The Department of Physics offers Master of Science degrees with several options. The standard physics MS can be obtained by taking a specified set of courses without an MS thesis. Alternatively, an MS thesis may substitute for 8 credit hours of course work. Both of these options may be pursued either full time or part time. Upon completion of the MS degree in physics, students should be able to apply graduate-level knowledge and solve problems in the areas of electrodynamics, quantum mechanics, classical mechanics, statistical mechanics, and advanced mathematical methods.

Grade Requirements
To qualify for the MS degree, a cumulative average of 3.000, equivalent to a grade of B, must be obtained. No more than two courses or 6 semester hours of credit, whichever is greater, may be repeated in order to satisfy the requirements for the MS degree. A student who does not maintain a 3.000 cumulative average for two consecutive semesters, or is otherwise not making satisfactory progress toward the MS degree requirements, may be recommended for termination at the discretion of the graduate committee.

Within the above limitations, a required course for which a grade of F is received must be repeated with a grade of C or better and may be repeated only once. Elective courses in which an F has been received may be repeated once to obtain a C or better.

Transfer Credit
Students must petition, in writing, through the graduate committee to the director of graduate student services for all transfer credit. An official transcript must be attached to the Request for Transfer Credit form. A maximum of 8 semester hours of credit obtained at another institution may be accepted toward the MS degree provided that the credits transferred consist of a grade of B or better in graduate-level courses, have been earned at an accredited U.S. institution, and have not been used toward any other degree. Grades are not transferred.

Current MS Students Interested in the PhD Program
MS students interested in applying to the PhD program must complete the internal admission application.

Special Student Status
Special students are allowed to earn credit for a maximum of 12 semester hours. Students interested in taking more than 12 semester hours must make a formal application to the degree program online.

Course Work
There is a total of 32 semester hours of course work required as a minimum. There are two options for the MS degree:

Option 1 is the standard physics MS with or without an MS thesis. Up to 8 semester hours of courses can be substituted with an MS thesis.

Option 2 is the MS with a specialization (up to 23 semester hours of courses) in applied physics, engineering physics, biophysics, chemical physics, material physics, mathematical physics, and computational physics.

Graduate students desiring the MS with thesis option should arrange a thesis with a faculty advisor. The student may choose a field of research from three possible areas as outlined under the PhD dissertation section. The thesis must demonstrate the individual's capacity to execute independent work based on original material. The thesis must be approved by the graduate committee. The thesis may be completed in one semester (e.g., summer semester) or in consecutive semesters. Students who have not completed their thesis after the required number of thesis credits (12 semester hours) must register for MS Thesis with the appropriate course number each subsequent semester until the thesis is approved by the graduate school and submitted electronically to Proquest.

Both options require a minimum of 32 semester hours of graduate credit. The 32 semester hours may include up to 8 semester hours of transfer credit as approved by the physics department's graduate committee and the graduate school.

Program Requirements
Complete all courses and requirements listed below unless otherwise indicated.

Required Core
Fall Term 1
- PHYS 7301 Classical Mechanics/Math Methods 4
- PHYS 7302 Electromagnetic Theory 4
- PHYS 7315 Quantum Theory 1 4
May be taken either first or second year:
- PHYS 7321 Computational Physics 4

Spring Term 1
- PHYS 7305 Statistical Physics 4
- PHYS 7316 Quantum Theory 2 4

Options
- Course work
- Thesis
- Thesis with specialization

COURSE WORK OPTION
Note: In consultation with your faculty advisor you may choose an area of specialization from physics, engineering, chemistry, biology, mathematics, psychology, or computer science. Additional elective courses are listed in the PhD program.

Electives
Complete 8 semester hours from the following:
- PHYS 5111 Astrophysics and Cosmology
- PHYS 5113 Introduction to Particle and Nuclear Physics
- PHYS 5114 Physics of Advanced Materials
- PHYS 5115 Quantum Mechanics
- PHYS 5116 Complex Networks and Applications
- PHYS 5260 Introduction to Nanoscience and Nanotechnology
- PHYS 5318 Principles of Experimental Physics
- PHYS 7323 Elementary Particle Physics
- PHYS 7324 Condensed Matter Physics
- PHYS 7731 Biological Physics 1
THESIS

Thesis

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHYS 7990</td>
<td>Thesis</td>
<td>1-4</td>
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Elective

Complete 4 semester hours from the following: 4

- PHYS 5111 Astrophysics and Cosmology
- PHYS 5113 Introduction to Particle and Nuclear Physics
- PHYS 5114 Physics of Advanced Materials
- PHYS 5115 Quantum Mechanics

THESIS WITH SPECIALIZATION

Applied physics, engineering physics, biophysics, chemical physics, materials physics, mathematical physics, or computational physics.

Thesis

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<tbody>
<tr>
<td>PHYS 7990</td>
<td>Thesis</td>
<td>1-4</td>
</tr>
</tbody>
</table>

Core/Electives

Complete course work in consultation with faculty advisor. 28

Program Credit/GPA Requirements

32 total semester hours required
Minimum 3.000 GPA required

Note that the specialization will not appear on the degree diploma or on the official transcript but can be listed as the field of study on CVs and grant proposals.