Duluth Campus

Physics M.S.

UMD-Physics & Astronomy

Swenson College of Science and Engineering

Link to a list of faculty for this program.

Contact Information:
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Email: umdphys@d.umn.edu
Website: http://www.d.umn.edu/physics/grad/

- Program Type: Master's
- Requirements for this program are current for Fall 2023
- Length of program in credits: 30
- This program requires summer semesters for timely completion.
- Degree: Master of Science

Along with the program-specific requirements listed below, please read the General Information section of the catalog website for requirements that apply to all major fields.

The Physics MS program provides a grounding in the fundamentals of physics, combined with significant research involvement. The primary areas of research are computational physics, high-energy neutrino physics, experimental work in condensed-matter physics, and observational and theoretical work in physical limnology and oceanography.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Prerequisites for Admission

The preferred undergraduate GPA for admittance to the program is 3.00.

An undergraduate degree in physics or related field is required.

Other requirements to be completed before admission:
Three letters of recommendation are required.

The application deadline is July 15; however, applications received by April 1 receive full consideration.

Special Application Requirements:
International and domestic applicants whose first language is not English must submit current score(s) from the following tests:

International applicants must submit score(s) from one of the following tests:

- TOEFL
  - Internet Based - Total Score: 79
  - Internet Based - Writing Score: 21
  - Internet Based - Reading Score: 19
- IELTS
  - Total Score: 6.5
  - Reading Score: 6.5
  - Writing Score: 6.5

Key to test abbreviations(TOEFL, IELTS).

For an online application or for more information about graduate education admissions, see the General Information section of the catalog website.

Program Requirements

Plan A: Plan A requires 20 major credits, 0 credits outside the major, and 10 thesis credits.The final exam is oral.

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Plan B: Plan B requires 30 major credits and 0 credits outside the major.The final exam is oral. A capstone project is required.
Capstone Project: The Plan B project requires a written report representing a minimum of 120 hours of total effort.

This program may be completed with a minor.

Use of 4xxx courses toward program requirements is permitted under certain conditions with adviser approval.

A minimum GPA of 3.00 is required for students to remain in good standing.

Core Courses (11 credits)
Take the following courses. Take PHYS 5090 twice for a total of 2 credits.
PHYS 5090 - Physics Seminar (1.0 cr)
PHYS 5501 - Advanced Classical Mechanics (3.0 cr)
PHYS 5511 - Electrodynamics (3.0 cr)
PHYS 5521 - Quantum Mechanics I (3.0 cr)

Methods Course (3 credits)
Select one of the following courses in consultation with the advisor:
PHYS 5052 - Computational Methods in Physics (3.0 cr)
PHYS 5053 - Data Analysis Methods in Physics (3.0 cr)
PHYS 5061 - Experimental Methods (3.0 cr)

Plan Options

Plan A
Thesis credits
Take 10 thesis credits.
PHYS 8777 - Thesis Credits: Master's (1.0 - 18.0 cr)
Electives
Select 6 credits to complete the 20 course credits required for the for Plan A. The overall plan of study and selection of specific elective courses must form a cohesive program and be approved by the DGS and the advisor. With prior approval, courses outside the PHYS designator may count as electives and are encouraged if they are appropriate to the students goals.

-OR-

Plan B
Plan B Project
Take 1 project credit.
PHYS 5794 - Plan B Research Project (1.0 - 4.0 cr)
Electives
Select 15 credits to complete the 30 course credits required for Plan B. The overall plan of study and selection of specific elective courses must form a cohesive program and be approved by the DGS and the advisor. With prior approval, courses outside the PHYS designator may count as electives and are encouraged if they are appropriate to the students goals.

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