Master of Science in Medical Dosimetry  
Track 2 Course Curriculum

The total curriculum consists of 30 semester hours. Students may enroll full or part time for this program. For individuals employed full time, part time enrollment is recommended.

**Fall Semester**

**RAD 511-3 Fundamentals of Health Care Systems** - This course provides a multi-disciplinary analysis and is designed to provide students with information pertaining to the issues surrounding access to care, medical technology, and the complex financial structure of the health care system. Students will extensively examine aspects of the complex health care system such as managed care, Medicare, Medicaid, pharmaceuticals, health promotion and disease prevention, and the quality of care.

**RAD 516-3 Cultural Foundations and Theories of Education** - This seminar provides a multi-disciplinary examination of the historical, social, economic and psychological foundations of allied health education with particular emphasis given to the nature and role of education and training in preparing people for the field of medical education. The primary objectives of this seminar will be to allow the student to explore the nature and theories of education, the behavioral aspects of education including the assumptions and practices which underlie education, and to identify the strengths and weaknesses of various educational practices.

**RAD 520-3 The Physics of Medical Dosimetry I** - This course covers the following topics: Radiologic Physics, production of x-rays, radiation treatment and simulation machines, interactions of ionizing radiation, radiation measurements, dose calculations, computerized treatment planning, dose calculation algorithms, electron beam characteristics, and brachytherapy physics and procedures. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

**RAD 525-3 Seminars in Medical Dosimetry I** - This course consists of various seminars/literature reviews associated with radiation oncology. Topics include treatment techniques for various cancers, technological advances in cancer treatment, cancer treatment trends, and the role of a medical dosimetrist. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

**Spring Semester**

**RAD 531-3 Human Resource Management in Health Care** - This course carefully examines and describes how the key human resource functions play a significant role in the health care environment. It focuses heavily on how each particular human resource function supports management initiatives. With a strategic focus, this course methodically scrutinizes how human
resource functions such as employee selection, development, motivation, and appraisal can impact a health care organization’s ongoing business continuity. It also thoroughly examines how health care employees, managers, and administrators must operate within the dynamic legal environment of human resources.

**RAD 536-3 Introduction to Administration and Supervision in Allied Health** - This course provides students with an in-depth examination of the nature, function, and techniques of administration and supervision in medical imaging departments. This is accomplished through a series of case analyses and practice simulations of human problems in the healthcare organization and application of findings of behavioral science research to healthcare problems. Particular emphasis will be placed on the development of direction and leadership skills.

**RAD 540-3 The Physics of Medical Dosimetry II** – This course covers the following topics: imaging for radiation oncology, IMRT, stereotactic radiosurgery, special procedures, particle therapy, hyperthermia, and radiation safety. This course is twenty weeks in length. Prerequisite: A grade of “C” or better in RAD 520.

**RAD 545-3 Seminar in Medical Dosimetry II** - This course consists of various seminars/literature reviews associated with radiation oncology. Topics include treatment techniques for various cancers, technological advances in cancer treatment, cancer treatment trends, and the role of a medical dosimetrist. Prerequisite: This course is twenty weeks in length. Prerequisite: A grade of “C” or better in RAD 525.

**Summer Semester**

**RAD 551-3 Legal and Ethical Fundamentals of Health Care** - This course provides students with an in-depth analysis of the legal and ethical environment of the health care industry. Comprehensive and focused on the health care environment, the course closely examines the judicial process specifically pertaining to torts, contracts, antitrust, corporate compliance, access to care, negligence, and professional liability. The nature of ethics in the multi-cultural health care environment is extensively examined with an analysis of the varying moral problems the health care industry is challenged with.

**RAD 556-3 Individual Research in Medical Dosimetry** – This course requires students to complete a research project in the field of Medical Dosimetry. Each project will have a written paper as a final product and this paper will be submitted for publication in one of the professional journals within the field of Radiation Oncology.

**RAD 565-1 to 6 Independent Study** - Directed independent study in select areas of medical dosimetry. Prerequisite: Consent of Program Director.
**Suggested Course Sequence**

Below is information indicating when courses are scheduled to be offered. A student may start with any semester in this sequence and if taking two courses per semester one is eligible to graduate in two years. If only taking one course per semester, a student will graduate in four years.

Spring Semester every odd year  
RAD 531  
RAD 536  

Summer Semester every odd year  
RAD 556  

Fall Semester every odd year  
RAD 511  
RAD 516  

Spring Semester every even year  
RAD 540  
RAD 545  

Summer Semester every even year  
RAD 551  

Fall Semester every even year  
RAD 520  
RAD 525  

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