

M.S. Applied Physics

Program of Study

Prospective students may apply for graduate school at UNCC, check the status of their application, and find more information here.

The Master of Science program in Applied Physics offers three program concentrations and two degree options.

- Applied Physics Concentration (Thesis and Non-thesis Options)
- Applied Optics Concentration (Thesis Option)

A student should decide on a concentration and option prior to completion of their first year of residence.

The Applied Physics Concentration is excellent preparation for those planning to continue their education through the Ph.D., either in physics or an engineering field, or for a career as an instructor in a two-year college. Students electing the Thesis Option will be well qualified for employment in industry or in a research laboratory. The Applied Optics Concentration is designed for students intending to pursue a career in optics fields such as optoelectronics, optical communications, optical metrology, etc. This concentration would also be excellent preparation for those planning to continue their education through the Ph.D. in optics.

Additional Admission Requirements

In addition to fulfilling the university's general requirements for graduate admission at the Master's level, applicants seeking admission into the M.S. in Applied Physics program must also:

- Possess a Bachelor's degree in Physics, or a closely allied field, usually from an accredited college or university. Applicants from fields other than Physics may expect to be required to remove deficiencies in their physics background.
- Present satisfactory scores on the aptitude portion of the Graduate Record Examination.
- Possess an overall grade point average of at least 2.75 (based on a 4.0 scale) on all of the applicant's previous work beyond high school. The average in the major should be 3.0 or better.
- Present satisfactory scores on the Test of English as a Foreign Language, if the applicant is from a non- English speaking country.
- Demonstrate evidence of sufficient interest, ability, and preparation in physics to adequately profit from graduate study, as determined by the Physics & Optical Science Department's Graduate Committee.

Degree Requirements

All degree options require the completion of 30 credit hours approved by the Physics and Optical Science Department. A minimum of 15 credit hours presented for the degree must be in courses numbered 6000 and above. Courses for which

undergraduate credit has been awarded may not be repeated for graduate credit. A minimum grade point average of 3.0 is required on all coursework attempted for the degree. At the time of admission up to 6 semester hours of graduate transfer credit may be accepted if approved by the Physics & Optical Science Department and the Graduate School. All candidates for the degree must pass a final examination administered by the student's Advisory Committee.

A student selecting a concentration having a thesis option must present credit for at least 6 semester hours of PHYS 6991. The thesis defense is the final examination for a student selecting the thesis option.

A student selecting a concentration having a non-thesis option must pass a final examination administered by the student's Advisory Committee.

Applied Physics Concentration

Entering students not having the equivalent of PHYS 4222, PHYS 4232, or PHYS 4242 are required to take PHYS 5222, PHYS 5232, and/or PHYS 5242, as appropriate, before the end of their first year of residence. A student electing this concentration may, with departmental approval, apply up to 9 semester hours from such related areas as Optics, Mathematics, Chemistry, and Engineering toward the 30 credit hour degree requirement.

Admission to Candidacy

In addition to the general requirements for admission to candidacy, students enrolled in the Master of Science program in Applied Physics program should have:

- Removed all identified entrance deficiencies by the time of application for admission to candidacy,
- Completed at least 18 approved credit hours with a GPA of 3.0 or better, and
- Selected a major advisor and formed an advisory committee.

Assistantships

Support for beginning graduate students is usually a teaching assistantship. Continuing students are often supported by research assistantships.

Comprehensive Examination

All candidates for the degree must pass a final examination. The thesis defense is the final examination for those students who select the thesis option.

A student selecting a concentration having a non-thesis option must pass a final examination administered by the student's Advisory Committee. Subject matter for the examination will be prepared by the student's Advisory Committee and given to the student at least 30 days prior to the examination date. The student will make an oral presentation to members of the Committee that is based upon the prepared response. Committee members may question the student on any and all aspects of the relevant test material.

Advisory Committee

Each student in the M.S. in Applied Physics Program must have a major advisor and an advisory committee. The student should select a major advisor before the end of the first year of residency. The student and the major advisor jointly determine the advisory committee. The advisory committee must have at least 3 members, the majority of which must be from the Department of Physics and Optical Science. The major advisor and the advisory committee must be in place prior to applying for degree candidacy.

Applied Optics Concentration

The Applied Optics Concentration is designed to accept students having undergraduate majors in physics, chemistry, and engineering. Entering students not having the equivalent of PHYS 4242 are required to take PHYS 5242 before the end of their first year of residence. Students electing the Applied Optics Concentration must present credit for a minimum of 15 credit hours in courses having an OPTI prefix. The 15 credit hours of courses having an OPTI prefix must include OPTI 6101, 6102, and 6104. The remaining 6 credit hours needed to complete the degree requirement may, with departmental approval, be selected from Physics, Optics, Chemistry, and Engineering courses.

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