ASTRONOMY–PHYSICS, BS

REQUIREMENTS

UNIVERSITY GENERAL EDUCATION REQUIREMENTS

All undergraduate students at the University of Wisconsin–Madison are required to fulfill a minimum set of common university general education requirements to ensure that every graduate acquires the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world. Various schools and colleges will have requirements in addition to the requirements listed below. Consult your advisor for assistance, as needed. For additional information, see the university Undergraduate General Education Requirements (http://guide.wisc.edu/undergraduate/#requirementsforundergraduatestudytext) section of the Guide.

General Education

- Breadth–Humanities/Literature/Arts: 6 credits
- Breadth–Natural Science: 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits
- Breadth–Social Studies: 3 credits
- Communication Part A Part B *
- Ethnic Studies *
- Quantitative Reasoning Part A Part B *

* The mortarboard symbol appears before the title of any course that fulfills one of the Communication Part A or Part B, Ethnic Studies, or Quantitative Reasoning Part A or Part B requirements.

COLLEGE OF LETTERS & SCIENCE DEGREE REQUIREMENTS: BACHELOR OF SCIENCE (BS)

Students pursuing a Bachelor of Science degree in the College of Letters & Science must complete all of the requirements below. The College of Letters & Science allows this major to be paired with either the Bachelor of Arts or the Bachelor of Science degree requirements.

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

Mathematics

Complete two courses of 3+ credits at the Intermediate or Advanced level in MATH, COMP SCI, or STAT subjects. A maximum of one course in each of COMP SCI and STAT subjects counts toward this requirement.

Language

Complete the third unit of a language other than English.

Physics

Complete one of the following sequences for Introductory Physics.

Sequence 1:

- PHYSICS 247
- PHYSICS 248
- PHYSICS 249

A Modern Introduction to Physics
A Modern Introduction to Physics
A Modern Introduction to Physics

Sequence 2:

- PHYSICS 302
- PHYSICS 303

A Modern Introduction to Physics
A Modern Introduction to Physics

NON–L&S STUDENTS PURSUING AN L&S MAJOR

Non–L&S students who have permission from their school/college to pursue an additional major within L&S only need to fulfill the major requirements. They do not need to complete the L&S Degree Requirements above.

REQUIREMENTS FOR THE MAJOR

The major requires a minimum of 34 credits in the field of specialization, with at least 6 of these credits in ASTRON and at least 28 credits in PHYSICS.

COURSE REQUIREMENTS FOR THE MAJOR

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Astronomy</td>
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<td>Complete at least two of the following:</td>
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<tr>
<td>ASTRON 310</td>
<td>Stellar Astrophysics</td>
<td>6</td>
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<tr>
<td>ASTRON 320</td>
<td>The Interstellar Medium</td>
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<td>ASTRON 330</td>
<td>Galaxies</td>
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<td>ASTRON 335</td>
<td>Cosmology</td>
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<td>ASTRON 340</td>
<td>Solar System Astrophysics</td>
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<tr>
<td>ASTRON 500</td>
<td>Techniques of Modern Observational Astrophysics</td>
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Phys 201 General Physics
& Phys 202 General Physics
& Phys 205 Modern Physics for Engineers
Sequence 3:
Phys 207 General Physics
& Phys 208 General Physics
& Phys 241 Introduction to Modern Physics
Mechanics, Electromagnetic Fields, Thermal Physics
(complete all):
Phys 311 Mechanics
Phys 322 Electromagnetic Fields
Phys 415 Thermal Physics
Atomic Quantum Physics (complete either):
Phys 448 Atomic and Quantum Physics
& Phys 449 Atomic and Quantum Physics
or
Phys 531 Introduction to Quantum Mechanics
Complete one 300-level or higher laboratory course:
Astron 465 Observational Astronomy and Data Analysis
Phys 307 Intermediate Laboratory-Mechanics and Modern Physics

Additional PHYSICS to reach minimum of 28 credits
Total Credits 34

Residence and Quality of Work
- 2.000 GPA in all ASTRON, all PHYSICS, and all major courses
- 2.000 GPA on 15 upper-level major credits in residence
- 15 credits in ASTRON and PHYSICS, taken on campus

Honors in the Major
Students may declare Honors in the Major in consultation with the Astronomy–Physics undergraduate advisor(s). Please plan your Senior Honors Thesis research project a year in advance.

Honors in the Major Requirements
To earn Honors in the Major, students must satisfy both the requirements for the major (above) and the following additional requirements:
- Earn a 3.300 University GPA
- Earn a 3.500 GPA for all ASTRON and PHYSICS courses, and all courses accepted in the major, at the 300 level or higher
- Complete the following coursework:
  - Four 300-level or higher ASTRON courses, with a 3.500 GPA (not including ASTRON 681 and ASTRON 682)
  - A two-semester Senior Honors Thesis in ASTRON 681 and ASTRON 682, with a grade of AB or better (for a total of 6 credits).

Footnotes
1. ASTRON 103 and ASTRON 104 are not required for majors.
2. ASTRON 310 is a prerequisite for ASTRON 330, ASTRON 335, and ASTRON 500.
3. EMA 201, EMA 202, and M E 240 count toward the 28 credits of PHYSICS requirement. EMA 201 & EMA 202, or EMA 201 & M E 240 count as a first semester, introductory course (e.g., PHYSICS 247, PHYSICS 201, PHYSICS 207).
4. ASTRON 300-699 and PHYSICS 300-699 are upper-level in the major.