Physics, M.S.

Master of Science

- **Credit Hours**: Students are required to complete a minimum number of 30 graduate-level credit hours in Physics or Astronomy.
- **Grade Point Average**: Students must earn a minimum cumulative GPA of 2.75 and a minimum GPA of 2.75 in courses applied to the degree.
- **Benchmarks**: For details, go to the Physics Degree Progress tab (http://catalog.wvu.edu/graduate/eberlycollegeofartsandsciences/physics/#degreeprogresstext).

### Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CORE COURSES</strong></td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>PHYS 611</td>
<td>Introduction to Mathematical Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 631</td>
<td>Advanced Classical Mechanics 1</td>
<td></td>
</tr>
<tr>
<td>PHYS 633</td>
<td>Electromagnetism 1</td>
<td></td>
</tr>
<tr>
<td>PHYS 651</td>
<td>Quantum Mechanics 1</td>
<td></td>
</tr>
<tr>
<td>PHYS 761</td>
<td>Statistical Mechanics</td>
<td></td>
</tr>
<tr>
<td>PHYS 796</td>
<td>Graduate Seminar</td>
<td></td>
</tr>
<tr>
<td>1 course in PHYS or ASTR at the 600 or 700 level</td>
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</tbody>
</table>

**COMPLETION OPTION:** 12

Select one completion option

**Non-Thesis Option:**
Select courses in PHYS or ASTR at the 600 level or above or courses from the Additional Coursework list **

Additional Coursework:

- CS 676  Machine Learning
- EE 528  Biomedical Microdevices
- EE 564  Digital Signal Processing for Radio Astronomy
- EE 650  Optoelectronics
- EDP 613  Statistical Methods 1
- EDP 614  Statistical Methods 2
- EDP 619  Survey Research Methods
- EDP 711  Multivariate Methods 1
- EDP 712 Multivariate Methods 2

**Thesis Option:**
- PHYS 797  Research

Total Hours 31

*At least 1 course in PHYS or ASTR must be taken at the 600 or 700 level. Courses excluded: ASTR 697, ASTR 796 Graduate Seminar, ASTR 797, PHYS 697, PHYS 796 Graduate Seminar, and PHYS 797

**Graduate courses from other departments may be substituted with approvals from the graduate studies committee. Courses excluded: ASTR 697, ASTR 796 Graduate Seminar, ASTR 797, PHYS 697, PHYS 796 Graduate Seminar, and PHYS 797

### Major Learning Outcomes

**PHYSICS AND ASTRONOMY**

The central missions of the Graduate Program in Physics are to train the next generation of Physicists and Astronomers for productive careers in the global economy, to teach them how to apply methods and physics principles to understand and explain the world around us and to expand the scientific boundaries of physics and astronomy.

Students earning a M.S. in Physics will be able to:
• Explain physics and astronomy principles as they pertain to their specific field of research.
• Demonstrate the ability to understand and critically evaluate the existing literature published within their field.
• Understand the ethical impact of personal and professional behavior.