

# MASTER OF SCIENCE IN PHYSICAL SCIENCES

## Concentration in PHYSICS

[www.emporia.edu/physics](http://www.emporia.edu/physics)

The physics concentration is designed to serve the needs of those planning to advance in a teaching career, enter industrial or governmental work, or continue graduate education at the doctoral level. Students benefit from small classes, a student-oriented faculty, research opportunities, and a flexible curriculum.

### **Admission Requirements**

For admission to the physics concentration program, the applicant must have completed at least two physics courses for which introductory physics is a prerequisite and must have a demonstrated proficiency in calculus. Students may be admitted on a provisional status, and will be informed upon admission of any specific deficiencies which must be addressed.

### **Qualifying Examination**

Students are required to pass a qualifying examination covering specific topics in physics including classical mechanics, electromagnetism, waves, optics, thermodynamics, atomic physics, subatomic physics and special relativity. (Two semesters of introductory physics and one semester of modern physics can provide adequate preparation for the exam.) This examination will be administered prior to the completion of 12 graduate credit hours. More information on the qualifying examination is available from the Departments of Physical Sciences Office, Cram Science Hall, room 133.

### **Degree Requirements**

Two degree options are available. In the more research-intensive thesis option, students are required to complete a minimum of 30 credit hours including a thesis (a maximum of 8 hours may be research and/or thesis). The research report option requires a minimum of 32 credit hours (a maximum of 6 hours may be research). Per University Graduate School guidelines, a student must earn a cumulative 3.0 grade point average in all courses used for the degree. A minimum of 60 percent of the credit hours must be in courses numbered 700 or higher. Students must present the results of their thesis or research project at a scheduled departmental seminar. Immediately following the seminar, the student's graduate committee will examine the candidate orally over the thesis or research report and related topics. For complete degree requirements, the student should consult the current graduate policies at <http://www.emporia.edu/grad/pol.htm>.

### **Graduate Committee**

Students pursuing a graduate degree must have their work approved and supervised by a graduate committee. This graduate committee is appointed by the recommendation of the department. The student's research advisor will generally serve as the chairperson of the committee. A student's graduate committee must approve the program of study including the outline of the research topic.

### **Required Courses**

A masters degree program with a physics concentration requires a minimum of 15 credit hours in physics courses. Advanced-level courses in classical mechanics, electromagnetism, and an advanced laboratory course are required as a common core for all graduate students, e.g., PH 760, Mechanics I and PH 762, Electricity and Magnetism I are required. The advanced laboratory requirement can be met with any physics laboratory course at the 500-level or above. The degree program will include additional hours of approved electives to meet the minimum number of hours required for the degree option selected.

### **Seminar Participation**

Students are expected to attend and participate in scheduled physics seminars during the entire period of full-time graduate study, whether enrolled in such seminars for credit or not. A maximum of two credit hours in seminar may be applied toward the degree.