

# Radiation Science

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## College of Medicine

The Radiation Sciences division in the Department of Radiation Medicine offers a Plan B, non-thesis, Master of Science in Radiological Medical Physics degree and a Graduate Certificate in General Radiological Medical Physics. This program is one of a small number of academic medical physics offerings in North America accredited by CAMPEP, the Commission on Accreditation of Medical Physics Educational Programs. Our program offers a small class size (typically eight students per year) and emphasis on clinical training. With the clinical practicum, we offer a unique experience in clinical training with concentration in Radiation Therapy Physics. For more information, please visit <https://radiationmedicine.med.uky.edu/radiation-sciences-graduate-program>.

## Master of Science

### Admission Requirements

In addition to the general requirements of the Graduate School, the Radiological Medical Physics Program requires the following for MS candidates. At a minimum, candidates must show the equivalence of a minor in physics (as defined by CAMPEP). To meet this requirement, candidates must have completed the following: 1) Calculus through Ordinary Differential Equations; 2) The Calculus-based introductory General Physics sequence with labs (2 semesters); and 3) Three upper division Physics electives (junior level or above). Courses in Human Anatomy, Human Physiology, Computer Science, and Scientific Statistics are preferred but, if missing, may be incorporated into the graduate program at the discretion of the Director of Graduate Studies.

### Application Information

Application to the Radiation Sciences program is online through the Graduate School using the link <http://www.gradschool.uky.edu/ProspectiveStudents/prospective.html>. The applicant will be required to submit GRE General Test scores, transcripts for all undergraduate work, a personal statement, and contact information for three persons willing to provide letters of recommendation. Only self-reported, unofficial General GRE scores and transcripts are required at the time of application. Official versions must be submitted upon entry into the program. A CV may be included but is not required. A personal interview, typically on-campus, is required. However, on-line interviews may be allowed in cases of severe travel restrictions. Fluent spoken English skills are required and are assessed during the interview.

Admission to the program occurs once annually with new classes beginning in the Fall semester. The deadline for applications is April 30th, however, offers for admission are usually made early in the preceding spring semester with completion of the class roster by April 1st. There are a limited number accepted into our program (typically 8), therefore it is recommended that applications be completed by January 31st to assure full consideration. Applications received after the class roster is filled will not be reviewed.

### Degree Requirements

The Master of Science in Radiological Medical Physics is interdisciplinary. Plan B (non-thesis) guidelines are utilized for the graduate work, incorporating specific courses in several departments. There is no language requirement. A coursework outline is given as follows.

### Required Program Coursework

PHY/RM 472G      Interactions of Radiation with Matter      (3)

RAS/RM/PHY 545	Radiation Hazards and Protection	(3)
RAS/RM/PHY 546	General Medical Radiological Physics	(3)
RAS/RM 601	Advanced Radiation Dosimetry	(2)
RAS/RM 647	Physics of Diagnostic Imaging I	(3)
RAS/RM 648	Physics of Diagnostic Imaging II	(3)
RAS/RM 649	Physics of Radiation Therapy	(3)
RAS 651	Advanced Laboratory in Diagnostic Imaging Physics	(2)
RAS/RM 695	Research in the Health-Related Radiation Sciences	(2)
RAS 710	Radiation Science Seminar	(1)
RM/BIO 740	Mammalian Radiation Biology	(2)
Elective(s)		(3)

TOTAL CREDIT HOURS 30

**Available Electives (Partial Listing)**

RM 660	Graduate Practicum in Radiation Medicine	(1-6)
RAS/RM 650	Brachytherapy Physics	(2)
RM 842	Radiation Oncology	(1)
RM 848	Practicum in Brachytherapy Physics	(1-3)
RM 849	Practicum in External Beam Therapy Physics	(1-6)
EE 630	Digital Signal Processing	(3)
EE 635	Image Processing	(3)

**Graduate Courses**

RAS 472g	Interactions Of Radiation With Matter (Same As RM/PHY 472G)	(3)
RAS 545	Radiation Hazards And Protection (Same As RM/PHY 545)	(3)
RAS 546	General Medical Radiological Physics (Same As RM/PHY 546)	(3)
RAS 601	Advanced Radiation Dosimetry (Same As RM 601)	(2)
RAS 647	Physics Of Diagnostic Imaging I (Same As RM 647)	(3)
RAS 648	Physics Of Diagnostic Imaging II (Same As RM 648)	(3)
RAS 649	Physics Of Radiation Therapy (Same As RM 649)	(3)
RAS 650	Brachytherapy Physics (Same As RM 650)	(3)
RAS 651	Advanced Laboratory In Diagnostic Imaging Physics	(1-3)
RAS 695	Research In Health-Related Radiation Sciences (Same As RM 695)	(1-4)
RAS 710	Radiation Science Seminar	(1)
RM 660	Graduate Practicum In Radiation Medicine	(1-6)
RM 740	Mammalian Radiation Biology (Same As BIO 740)	(2)
EE 630	Digital Signal Processing	(3)
EE 635	Image Processing	(3)