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 (https://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.
L&S Breadth	Complete: • 12 credits of Humanities, which must include at least 6 credits of Literature; and • 12 credits of Social Science; and • 12 credits of Natural Science, which must include 6 credits of Biological Science and 6 credits of Physical Science.
Liberal Arts and Science Coursework	Complete at least 108 credits.
Depth of Intermediate/Advanced Coursework	Complete at least 60 credits at the Intermediate or Advanced level.
Major	Declare and complete at least one major.
Total Credits	Complete at least 120 credits.
UW-Madison Experience	Complete both: • 30 credits in residence, overall, and • 30 credits in residence after the 86th credit.
Quality of Work	• 2.000 in all coursework at UW–Madison • 2.000 in Intermediate/Advanced level coursework at UW–Madison

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 39 credits in the field of specialization, with at least 12 of these credits in ASTRON and at least 25 credits in PHYSICS.

COURSE REQUIREMENTS FOR THE MAJOR ARE:

Code	Title	Credits
Astronomy		
Introductory Course [1]		
ASTRON 200	The Physical Universe	3
Complete at least three of the following:		*9*
ASTRON 310	Stellar Astrophysics	
ASTRON 320	The Interstellar Medium	
ASTRON 330	Galaxies	
ASTRON 335	Cosmology	
ASTRON 340	Solar System Astrophysics	
ASTRON 500	Techniques of Modern Observational Astrophysics	
ASTRON 540	Exoplanets	
ASTRON 620	Seminar in Astrophysical Topics	
Physics		
First Introductory Course (complete one): [2]		*5*
PHYSICS 247	A Modern Introduction to Physics (recommended)	
PHYSICS 201	General Physics	

PHYSICS 207	General Physics	
E M A 201 & E M A 202	Statics and Dynamics	
Second Introductory Course (complete one):		*5*
PHYSICS 248	A Modern Introduction to Physics (recommended)	
PHYSICS 202	General Physics	
PHYSICS 208	General Physics	
Third Introductory Course (complete one):		*3-4*
PHYSICS 249	A Modern Introduction to Physics (recommended)	
PHYSICS 205	Modern Physics for Engineers	
PHYSICS/ E C E 235	Introduction to Solid State Electronics	
PHYSICS 241	Introduction to Modern Physics	
Mechanics, Electromagnetic Fields, & Thermal Physics (complete all):		
PHYSICS 311	Mechanics	3
PHYSICS 322	Electromagnetic Fields	3
PHYSICS 415	Thermal Physics	3
Atomic & Quantum Physics (complete either):		
PHYSICS 448	Atomic and Quantum Physics	3
or PHYSICS 531	Introduction to Quantum Mechanics	
Complete one laboratory course:		*2-3*
ASTRON 465	Observational Astronomy and Data Analysis	
PHYSICS 307	Intermediate Laboratory-Mechanics and Modern Physics	
Total Credits		**39**

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[4]
- 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 recommended for majors. Students intending to major should wait to take ASTRON 200 after completing their first introductory physics course or MATH 222.

2 PHYSICS 247/PHYSICS 248/PHYSICS 249 is the introductory course sequence recommended for prospective astronomy-physics majors, PHYSICS 201/PHYSICS 202/PHYSICS 241 is recommended for engineers, and PHYSICS 207/PHYSICS 208/PHYSICS 241 is intended for life sciences and chemistry majors. Both PHYSICS 201/PHYSICS 202/PHYSICS 241 and PHYSICS 207/PHYSICS 208 suitable alternatives for physics majors. Although the department recommends following one of these sequences, students are allowed to mix them, with the exception that transfers into the PHYSICS 247/PHYSICS 248/PHYSICS 249 sequence are not permitted.

UNIVERSITY DEGREE REQUIREMENTS

Total Degree	To receive a bachelor's degree from UW–Madison, students must earn a minimum of 120 degree credits. The requirements for some programs may exceed 120 degree credits. Students should consult with their college or department advisor for information on specific credit requirements.
Residency	Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. "In residence" means on the UW–Madison campus with an undergraduate degree classification. “In residence” credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs.
Quality of Work	Undergraduate students must maintain the minimum grade point average specified by the school, college, or academic program to remain in good academic standing. Students whose academic performance drops below these minimum thresholds will be placed on academic probation.