Medical Dosimetry (DOS) - Courses

Courses
DOS 411/511 Cr.1
Adv Radiologic Imaging for Medical Dosimetrist
This course reviews production of medical images with radiographic equipment as well as ultrasound, MRI and radionuclide scans. Web-based course. Prerequisite: acceptance into the Medical Dosimetry Program. Offered Fall.

DOS 412/512 Cr.1
Simulation for Medical Dosimetrist
Techniques of simulation of treatment set-ups are reviewed and advanced methods of virtual simulation are explored. Web-based course. Prerequisite: acceptance into the Medical Dosimetry Program. Offered Fall.

DOS 413/513 Cr.1
Anatomy for Medical Dosimetrist
Anatomical structure and function which affects treatment planning processes is addressed along with identification of anatomic structures on radiographs, CT and MRI images. Web-based course. Prerequisite: acceptance into the Medical Dosimetry Program. Offered Fall.

DOS 414/514 Cr.3
Physics Fundamentals for Medical Dosimetrist
Fundamental principles of physics important to the production and use of radiation for treatment purposes are reviewed and expanded. Dose measurement utilizing a variety of methods is discussed along with the appropriate instrumentation. Calibration methods for linear accelerators are also discussed. Prerequisite: acceptance into the Medical Dosimetry Program. Offered Fall.

DOS 415/515 Cr.1
Computers & Networking in Radiation Oncology
This course introduces students to basic computer terminology, features of hardware, peripherals, and clinical applications in radiation oncology. Types of networking and the components involved are discussed. Specific network protocols used in healthcare, imaging, and radiation oncology will be described. Prerequisite: acceptance into the Medical Dosimetry Program. Offered Fall.

DOS 416/516 Cr.1
Fundamentals of Radiation Safety
Radiation safety measures are reviewed and updated according to federal and state mandates. Web-based course. Prerequisite: acceptance into the Medical Dosimetry Program. Offered Fall.

DOS 418/518 Cr.1
Professionalism and Mentoring in Medical Dosimetry
This course introduces the student to professional practices of medical dosimetry including standards, scope of practice, ethics and legal perspectives. Students will also discuss the importance of education and mentoring in medical dosimetry. Different aspects of education in the profession will be examined to prepare the student for various roles as a medical dosimetry mentor. Prerequisite: acceptance into the Medical Dosimetry Program. Offered Fall, Spring, Summer.

DOS 422/522 Cr.2
Radiation Dose Calculations
This course introduces factors that affect dose delivered in radiation treatments and how these factors are accounted for in dose calculations. Web-based course. Prerequisite: DOS 411; acceptance into the Medical Dosimetry Program. Offered Spring.

DOS 423/523 Cr.3
Treatment Planning in Medical Dosimetry
Methods of treatment planning techniques for various diseases using single and multiple field arrangements using photons and electrons are discussed. Advanced treatment planning techniques of conformal radiation therapy including 3D treatment planning, IMRT, IGRT, Gating, Protons, and Stereotactic are also discussed. Prerequisite: DOS 411; acceptance into the Medical Dosimetry Program. Offered Spring.

DOS 425/525 Cr.2
Brachytherapy for Medical Dosimetrist
The use of Brachytherapy in radiation therapy is addressed. Characteristics of sources utilized for treatment as well as determination of source activity and dose delivered are included. Methods and instruments utilized to apply Brachytherapy treatment planning techniques to clinical treatment situations are discussed. Web-based course. Prerequisite: acceptance into Medical Dosimetry Program. Offered Spring.

DOS 431/531 Cr.3
Clinical Oncology for Medical Dosimetrist
This course covers cancer in general as well as specific disease sites, their treatment and management of patient care during treatment. Web-based course. Prerequisite: DOS 471; acceptance into the Medical Dosimetry Program. Offered Summer.

DOS 441/541 Cr.1
Radiobiology for Medical Dosimetrist
This course reviews the effect of radiation on the human body in the context of radiation treatments. It particularly focuses on factors affecting the therapeutic ratio. Web-based course. Prerequisite: DOS 472; acceptance into the Medical Dosimetry Program. Offered Fall.

DOS 442/542 Cr.1
Dosimetric Quality Assurance
The methods and importance of periodic quality assurance procedures of treatment planning equipment and processes are covered in this course. Web-based course. Prerequisite: DOS 472; acceptance into the Medical Dosimetry Program. Offered Fall.

DOS 443/543 Cr.1
Seminar in Medical Dosimetry
This course offers students an opportunity to practice answering questions and solving problems as they review course material to prepare for the national medical dosimetry certification board exam. Web-based course. Prerequisite: DOS 431; acceptance into the Medical Dosimetry Program. Offered Fall.

DOS 471 Cr.5
Dosimetry Clinical Practicum I
Students gain clinical experience in Simulation patient set-ups and imaging studies, physics and radiation safety in the clinical environment, anatomical contour segmentation, and computers and networking within the radiation oncology field. Students will begin basic calculations and treatment planning while being introduced to brachytherapy procedures. Web-based course. Prerequisite: DOS 411; acceptance into the Medical Dosimetry Program. Offered Spring.

DOS 472 Cr.5
Dosimetry Clinical Practicum II
Students continue to gain clinical experience at an affiliated clinical internship site by concentrating on more advanced treatment planning and Brachytherapy procedures while continuing to learn the various concepts of clinical oncology specific to patient treatments. Prerequisite: DOS 471; acceptance into the Medical Dosimetry Program. Offered Summer.
DOS 473 Cr.5
Dosimetry Clinical Practicum III
Students continue to improve their treatment planning and dosimetric skills, concentrating on advanced planning methods and quality assurance techniques. Prerequisite: DOS 472; acceptance into the Medical Dosimetry Program. Offered Fall.