Applied Physics

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An Interdisciplinary Program

An interdisciplinary program leading to the degree of Doctor of Philosophy in Engineering with a concentration in Applied Physics is available. A specific program, depending on the research interest of the student, is established by consultation between the student and his/her advisor.

Major areas of study include the following:

- Astrochemistry
- Astrophysics
- Computational physics
- Condensed matter physics
- Experimental and theoretical nuclear physics
- Experimental and theoretical optics
- Experimental atomic, molecular, optical, and plasma physics
- Experimental nanomaterials and nanoelectronics

Graduate research and teaching assistantships are available. For a complete listing of requirements and other pertinent information, please reference information provided in Physics and Astronomy (http://catalog.msstate.edu/graduate/colleges-degree-programs/arts-sciences/physics-astronomy/), College of Arts and Science, located in this publication.

Doctor of Philosophy in Engineering, Applied Physics Concentration

<table>
<thead>
<tr>
<th>Core Courses</th>
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<tbody>
<tr>
<td>PH 8213</td>
<td>Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>PH 8233</td>
<td>Methods of Theoretical Physics I</td>
<td>3</td>
</tr>
<tr>
<td>PH 8243</td>
<td>Methods of Theoretical Physics II</td>
<td>3</td>
</tr>
<tr>
<td>PH 8313</td>
<td>Electromagnetic Theory</td>
<td>3</td>
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<tr>
<td>PH 8743</td>
<td>Quantum Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>PH 8753</td>
<td>Quantum Mechanics II</td>
<td>3</td>
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Other Requirements

- Additional coursework in the area of specialization
- PH 9000 Research in Physics (at least 20 hours) | 20 |

Total Hours | 38 |

All Ph.D. candidates are required to take a minimum of 20 credit hours of PH 9000 Research/Dissertation. The committee for an individual student may require additional courses depending on the research area and background of the student. Ph.D. candidates must pass a comprehensive examination on the proposed dissertation topic. The comprehensive examination is comprised of a written document and an oral examination and must be attempted within the first 36 months of enrolling in the Ph.D. program.