

# Physics Minor

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## About

Physics is the human endeavor to understand the nature of matter, energy, and their governing interactions from the scale of subatomic particles to that of the cosmos. Through the interplay of theoretical effort and experimentation, physics strives to discover the mathematical laws of nature. As such, it both forms a foundation for a liberal arts education and provides a framework to address key challenges in our ever-changing technical world.

The Department of Physics at Villanova University is a nurturing, supportive, and inclusive academic community that strives to reflect the values of the University. We undertake our mission to educate undergraduate students in a broad range of experimental, theoretical, and computational methods through classroom and laboratory experiences. Our students address fundamental questions of nature through meaningful participation in faculty-led research that connects them with physicists around the world. The critical thinking and problem-solving skills learned by our students enable them to engage the diverse world beyond Villanova, whether they continue in the field of physics or choose to apply their educational experience to the challenges of another field.

**Program** [Physics](#)  
**Degree Type** Minor

## MINOR: Physics (31 credits)

The Physics Department offers a minor in physics to qualified students whose major area of study lies outside of physics. In general, a student in any area of study, other than physics, may obtain a minor in physics.

### *Program Notes:*

- Courses that fulfill minor requirements may be used to fulfill other requirements (i.e., primary major, core curriculum, minors, concentrations, or free electives).
- The Minor in Applied Physics for Math Majors requires all of the Math courses required for the Math degree, plus PHY 2410/2411, 2412/2413 (or PHY 2420/2421, 2422/2423), PHY 3200, PHY 3400, PHY 3310/3311 and PHY 4801/4803.

Course	Title	Credits
	PHY 2410 or 2420	3
	PHY 2411 or 2421	1
	PHY 2412 or 2422	3
	PHY 2413 or 2423	1
PHY 3200	Thermo, Optics and Waves	3
PHY 3400	Modern Physics	3
PHY 4801	Experimental Physics I	2
	Physics Elective for Minor	15

## PHY 2410 or 2420

### **Elective Credits** 3

Students choose either PHY 2410 or 2420.

<b>Course</b>	<b>Title</b>	<b>Credits</b>
PHY 2410	University Phy:Mechanics	3
PHY 2420	Matter and Interactions I	3

## PHY 2411 or 2421

### **Elective Credits** 1

Students choose either PHY 2411 or 2421.

<b>Course</b>	<b>Title</b>	<b>Credits</b>
PHY 2411	Lab: Mechanics	1
PHY 2421	Lab: Matter and Interactions I	1

## PHY 2412 or 2422

### **Elective Credits** 3

Students choose either PHY 2412 or 2422.

<b>Course</b>	<b>Title</b>	<b>Credits</b>
PHY 2412	Univ Physics:Elec & Mag	3
PHY 2422	Matter and Interactions II	3

## PHY 2413 or 2423

### **Elective Credits** 1

Students choose either PHY 2413 or 2423.

<b>Course</b>	<b>Title</b>	<b>Credits</b>
PHY 2413	Lab:Elec & Magnetism	1
PHY 2423	Lab:Matter and Interactions II	1

## Physics Elective for Minor

### **Elective Credits** 15

Select 5 Classes of 3 or more credits in PHY 2418:9999 for a total of 15 credits.