PhD in Medical Physics

New in 2022, the Doctor of Philosophy (PhD) in Medical Physics program at Washington University in St. Louis provides students with the opportunity to learn fundamental concepts and techniques and to perform academic research in the field of medical physics. The program is geared toward undergraduates with a strong background in physics and mathematics, graduate students with a physics and mathematics background from fields outside of medical physics, and continuing learners with a CAMPEP-accredited master's-level degree in medical physics. Students in the program will be exposed to a wide array of diagnostic medical imaging, radiation therapy, nuclear medicine, and radiation safety approaches and techniques, and they will perform cutting-edge research with renowned investigators. These experiences will equip students with the knowledge, skills and experiences necessary to further their careers in clinical and academic medical physics.

Admissions

For a list of PhD admissions requirements, please visit the Department of Radiation Oncology website (https://radonc.wustl.edu/education/master-of-science-in-medical-physics/admissions/).

Program Format

The program is designed for full-time study, with a minimum of 70 credit units required for degree completion. The program is comprised of 34 credit units of didactic course work, which is largely completed over the first two years of the program. There are 22 credit units of medical physics core classes and 12 credit units of elective course work, as well as a minimum of 36 credit units of thesis research. The program commences in the fall semester, and didactic courses will run over traditional 16-week schedules during the fall and spring semesters. During the summer, students will be expected to work on their thesis research project. Clinical shadowing opportunities will also be available for those who are interested.

Sample Course Schedule (70 credit units total)

Course	Fall Units	Spring Units	Summer Units
First Year			
Principles of Human Anatomy and Development (Biol 4580)	3	—	—
Radiation Protection and Safety (MedPhys 521)	2	—	—
Radiological Physics and Dosimetry (MedPhys 502)	3	—	—
Phd Research Rotation (MedPhys 503R)	3	—	—
Radiobiology (MedPhys 505)	—	2	—
Radiation Oncology Physics (MedPhys 506)	—	3	—
Biological Imaging Technology (ESE 589)	—	3	—
Phd Research Rotation (MedPhys 503R)	—	3	—
Summer Year 1: Optional additional lab rotation or transition to thesis research lab	—	—	
	11	**11**	**0**
Second Year			
Clinical Imaging Fundamentals (MedPhys 501)	2	—	—
Clinical Rotations (MedPhys 522)	1	—	—
Elective Course I	3	—	—
Elective Course II	3	—	—
Thesis Research	3	3	—
Advanced Clinical Medical Physics Laboratory (MedPhys 523)	—	2	—
Ethics, Professionalism and Current Topics (MedPhys 504)	—	1	—
Elective Course III	—	3	—
Elective Course IV	—	3	—
Summer Year 2 and Year 3+: Thesis research	—	—	24
	12	**12**	**24**