Ph.D. in Physics

Overview

Degree Requirements

Description

Graduate work in physics is planned primarily to meet the needs of students who are looking forward to professional careers in physics, either as teachers or as research physicists.

Minimum Total Credit Hours: 54

Course Requirements

In addition to the general Graduate School requirements, candidates for the Ph.D. must complete a minimum of 54 credit hours of graduate course work exclusive of thesis credit (Phys 697), in a program approved by the student's advisory committee. Core courses consisting of Thermodynamics and Statistical Mechanics (Phys 627), Advanced Mechanics (Phys 609), Quantum Mechanics (Phys 611, 612), Atomic and Nuclear Physics (Phys 607), Solid State Physics (Phys 625), and Advanced Electromagnetic Theory (Phys 621, 622) are required of all candidates. Six hours of credit in a related field such as mathematics, chemistry, or engineering (or a field approved by the chair) are required, and 12 hours are recommended. A total of 30 hours of credit must be in physics courses at the 600 level.

Other Academic Requirements

The preliminary examination shall cover the following fields: classical and quantum mechanics, thermodynamics, optics, electricity and magnetism, modern physics, and experimental physics.

The comprehensive examination has both written and oral components. The written part consists of three three-hour examinations as follows: 1) quantum mechanics; 2) classical mechanics, thermodynamics, and statistical mechanics; 3) electromagnetic theory. The oral part of the exam can be taken only after the written part has been passed.