DEPARTMENT OF RADIATION ONCOLOGY

Mitchell Anscher, M.D.
Florence and Hyman Meyers Endowed Chair

The Department of Radiation Oncology is a key unit in the Massey Cancer Center, a National Cancer Institute-designated unit directed to the delivery of effective treatment modalities, research critical to improvement in the treatment of cancer and the education of physicians and scientists who specialize in this critical area. The department includes a Clinical Division, focusing on the delivery of advanced radiotherapy services to patient populations, the Division of Molecular Radiobiology and Targeted Imaging, conducting research to refine the understanding of the cellular response to radiation and the development of functional targeted imaging to enhance therapy, and the Division of Medical Physics, which integrates research into methods to improve radiotherapy with Ph.D. training in medical physics.

- Medical Physics, Doctor of Philosophy (Ph.D.) (http://bulletin.vcu.edu/graduate/school-medicine/medical-physics-phd/)
- Medical Physics, Master of Science (M.S.) (http://bulletin.vcu.edu/graduate/school-medicine/medical-physics-ms/)
- Medical Physics, Certificate in (Post-baccalaureate graduate certificate) (http://bulletin.vcu.edu/graduate/school-medicine/medical-physics-certificate/)

MEDP 520. Introduction to Radiation Therapy Physics Laboratory. 1 Hour.
Semester course; 2 laboratory hours. 1 credit. Provides practical exercises in the radiation measurement devices and quality assurance procedures commonly employed in radiation therapy physics. Measurements of beam characteristics for treatment machines, including electron linear accelerators, and radioactive sources, including high dose rate brachytherapy are investigated.

MEDP 561. Topographical Anatomy and Physiology. 1 Hour.
Semester course; 1 lecture hour. 1 credit. Restricted to medical physics graduate students. This course will cover fundamental gross anatomy, pathology and physiology as necessary for medical physicists. It will include basic medical terminology and have a focus on cross-sectional CT imaging and MRI, as well as 2-D X-ray imaging. Basic information on pathophysiology of cancer diseases and cancer treatment strategies will be provided.

MEDP 563. Radiological Physics and Radiation Dosimetry. 3 Hours.
Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 376 and PHYS 380 or equivalents, or permission of instructor. Covers the fundamental conceptual, mathematical and physical aspects of radiation interactions with matter and energy deposition, including a thorough understanding of basic quantities and units. Application to the principles and methods of radiation detection and dosimetry will be emphasized.

MEDP 564. Radiological Physics and Radiation Dosimetry Lab. 1 Hour.
Semester course; 2 laboratory hours. 1 credit. Prerequisite: MEDP 563. Laboratory consisting of experiments and activities related with MEDP 563.
MEDP 637. Physics of Nuclear Medicine. 2 Hours.
Semester course; 2 lecture and 1 laboratory hours. 2 credits. Covers the physics of nuclear medicine imaging (including PET). Emphasis will be placed on the physical foundations of currently used diagnostic techniques and their relevance to the clinical setting.

MEDP 682. Clinical Rotations in Medical Physics. 1-3 Hours.
Semester course; variable hours. 1-3 credits. May be repeated for credit. Prerequisites: at least one graduate medical physics course and permission of instructor. Clinical rotations in various medical physics sub-specialties.

MEDP 689. Medical Physics Literature Review. 1 Hour.
Semester course; 1 lecture hour. 1 credit. Review and discussion of relevant journal articles from the medical physics literature. May be repeated for credit with instructor’s permission.

MEDP 697. Directed Research. 1-15 Hours.
Semester course; 1-15 credits. May be repeated for credit. Prerequisites: at least one graduate-level physics course and permission of instructor. Research leading to the M.S. or Ph.D. degree.