Twin Cities Campus

Medical Physics M.S.

Radiation Oncology Administration, Radiology

Medical School

Link to a list of faculty for this program.

Contact Information:
Radiation Oncology, Mayo Mail Code 494, 420 Delaware Street S.E., Minneapolis, MN 55455 (phone: 612-626-6505; fax: 612-626-7060)
Email: alaei001@umn.edu
Website: https://www.radiationoncology.umn.edu/medical-physics-graduate-program

- Program Type: Master's
- Requirements for this program are current for Fall 2018
- Length of program in credits: 30
- This program does not require summer semesters for timely completion.
- no
- 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 program is made up of faculty members with primary appointments in the departments of radiation oncology and radiology. Affiliate faculty have primary appointments in other departments. The goal of the program is to prepare students (1) for further education, teaching, and research in medical physics, (2) to qualify to enter a medical physics residency program in radiation therapy or imaging, and (3) to provide the mathematical and technical knowledge needed to succeed in the field of medical physics.

Accreditation

This program is accredited by Commission on Accreditation of Medical Physics Education Programs, Inc. (CAMPEP)

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.

A degree in physics or engineering or other physical science. Equivalent of an undergraduate physics minor-at least 2 semesters of calculus based physics and at least 3 upper level physics courses.

Other requirements to be completed before admission:
All students should have some familiarity with physical chemistry, intermediate physics, intermediate mathematics, biostatistics, computer programming, biology, physiology, and biochemistry. This may be demonstrated by coursework completed at the undergraduate level or as part of the graduate program; by reading or practical experience; or by informal competency examinations.

Special Application Requirements:
Three letters of recommendation and the general GRE test are required. If the GRE was taken more than two years prior to application, the applicant may need to retake the examination. We have no absolute GRE cutoff score, but the score is taken into consideration along with other factors in the evaluation of each application. Applicants with a graduate degree from a US institution are waived the GRE requirement. Applicants are considered for admission in fall semester only.

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
- MELAB
  - Final score: 80

Key to test abbreviations(TOEFL, IELTS, MELAB).

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

Program Requirements

Plan B: Plan B requires 30 major credits and 0 credits outside the major.The final exam is oral.

This program may not be completed with a minor.

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

A minimum GPA of 2.8 is required for students to remain in good standing.

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

Required Courses (24 Credits)

Take all of the following courses. Take MPHY 5138 for 1 credit.
MPHY 5138 - Research Seminar (1.0 - 5.0 cr)
MPHY 5160 - Advanced Radiation Physics and Dosimetry (3.0 cr)
MPHY 5170 - Radiation Therapy Physics I (3.0 cr)
MPHY 5171 - Medical and Health Physics of Imaging I (3.0 cr)
MPHY 5172 - Radiation Biology (3.0 cr)
MPHY 5173 - Radiation Therapy Physics II (3.0 cr)
MPHY 5174 - Medical and Health Physics of Imaging II (3.0 cr)
PHSL 5061 - Principles of Physiology for Biomedical Engineering (4.0 cr)
PHAR 5201 - Applied Medical Terminology (2.0 cr)

Electives (6 Credits)

Take at least 6 electives credits, in consultation with the advisor, to complete the 30-credit requirement.
MPHY 5177 - Radiation Therapy Physics Lab: Radiation Physics Basics (3.0 cr)
MPHY 5178 - Physical Principles of Magnetic Resonance Imaging (3.0 cr)
MPHY 8147 - Advanced Physics of Magnetic Resonance Imaging (MRI) (3.0 cr)
MPHY 8148 - Advanced Digital Imaging Science (3.0 cr)
MPHY 8149 - Advanced Topics in Radiation Therapy Physics (2.0 cr)

ADDITIONAL REQUIREMENTS (NOT FOR CREDIT)

In the fall semester of their first year, students must take the University ethics training: Responsible Conduct of Research (RCR), Parts 1 (a 3-hour session offered about 4 times/year) and 2.