

M.S. IN MEDICAL RADIATION DOSIMETRY

Overview

The Master of Science in Medical Radiation Dosimetry is a degree for those who seek professional qualification and employment as medical radiation dosimetrists. This 38-credit, one-year program grounds the student in the rudiments of clinical oncology, radiation physics, radiation biology, human anatomy, medical imaging, and radiation treatment technology, which the radiation dosimetrist applies continually in practice. Graduates can expect to enter employment directly as radiation dosimetrists eligible for professional certification. The program requires one year of full-time commitment, a substantial part of which is clinical training in the University of Miami Department of Radiation Oncology under the supervision of practicing dosimetrists and medical physicists. Of the 38 credits required, 12 are traditional classroom courses, eight are research seminar courses, in which students review current academic literature and formulate a research project to be completed by the year's end. The remaining 18 credits are clinical with a lecture component. A final comprehensive exam is also required.

Admission Requirements

Applicants for admission must hold at least a Bachelor of Science or Bachelor of Applied Science Degree or equivalent, with a minimum grade point average of 3.0 or must have graduated from an accredited radiation therapy program and hold a bachelor's degree with minimum grade point average of 3.0. Successful candidates will have completed post-secondary work in basic mathematics and physics, biology, anatomy and physiology, and oral and written communication. All applicants must complete a minimum of 16 hours of clinical shadowing of a certified Medical Dosimetrist before submitting their application. Those with insufficient background may be admitted provisionally at the discretion of the admissions committee while they do remedial work. Preference will be shown to those who have completed at least one year of physics and calculus. Submission of TOEFL scores will be required of candidates who have not earned degrees in the United States.

Curriculum Requirements

Code	Title	Credit Hours
RON 601	Clinical Oncology and Anatomy for Medical Dosimetry	2
RON 603	Radiation Biology for Medical Dosimetry	2
RON 605	Quality and Safety in Radiotherapy	2
RON 610	Radiation Oncology Physics I	3
RON 611	Radiation Oncology Physics II	3
RON 620	Seminar in Medical Dosimetry I	3
RON 621	Seminar in Medical Dosimetry II	3
RON 622	Seminar in Medical Radiation Dosimetry III	2
RON 810	Medical Dosimetry Practicum I	6
RON 811	Medical Dosimetry Practicum II	6
RON 812	Medical Dosimetry Practicum III	6
Total Credit Hours		38

Graduation Requirements

The Master of Science degree in medical radiation dosimetry requires 38 credit hours, eight of which are research based, with the remainder course and practical work. A cumulative grade point average of 3.0 is required. No transfer of credit may be used in fulfillment of these requirements.

Candidates for the master's degree will need to demonstrate competency by passing a comprehensive written examination set by an examination committee of at least three instructors during the final summer session of the program. Master's candidates must also pass an oral examination on their capstone research project. Re-examination of a student failing either exam may occur at the discretion of the committee and must be completed within one year of failure but not during the same summer session as the original exam.

Plan of Study

Year One	Credit Hours
Fall	
Clinical Oncology and Anatomy for Medical Dosimetry	2
Medical Dosimetry Practicum I	6
Radiation Oncology Physics I	3
Seminar in Medical Dosimetry I	3
Credit Hours	14

Spring	
Radiation Biology for Medical Dosimetry	2
Medical Dosimetry Practicum II	6
Radiation Oncology Physics II	3
Seminar in Medical Dosimetry II	3
Credit Hours	14
Summer	
Quality and Safety in Radiotherapy	2
Medical Dosimetry Practicum III	6
Seminar in Medical Dosimetry III	2
Credit Hours	10
Total Credit Hours	38

Mission

The mission of the University of Miami's graduate program in medical radiation dosimetry is to equip students with the skills and knowledge to provide excellent medical dosimetry service to radiotherapeutic practice and to foster students' curiosity, critical and analytical thinking, and creativity so they can contribute to the growth of their field.

Goals

The program's primary educational objective is to provide clinical, didactic, and research experience consistent with curricular recommendations of the American Association of Medical Radiation Dosimetrists and the Joint Review Committee on Education in Radiologic Technology (JRCERT) such that upon program completion graduates can work as entry level medical radiation dosimetrists and pass professional certification examination by the Medical Dosimetrist Certification Board, which they will be eligible to take pending the program's accreditation by the latter body JRCERT.

While these goals are highly specific, the program commits itself not merely to the training of niche workers, but also to the cultivation of students' interpersonal, technical, and scientific communication skills, to the development of the critical appreciation of the contemporary research in their field, and to the multiple skills, analytical, integrative, discursive, and computational, and creative, that are called upon by those engaged in original research.

Students will have a structured, immersive clinical experience in the University of Miami Department of Radiation Oncology, consisting of rotations through major areas of medical dosimetry practice, supervised by University of Miami medical dosimetrists and medical physicists and supplemented by parallel classroom instruction in the practice of medical dosimetry. Didactic courses will be taught by faculty physicians, medical physicists, and biologists and will provide foundational training in core topics of anatomy and oncology, medical physics, radiation biology, and radiation oncology quality management. Finally, under the supervision of medical physicists, students will review systematically the recent medical dosimetry and allied literatures so that they may develop and perform capstone research projects conceived with the explicit goal of publication in any of several journals of medical dosimetry, medical physics, or radiation oncology.

Student Learning Outcomes

Upon completion of the program, students will be able to:

- demonstrate medical dosimetry treatment planning skills by generating for multiple treatment sites clinically acceptable plans
- evaluate treatment plans and successfully formulate, apply, and justify orally and in writing strategies for their improvement
- accurately and precisely communicate radiotherapy treatment planning issues orally and in writing with dosimetrists, medical physicists, and radiation oncologists
- successfully appreciate, report on orally and in writing, and analyze contemporary research efforts (*for those pursuing the MS degree*)
- successfully propose, implement, and report on a novel research project and to participate in its preparation for publication (*for those pursuing the MS degree*).