PHYSICS (MS)

Master of Science in Physics
Unit: College of Arts and Sciences (https://artsandsciences.louisville.edu/) (GA)
Department: Physics & Astronomy (https://artsandsciences.louisville.edu/physics-and-astronomy)
Academic Plan Code(s): PHYSMS, PHYSMS_ACC

Program Information

Mission Statement

The Master of Science degree in Physics will prepare students for PhD level graduate work in Physics or a related STEM discipline, or for a science-related career in education or industry. Students in this program develop strong analytical, quantitative, and problem-solving skills, including a deep appreciation for connections between physics and scientific computing, physics and engineering, or physics and mathematics, that serve to expand their career options in computer hardware/software companies, large semiconductor industries and many non-STEM job sectors such as finance, business and health care.

General Information

The MS is a two-year degree program available to qualified individuals possessing a bachelor's degree in Physics from an accredited college or university. Students with a bachelor's degree in other related subjects, e.g., Mathematics, Chemistry, or Engineering, also will be considered.

Qualified students will be considered for Graduate Teaching Assistantships (GTAs). As part of the educational experience, GTAs perform certain undergraduate teaching responsibilities in exchange for a stipend and full tuition remission.

The MS can be earned via a thesis or non-thesis option. The thesis option requires at least six (6) credit hours of research leading to submission of the thesis. Non-thesis students are also required to become involved in research.

Soaring Scholar Accelerated BS/MS in Physics

Undergraduate students interested in the program's accelerated option should visit the catalog page for the BS in Physics (https://catalog.louisville.edu/undergraduate/majors/physics-bs/) for more information.

MS Admission Requirements

Departmental requirements for admission are as follows:

- A baccalaureate degree with at least 24 credit hours in physics, or the equivalent.
- A minimum quality-point standing of 3.0 (base 4.0) in physics courses.
- Mathematics coursework through differential equations. (MATH 405 or equivalent).

For general information concerning admission to graduate programs at the University of Louisville consult the application directions from the Graduate School (https://graduate.louisville.edu/admission/apply).

Program Admission Procedure

Admission into the Physics MS program is competitive. The application procedure is as follows:

- Submit a completed graduate application (https://graduate.louisville.edu/admission/apply) to the University of Louisville Graduate School, together with the required application fee. Admitted students are most commonly accepted to begin their program of studies in the Fall semester (which starts in late August). However, programs beginning in the Spring semester (which begins in early January) can be arranged. There is no formal application deadline, but to ensure full consideration for Fall entry applications should be received no later than February 1.
- Official transcripts from each university or college attended must be submitted to the Graduate School
- Arrange for at least two letters of recommendation to be sent to the Graduate School. These letters should be written by persons familiar with the applicant's academic work. Please use the recommendation form from the Graduate School (http://louisville.edu/graduate/futurestudents/apply-materials/application) or complete the relevant section in the online application so that your letter writers will receive an email request to submit their recommendation electronically.
- All applicants, whose native language is not English, are required to achieve a TOEFL score greater than 79 on the internet-based test, a composite score of at least 6.5 on the IELTS test, or Duolingo score of 105. Students holding a bachelor's degree from an accredited institution in the United States are exempt from this requirement.

In individual cases, the department may recommend conditional admission of a student who does not satisfactorily meet the above requirements. If admission is granted, that student will be subject to those conditions specified by the Department of Physics and Astronomy, the College of Arts and Sciences, and the Graduate School as being necessary to remedy the conditional admission.

Program Requirements

Specific requirements for the MS degree in Physics are as follows:

Thesis Option

Code	Title	Hours
PHYS 605	Theoretical Mechanics	3
PHYS 611	Electromagnetic Theory I	3
PHYS 621	Quantum Mechanics I	3
PHYS 622	Quantum Mechanics II	3
Physics Electives [1]		6-9
Courses in one minor field [2]		3-9
PHYS 699	Research	6
At least 21 credit hours must be at the 600 level or above		
Minimum Total Credit Hours		**30**

[1] Courses numbered 500 or above. Courses at 500 level or above which are required for the BA/BS degree will not normally satisfy this requirement.

[2] Mathematics is the usual minor, but another field may be chosen with the approval of the department.

Non-Thesis Option

Code	Title	Hours
PHYS 605	Theoretical Mechanics	3
PHYS 611	Electromagnetic Theory I	3
PHYS 621	Quantum Mechanics I	3
PHYS 622	Quantum Mechanics II	3
Physics Electives [1]		12-15
Courses in one minor field [2]		3-9
PHYS 699	Research	3
At least 17 credit hours must be at the 600 level or above		
Minimum Total Credit Hours		**33**

[1] Courses numbered 500 or above. Courses at 500 level or above which are required for the BA/BS degree will not normally satisfy this requirement.

[2] Mathematics is the usual minor, but another field may be chosen with the approval of the department.