



Bachelor of Arts in Physics and Astronomy



The faculty and students of the Department of Physics and Astronomy are engaged in explaining and predicting the behavior of the physical world around us, including everything from subatomic particles to supernovas.

Our department combines the best features of a small liberal arts college and a major research university. We are a moderately sized department with accessible faculty dedicated to excellence in teaching.

The BA program is appropriate for students desiring a broad academic experience. It also provides greater flexibility when planning a dual degree with another department. Students seeking the best preparation for graduate school in astronomy, physics or a related field should consider the more intensive BS program.

Concentration Requirements for BA degree in Physics and Astronomy

- One of the following: ASTR 241 or 242
- One ASTR 200 level course: ASTR/PHYS 231, ASTR 232, 233, 241, 242, 243, 244w or 265
- Two of the following PHYS courses: PHYS 217, 227, 235W, 237.
- One additional PHYS or ASTR 200 level course
- Two additional 200 level technical courses, which can be in physics, mathematics, or another science or engineering (not necessarily at the 200 level).
- At least a 2.0 (C) average in astronomy, physics and mathematics courses must be maintained.
- The choices of courses must be approved as a coherent program by the undergraduate physics & astronomy advisor.

Note: Graduate courses cannot in general be used to replace undergraduate requirements, but suitably prepared undergraduates may take graduate courses as electives, subject to permission of the course instructor and major advisor.

Please contact our Undergraduate Coordinator with any questions: UGCoordinator@UR.Rochester.edu



Four-Year Worksheet: Bachelor of Arts in Physics and Astronomy

Physics Pre-Concentration Regular Sequence

First Year	
Fall	Spring
AST 10x: Elementary Astronomy I	PHY 121: Mechanics
MTH 161: Calculus I	MTH 162: Calculus II
WRT 105: College Writing	Elective or Cluster course
Elective or Cluster course	Elective or Cluster course
Second Year	
Fall	Spring
PHY 122: Electromagnetism	PHY 123: Modern Physics
MTH 164: Multidimensional Calc.	MTH 165: Linear Algebra & Diff. Eqs
AST 111 – Elementary Astronomy I	AST 142 – Elementary Astrophysics
Elective or Cluster course	Elective or Cluster course

Physics Pre-Concentration Honors Sequence¹

First Year	
Fall	Spring
PHY 141: Honors Mechanics	PHY 143: Honors Modern Physics ²
MTH 161/171: Honors Calculus I	MTH 162/172: Honors Calculus II
AST 111 – Solar System & Its Origin	Elective or Cluster course ³
WRT 105: College Writing	Elective or Cluster course
Second Year	
Fall	Spring
PHY 142 -- Honors Electromagnetism	PHY 237-- Quantum Mech. of Physical Systems
MTH 164/173 -- Analysis IIIA	MTH 165/174 -- Honors Calculus IV
Elective or Cluster course	AST 142 – Elementary Astrophysics
Elective or Cluster course	Elective or Cluster course

Third Year	
Fall	Spring
PHY 217 -- Electricity & Magnetism I	PHY 237 -- Quantum Mech. of Physical Systems ⁴ OR PHY 227 -- Thermo. & Statistical Mechanics ⁵
PHY 235W -- Classical Mechanics	AST 241 -- Stellar Astrophysics
AST 2xx -- Upper Level Astro ⁶	Elective
Core Requirement	Core Requirement
Fourth Year	
Fall	Spring
PHY 231 -- Relativity and Gravitation	AST 242 - Intro to Cosmology
AST or PHY Elective	AST or PHY Elective
Elective or Cluster course	Elective or Cluster course
Elective or Cluster course	Core Requirement

1 Students who are intending to major in physics or related fields are encouraged to pursue the honors sequence.

2 PHY 143 is open to freshmen only, except with permission of the instructor.

3 Students are encouraged to take a course in computer programming during their first or second years in order to satisfy the major's computer literacy requirement. Such courses include CSC 161, 171, ECE 114, and PHY 256.

4 Students who have taken PHY 237 in their sophomore year should consider taking PHY 246 in either their junior or senior years.

5 The department encourages students planning to go to graduate school in Physics and Astronomy to prepare for the GRE Physics exam during the summer after junior year, as the exam is typically taken in the fall of senior year. While graduate schools have different policies on how the exam is used in admissions, high scores are always helpful, and the review itself provides enrichment. Some copies of old GRE exams are available in the Physics/Optics/Astronomy Library, located on the 3rd floor of Bausch & Lomb Hall, room 374. Before taking the exam, it is also strongly recommended that you have taken PHY 227, Thermodynamics and Statistical Mechanics.

6 PHY 231, AST 232, AST 241 and AST 242 are offered every other year.

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