

## **Master of Science in Medical Dosimetry**

### **Track 1 Course Curriculum**

**The total curriculum consists of 30 semester hours. Program length is 52 weeks and the students attend classes/clinical for 40 hours per week.**

Didactic component is approximately 300 - 350 hours.

Clinical component is approximately 1650 - 1700 hours. The student will have approximately 2000 hours of education per year and have 80 hours of vacation.

#### **Fall Semester**

**RAD 510-2 Simulation and Cross Sectional Anatomy in Medical Dosimetry** - This course covers the conventional and CT simulation techniques used in initiating radiation therapy for cancer patients. Identification of cross-sectional anatomy at different anatomical locations within the human body is also reviewed. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

**RAD 515-4 Medical Dosimetry Clinical I** - This is the first course of a three course sequence. During the three course sequence, students will complete eight clinical rotations including Brachytherapy, Simulation, Gamma Knife, Treatment Aids, IMRT, External Beam, Physics, Special Measurements and QA. The length of these rotations varies from one to eleven weeks. During this course students will perform two to four of these rotations depending on the rotation schedule. While in the clinical setting students will observe and work directly with a medical dosimetrist. Emphasis is given on learning and understanding the role and responsibilities of a medical dosimetrist in the clinical setting. This course is twenty weeks in length. Prerequisite: Admission to the Medical Dosimetry Program.

**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 530-2 The Essentials of Medical Dosimetry** - This course covers the various quality assurance procedures performed in a radiation oncology department. Also included are various statistics topics to educate the student in becoming a good consumer of medical dosimetry research literature. Professional development, billing/coding, HIPAA, and professional service are also addressed. This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 510, RAD 515, RAD 520, and RAD 525.

**RAD 535-4 Medical Dosimetry Clinical II** - This is the second of a three course sequence. During the three course sequence, students will complete eight clinical rotations including Brachytherapy, Simulation, Gamma Knife, Treatment Aids, IMRT, External Beam, Physics, Special Measurements and QA. The length of these rotations varies from one to eleven weeks. During this course students will perform two to four of these rotations depending on the rotation schedule. While in the clinical setting students will observe and work directly with a medical dosimetrist. Emphasis is given on learning and understanding the role and responsibilities of a medical dosimetrist in the clinical setting. This course is twenty weeks in length. Prerequisite: A grade of "C" or better in RAD 515.

**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 550-2 Medical Dosimetry Clinical III** - This is the third course of a three course sequence. During the three course sequence, students will complete eight clinical rotations including Brachytherapy, Simulation, Gamma Knife, Treatment Aids, IMRT, External Beam, Physics, Special Measurements and QA. The length of these rotations varies from one to ten weeks. During this course students will perform one to two of these rotations depending on the rotation schedule. While in the clinical setting students will observe and work directly with a medical dosimetrist. Emphasis is given on learning and understanding the role and responsibilities of a medical dosimetrist in the clinical setting. This course is ten weeks in length. Prerequisite: A grade of "C" or better in RAD 535.

**RAD 555-2 The Physics of Medical Dosimetry III** – This course covers the following topics: Monitor Unit (MU) calculations, point dose calculations and radiation biology. This course is ten

weeks in length. Prerequisite: A grade of "C" or better in RAD 540.

**RAD 560-2 Seminar in Medical Dosimetry III** - 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 ten weeks in length. Prerequisite: A grade of "C" or better in RAD 545.

### **Independent Study**

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

Program Director:

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