Physics Major (B.S.) (Combined B.S./M.S. Pure & Applied Mathematics)

A minimum of 120 credits of coursework is required for the baccalaureate degree with a minimum 2.0 overall GPA, and a minimum 2.0 major GPA. However, more than 120 credits may be required depending upon the major field of study.

Students interested in this combined program should consult the Undergraduate Advisor after completing MATH 335.

Program Requirements

Students must complete 42 credits of General Education requirements (http://catalog.montclair.edu/undergraduate-graduate-degree-requirements/general-ed-ba-bs) and 3-9 credits of World Languages and Cultures Requirements (http://catalog.montclair.edu/undergraduate-graduate-degree-requirements/world-languages-cultures-requirement).

Requirements for the graduate portion of this dual degree program can be found here (http://catalog.montclair.edu/programs/pure-applied-mathematics-concentration-ms-combined-bs-ms).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 191</td>
<td>University Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 192</td>
<td>University Physics II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 210</td>
<td>Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 240</td>
<td>Electricity and Magnetism</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 350</td>
<td>Optics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 460</td>
<td>Modern Physics</td>
<td>4</td>
</tr>
</tbody>
</table>

**Physics Elective Courses**

Select a minimum of 14 credits from the following: 14

- EAES 105: Physical Geology
- PHYS 245: Electronics and Digital Circuits
- PHYS 280: Astronomy
- PHYS 310: Advanced Mechanics
- PHYS 320: Thermodynamics
- PHYS 368: Fluid Mechanics
- PHYS 377: Mathematical Physics
- PHYS 380: Observational Astronomy
- PHYS 430: Computer Simulations of Physical Systems
- PHYS 462: Nuclear Physics
- PHYS 464: Quantum Mechanics
- PHYS 470: Solid State Physics
- PHYS 480: Astrophysics
- PHYS 490: Literature Research in Physics
- PHYS 495: Laboratory Research in Physics

**Collateral Courses**

- CHEM 120: General Chemistry I
- CHEM 121: General Chemistry II
- CSIT 111: Fundamentals of Programming I
- MATH 122: Calculus I
- MATH 221: Calculus II

**Prerequisite Courses**

- MATH 335: Linear Algebra 1
- MATH 431: Foundations of Modern Algebra 1

**Graduate Requirements**

Select 12 credits of the following: 12

- MATH 515: Intermediate Analysis I
- MATH 516: Intermediate Analysis II
- MATH 518: Foundations of Abstract Algebra

Select 6-12 credits from the following if equivalent courses not taken previously: 2

- MATH 521: Real Variables I
- MATH 525: Complex Variables I
- MATH 530: Mathematical Computing
- MATH 531: Abstract Algebra I
- MATH 535: Linear Algebra I
- MATH 560: Numerical Analysis
- MATH 584: Operations Research
- MATH 591: Applied Industrial Mathematics

Total Credits: 84

1 Prerequisites for graduate courses.
2 These courses will also count toward the MS portion of this program.