

PHYSICS AND ASTRONOMY, M.SC.

Degree Requirements

A Master's degree in physics normally consists of both coursework and a thesis. For students in the Comprehensive Medical Physics M.Sc. program, the course load is increased and the thesis requirement is replaced by research project.

The Master's program with thesis consists of two or three courses from the 7000 series offered by the department or from another department offering courses suitable for the candidate's program. In special cases, courses may be drawn from the 4000 series as listed. The program of study extends through a minimum period of twelve months. Frequently two summers of research work plus one winter of research and coursework are required to complete the program. In addition to coursework, these students must submit a thesis and defend it orally.

The Comprehensive M.Sc. program in medical physics is a two-year (18-month, course work, 6-month research project) program which requires 36 credits. A clinical research project in an approved laboratory and the submission of a research report is also required. On completion of the coursework and research project, the student will be required to pass a comprehensive oral examination.

Expected Time to Graduate: 2 years

Progression Charts

Thesis Program

Course	Title	Hours
Year 1		
GRAD 7300	Research Integrity Tutorial	0
GRAD 7500	Academic Integrity Tutorial	0
Courses at the 7000 level		6
Courses at the 3000 level or above ¹		6
Hours		12
Year 2		
GRAD 7000	Master's Thesis	0
Hours		0
Total Hours		12

¹ All undergraduate courses chosen from outside the department must be relevant to the thesis work.

Comprehensive Program in Medical Physics

Course	Title	Hours
Year 1		
GRAD 7300	Research Integrity Tutorial	0
Hours		0
Term 1		
PHYS 7390	Radiation Protection	3
PHYS 7360	Medical Radiation Physics	3
GRAD 7500	Academic Integrity Tutorial	0
Hours		6
Term 2		
PHYS 7370	Radiation Therapy Physics	3

PHYS 7470	Methods in Medical and Health Physics 2 - (Radiotherapy and Radiation Biology) ¹	3
BME 7012	Foundation of Physiology ²	
ANAT 7014	Functional Human Anatomy ²	
Hours		6
Years 1-2		
Select up to 12 credit hours of additional elective courses ³		6
Hours		6
Year 2		
Term 1		
PHYS 7380	Radiation Biology	3
PHYS 7400	Linear Systems for Imaging	3
PHYS 7422	Physics of X-ray Imaging	3
Hours		9
Term 2		
PHYS 7410	Diagnostic Methods	3
PHYS 7430	Physics of Nuclear Medicine	3
PHYS 7460	Methods in Medical and Health Physics 1 - (Medical Imaging and Radiation Protection) ¹	3
PHYS 7700	Research Project in Medical Health Physics	0
GRAD 7010	Comprehensive Examination	0
GRAD 7000	Master's Thesis	0
Hours		9
Total Hours		36

¹ Research-based M.Sc. or Ph.D. Students should NOT take PHYS 7460 and PHYS 7470.

² Students who have not taken Anatomy or Physiology at an undergraduate level (BIOL 1410, BIOL 1012 or BIOL 2410 or equivalent) are required to take ANAT 7014 Functional Human Anatomy (2) and/or BME 7012 Foundation of Physiology (2) in addition to the courses listed above.

³ Up to 12 credit hours of additional electives may be taken to achieve a minimum of 36 credit hours of coursework and to meet program needs. At least 6 credit hours must be courses at the 7000 level, while 6 credit hours may be 4000 or higher level courses. Approved 4000 level courses include PHYS 4386, PHYS 4250, PHYS 4516, PHYS 4646.