

# PHYSICS, M.S.

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The Department of Physics at Marshall offers a Master of Science with major in physics, within the Physics and Applied Sciences master's degree program. Students with an undergraduate degree in physics or related fields are encouraged to apply to this major to advance in their knowledge of physics, and to pursue their career goals in industry, government or teaching. The Marshall physics master's major has been designed to meet the needs of students who are either interested in obtaining an M.S. in Physics as their terminal degree, or want to have further graduate study in physics, astronomy or other fields. A master's serves as a bridge to a Ph.D. program. Moreover, graduates with an M.S. in Physics usually are hired into positions which require a high level of problem-solving or technical skills, in the federal or private sector.

## Program Requirements

General Requirement: Students need to complete a minimum of 32 credits with thesis (36 without thesis) with a GPA of 3.0 or better.

## Plan of Study

| Code  | Title                       | Credit Hours |
|---|-----------------------------|--------------|
| <b>Required Courses</b>   |                             |              |
| PHY 600   | Electricity and Magnetism I | 4            |
| PHY 608   | Statistical Mechanics       | 4            |
| PHY 630   | Classical Mechanics         | 4            |
| PHY 642   | Adv Quantum Mechanics       | 4            |
| PHY 645   | Methods of Math. Physics    | 4            |
| <b>Elective Courses</b>   |                             |              |
| Select 6 credit hours of elective courses, among which one Advanced Lab is required |                             | 6            |
| <b>Thesis/Non-Thesis Options</b>  |                             |              |
| Select one of the following:  |                             | 6-10         |
| Thesis (6 CH)   |                             |              |
| Elective Courses (10 CH)  |                             |              |
| Total Credit Hours  |                             | 32-36        |

Students can choose between the thesis option and non-thesis option to complete the requirements for the M.S. program.

*Thesis Option:* Research opportunities in the Physics Department are broad. Faculty members in the Physics Department are doing their research in theoretical and experimental condensed matter physics, nanoscience, solar cells, laser physics, optics, gravitational physics and astrophysics. Students can choose to work with one of the faculty members on a research direction the faculty and the students choose. A thesis must be submitted to a committee of 3 faculty members and presented after that in an oral exam.

*Non-thesis Option:* Students who already complete all required courses and labs and do not want to do a thesis can fulfill the requirement by taking elective courses from the graduate level courses offered by the Physics Department.