



## Bachelor of Arts in Physics



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 perfect for students looking for a broad overview and the flexibility to double major. Students preparing for graduate school in physics or a related field should consider the more intensive BS program.

### Concentration Requirements for BA degree in Physics

- PHY 217, 235W, 237, and one additional course chosen from among the following: PHY 218, 227, 243W, 245W and 246.
- An additional 4 credit hours in an approved 200-300 level physics and/or astronomy course.
- Eight additional credit hours (usually two 4-credit hour courses), which can be 200 or 300 level technical courses in physics and/or astronomy, mathematics or another science or engineering. Some engineering courses at the 100 level may also be acceptable, with prior approval from the undergraduate physics advisor. Because MTH 281 and/or MTH 282 or OPT 287 is required for many of the 200 level physics courses, the options are more restrictive than they seem.
- At least a 2.0 (C) average in astronomy, physics and mathematics courses must be maintained.
- All course choices must be approved by the undergraduate physics advisor.

**Note:** Equivalent graduate level courses may be substituted when appropriate.



## Four-Year Worksheet: Bachelor of Arts in Physics

### Physics Pre-Concentration Regular Sequence

First Year	
Fall	Spring
MTH 161: Calculus I	PHY 121: Mechanics
WRT 105: College Writing	MTH 162: Calculus II
Elective or Cluster course	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
Elective or Cluster course	Elective or Cluster course
Elective or Cluster course	Elective or Cluster course

### Physics Pre-Concentration Honors Sequence<sup>1</sup>

First Year	
Fall	Spring
PHY 141: Honors Mechanics	PHY 143: Honors Modern Physics <sup>2</sup>
MTH 161/171: Honors Calculus I	MTH 162/172: Honors Calculus II
WRT 105: College Writing	Elective or Cluster course <sup>3</sup>
Elective or Cluster course	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	Elective or Cluster course
Elective or Cluster course	Elective or Cluster course

Third Year	
Fall	Spring
PHY 217 -- Electricity & Magnetism I	PHY 237 -- Quantum Mech. of Physical Systems <sup>4</sup>
PHY 235W -- Classical Mechanics	Elective
MTH 281 -- Fourier Series	Elective
Elective	Elective
Fourth Year	
Fall	Spring
PHY 243W -- Advanced Experimental Techniques I	PHY 218 -- Electricity & Magnetism II, or
Elective	PHY 227 -- Thermo. & Stat. Mechanics <sup>5</sup>
Elective	MTH 282 -- Intro. Complex Variables
Elective	Elective

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

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

<sup>3</sup> 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.

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

<sup>5</sup> Students continuing to graduate school in physics or in astronomy, generally take the GRE Physics Exam during the Fall of their senior year. Before taking the GREs, it is strongly recommended that you have taken PHY 227, Thermodynamics and Statistical Mechanics, and that you review old copies of GRE exams available in the Physics/Optics/Astronomy Library, located on the 3rd floor of Bausch & Lomb Hall, room 374.

Please contact our Undergraduate Coordinator with any questions: [UGCoordinator@UR.Rochester.edu](mailto:UGCoordinator@UR.Rochester.edu)