</td>
<td><strong>15</strong></td>
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<tr>
<td>JUNIOR</td>
<td>ASTR 3103, Stars</td>
<td>3</td>
<td>ASTR 3113, Galaxies and Cosmology</td>
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<td>PC 1113, American Federal Government (Core III)</td>
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<td>PHYS 3302, Advanced Laboratory I, or</td>
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<td>PHYS 3053, Physical Mechanics II</td>
<td>3</td>
<td>PHYS 3312, Advanced Laboratory II</td>
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<td></td>
<td>PHYS 3183, Electricity and Magnetism I</td>
<td>3</td>
<td>PHYS 3803, Intro. to Quantum Mechanics I</td>
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<td>Understanding Artistic Forms (Core IV)</td>
<td>3</td>
<td>Western Civilization &amp; Culture (Core IV)</td>
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<td><strong>TOTAL CREDIT HOURS</strong></td>
<td><strong>15</strong></td>
<td>Free Elective, upper-division (3000-4000-level)</td>
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<tr>
<td>SENIOR</td>
<td>ASTR 4303, Stellar Astrophysics</td>
<td>3</td>
<td>PHYS 4300, Senior Research Project (Capstone)</td>
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<td>PHYS 4153, Statistical Mechanics</td>
<td>3</td>
<td>Astrophysics Major Elective, upper-division (3000-4000-level)</td>
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<td>PHYS 4300, Senior Research Project (Capstone)</td>
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<td>Humanities, upper-division, outside major (Gen. Ed.)</td>
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<td>Humanities, upper-division, outside major (Gen. Ed.)</td>
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<td>Free Elective, lower- or upper-division</td>
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<td>Non-Western Culture (Core IV)</td>
<td>3</td>
<td>Free Elective, upper-division (3000-4000-level)</td>
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<tr>
<td></td>
<td><strong>TOTAL CREDIT HOURS</strong></td>
<td><strong>14</strong></td>
<td><strong>TOTAL CREDIT HOURS</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

*If a student is deficient in computer literacy, please consult their college academic counselor in the Hobson Academic Services Center, ELLH 124, 325-4411, for approved courses.

Bachelor’s degrees require a minimum of 48 hours of upper-division (3000-4000) coursework.

This plan of study should not be used in lieu of academic advisement.

Students who transfer from other institutions (particularly community colleges) must verify credit hour and course requirements with their college academic counselor, ELLH 124, 325-4411, [http://ou.edu/cas](http://ou.edu/cas).

Please make an appointment for a degree check with your college academic counselor once you have earned 90 hours. Appointments may be scheduled at [iAdvise.ou.edu](http://iAdvise.ou.edu).