

**RAD 515**  
**Medical Dosimetry Clinical I**  
**Fall Semester Syllabus**

**COURSE DEFINITION:**

**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.

**COURSE OBJECTIVES:**

1. Demonstrate an understanding of the basic clinical concepts of medical dosimetry.
2. Demonstrate an understanding of theory and principles of operation of treatment planning computers.
3. Demonstrate an understanding of the different types of radiation production.
4. Understand and calculate radiation attenuation and decay.
5. Demonstrate an understanding of the different types of radiation detectors.
6. Demonstrate a basic understanding of treatment planning.
7. Demonstrate an understanding of the role of a medical dosimetrist.

**COURSE OUTLINE:**

**Topics**

1. Clinical rotations
2. Perform clinical competencies
3. External beam calculations
4. Brachytherapy calculations
5. Physics procedures

**COURSE REQUIREMENTS:**

Purchase all texts. Participate in clinical internship and purchase a T130XA scientific calculator.

**PREREQUISITES:** Admittance to the Medical Dosimetry Program.

**TEXTBOOKS:**

**Required:**

- Khan, F. M. (2020). *The physics of radiation therapy* (6<sup>th</sup> ed.). Philadelphia: Wolters Kluwer
- Khan, F.M. (2016). *Treatment planning in radiation oncology* (4<sup>th</sup> ed.). Philadelphia: Wolters Kluwer
- Washington, C. M., & Leaver, D. T. (2019). *Principles and practices of radiation therapy* (5th Ed). St. Louis: Mosby.

**Optional: (Students typically use clinical sites' copy)**

- Bentel, G. C. (1992). *Radiation therapy planning* (2nd ed.). New York: McGraw-Hill.
- Vann, A. M., et. al. (2013). *Portal design in radiation therapy* (3rd ed.). Augusta, Georgia: DMV Enterprises.

**GRADING SCALE:**

90-100	A
80-89	B
70-79	C
<70	Failing

Grades will be determined by:

Growth Evaluations	50%
Clinical Competencies & Reports	40%
Weekly Journal	10%

Late work will not be accepted. No credit will be awarded for work submitted after the deadline.

**Note: An overall GPA of 3.0 or greater in all graduate coursework is required to successfully complete the Medical Dosimetry Program. This is a SIUC Graduate School Policy.**

If a student receives two or more Growth Evaluations that are an 80% or below during one semester; their continuation in the Medical Dosimetry Program is at the discretion of the Program Director and Clinical Instructor. It is expected that all students consistently show “normal progress” in the development of their dosimetry skills and always demonstrate a positive attitude. Not meeting the normal progress guidelines justifies removal from the program as well. A grade of an “F” will be given for the semester in which the student is removed from the program.

If a student is removed from a clinical site for behavioral reasons, they must leave immediately and will not be allowed to continue the Medical Dosimetry Program. A grade of an “F” will be given for the semester they are removed.

All students must meet the minimum number of clinical competencies and show normal progress per rotation to continue with the program as there is no time available to go back and retake a specific clinical rotation. **By the end of the Fall semester, a student must have completed and posted 45 competencies and reports by the end of the semester with 20 completed by week 10 of the semester to meet normal progress guidelines.** All clinical competencies must be completed by the end of the summer semester to successfully complete the program. If has 7 total failed competencies (throughout entire program) or fails a particular competency 4 times, a student will be removed from the program. A grade of an “F” will be given for the semester in which the student does not fulfill the competency requirements.

If a student misses 4 days throughout the program their clinical grade will be lowered one letter grade. If a student misses six or more days during the year, the student can be removed from the program.