

# Physics Major and Minor

[www.PhysicsAndAstronomy.Pitt.edu/Undergraduate/DegreePrograms](http://www.PhysicsAndAstronomy.Pitt.edu/Undergraduate/DegreePrograms)

edge of technology and at the intersection of quantum and classical physics -nuclear particles to the unim  
laws of nature. Students may expect to pursue research that influences m  
chemistry, engineering and computer science.

Required courses for the physics major  
The physics major requires the completion of 17 credits in physics distributed as follows.

Note: While not required, the introductory level honors courses, PHYS 0475, PHYS 0476, and PHYS 0520, are appropriate particularly for students seeking degrees in physics.

Introductory Physics courses

Select one group

- PHYS 0174 Basic Physics Science and Engineering 1
- PHYS 0175 Basic Physics Science and Engineering 2
  
- PHYS 0475 Intro to Physics Science and Engineering 1
- PHYS 0476 Intro to Physics Science and Engineering 2

Intermediate and advanced Physics courses

- PHYS 0477 Introduction to Thermodynamics, Relativity, and Quantum Theory
- PHYS 1310 Undergraduate Seminar
- PHYS 1321 Computational Methods in Physics
- PHYS 1331 Mechanics
- PHYS 1341 Thermodynamics and Statistical Mechanics
- PHYS 1351 Intermediate Electricity/Magnetism
- PHYS 1370 Quantum Mechanics

Laboratory courses

Choose at least 10 credits

- PHYS 0219 Basic Lab Physics Science and Engineering (2 cr.)
- or
- PHYS 0520 Modern Physical Measurements (3 cr.)
- PHYS 0525 Analog and Digital Electronics (3 cr.)
- PHYS 361 Wave Motion and Optics (3 cr.)
- PHYS 1426 Modern Physics Laboratory (2 cr.)
- ASTRON 1263 Techniques of Astronomy (3 cr.)

Science electives; choose at least nine credits from groups A and B

Group A

- BIOSC 0150 Foundations of Biology 1 (3 cr.)
- BIOSC 0160 Foundations of Biology 3 (3 cr.)
- BIOENG 1070 Introduction to Cell Biology 1 (3 cr.)
- BIOENG 1071 Introduction to Cell Biology 2 (3 cr.)
- CHEM 0110 General Chemistry 1 or CHEM 0720 Honors General Chemistry 1 (4 cr.)
- CHEM 0120 General Chemistry 2 or CHEM 0720 Honors General Chemistry 2 (4 cr.)
- CHEM 0310 Organic Chemistry 1 or CHEM 0730 Honors Organic Chemistry 1 (3 cr.)
- CHEM 0320 Organic Chemistry 2 or CHEM 0730 Honors Organic Chemistry 2 (3 cr.)
- CS 0401 Intermediate Programming Using Java (3 cr.)
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### Prerequisite Mathematics courses

- \_\_\_ MATH 0220 Analytic Geometry and Calculus 1
- \_\_\_ MATH 0230 Analytic Geometry and Calculus 2
- \_\_\_ MATH 0240 Analytic Geometry and Calculus 3
- \_\_\_ MATH 0280, 1180, or 1185 Linear Algebra
- \_\_\_ MATH 0290 or 1270 Differential Equations

### Grade requirements

A minimum GPA of 2.0 in departmental courses is required for graduation.

### Satisfactory/No Credit option

No PHYS courses beyond the introductory level may be taken on an S/NC basis.

### Writing (W) requirement

Students must complete at least one course in the major.

### Honors major requirements

Honors in physics is granted if in addition to fulfilling all requirements for the major, the student

- x maintains a GPA of 3.2 or higher in the major
- x maintains a cumulative GPA of 3.0 or higher
- x completes PHY 110 or PHY 111