

Master of Science in Medical Physics

The Master of Science in Medical Physics (M.S.M.P.) degree program is intended to prepare students for productive careers as medical physicists. The program is designed to be completed in one and one-half years by well-motivated, full-time students. The M.S.M.P. has the following course credit-hour requirements:

	With Thesis	Without Thesis
Required Medical Physics Courses	28	28
Elective Medical Physics Courses	0	3
Other Elective Courses	0	6
Clinical Rotation	3	3
Thesis	9	0
Total for Degree	40	40

The required courses for this degree are:

- MP 4750 Diagnostic Imaging Physics
- MP 6101 Nuclear Medicine Physics
- MP 6203 Radiation Therapy Physics Laboratory
- MP 6204 Radiation Therapy Physics
- MP 6300 Radiological Anatomy
- MP 6401 Medical Health Physics
- MP 6402 Radiation Dosimetry
- MP 6407 Radiation Biology and Oncology
- MP 6756 Radiation Physics
- MP 6757 Radiation Detection
- MP 8011 Seminar in Medical Physics I
- MP 8012 Seminar in Medical Physics II
- MP 8104 Clinical Rotation

Some suggested elective courses for this degree are:

- MP 880X Special Topics in Medical Physics
- MP 890X Special Problems in Medical Physics
- BIOL 4015 Cancer Biology and Biotechnology
- ECE/BMED 6780 Medical Imaging Processing
- ECE/BMED 6786 Medical Imaging Systems
- ECE/BMED 6793 Systems Pathophysiology
- NRE/ME 6758 Numerical Methods
- NRE 6101 Transport Fundamentals
- NRE 6103 Computational Methods of Radiation Transport
- NRE 6105 Radiation Shielding
- NRE 6755 Radiological Assessment and Waste Management
- ISYE 6401 Statistical Modeling and Design of Experiments
- ISYE 6411 Fundamentals of Statistics with Applications
- ISYE 6644 Simulation
- ISYE 6661 Optimization I
- ISYE 6739 Basic Statistical Methods
- PUBP 6010 Ethics, Epistemology, and Public Policy
- PUBP 6310 Environmental Issues
- PUBP 6314 Policy Tools for Environmental Management
- PUBP 6324 Environmental and Technological Risk Management
- PUBP 6401 Science Technology and Public Policy

Clinical Rotation (MP8104)

On-campus students will work with clinical medical physicists at Emory University's hospital and clinic or at the Memorial Health University Medical Center in Savannah, Georgia. The clinical rotation class topics will be distributed in three areas:

- Nuclear Medicine
- Diagnostic Imaging
- Radiation Therapy

Distance-Learning (DL) students are required to fulfill the clinical rotations and laboratories at their own (or nearby) facilities. In this case, the DL student must first submit the necessary information for approval to the course coordinator before admittance into the program.

Prerequisites for MP 8104 are MP 4750, MP 6204, MP 6402, MP 6407. It is also desirable that student have taken MP 6300 and MP 6757 before registering for the clinical rotation course. All students must have obtained a C or higher in four required courses to register for the clinical rotation course. All students must have obtained a C or higher in four required courses to register for the clinical rotation course.

No more than six semester hours at the 4000 level can be counted toward the degree requirements. The items listed below cannot be used to meet the course requirements for the M.S.M.P. degree:

- Any course in which you do not receive a grade of C or higher
- Any course taken for a nonletter grade (except thesis, transfer credit, or advanced standing)
- Any course required for the B.S.M.E. degree
- CETL course work

Distance learning (DL) students are required to travel to Georgia Tech to complete any course with an on-campus experimental laboratory requirement and to complete the oral examinations for the clinical rotation courses.

ABR Physics Requirement:

Students of the MP program are expected to satisfy the American Board of Radiology (ABR) physics requirement prior to graduation from the program. Those who have a bachelors’ degree in physics or applied physics automatically satisfies the ABR requirement to apply for part 1 of the Radiologic Physics exam. Other physical science and engineering bachelors’ degrees are eligible if the appropriate fundamental physics courses have been completed equivalent to a minor in physics. A minor in physics includes general physics with calculus courses and at least three upper level (3000 level or higher) courses. The faculty of the MP program have developed the following guideline to assist you in meeting the ABR physics requirement.

- Similarly named upper level engineering or science courses from other departments in the following areas listed may be counted as equivalent to a physics course in meeting the upper level physics requirements:

- Electricity and Magnetism
- Atomic Physics/Nuclear Physics
- Quantum Mechanics
- Mechanics
- Thermodynamics / Statistical Physics

Sample 3 Semester Curriculum (Nonthesis Option) for On-Campus Students

First Year	Courses	Credit
Fall	Radiation Physics (NRE/MP 6756) ^a	3
	Radiation Biology & Oncology (MP 6407) ^b	3
	Radiation Protection & Dosimetry (MP 6402)	2
	Radiological Anatomy (MP 6300)	1
	Elective	3
	Semester Total	12
Spring	Radiation Detection (MP/NRE 6757)	3

	Diagnostic Imaging Physics (MP 4750)	3
	Radiation Therapy Physics (MP 6204)	4
	Seminar in Medical Physics I (MP 8011)	1
	Elective	3
	Semester Total	14
Summer	Clinical Rotation (MP 8104) ^{b,c}	3
	Semester Total	3
Second Year		
Fall	Nuclear Medicine Physics (MP 6101)	3
	Medical Health Physics (MP 6401)	3
	Radiation Therapy Physics Laboratory (MP 6203)	1
	Seminar in Medical Physics II (MP 8012)	1
	Elective	3
	Semester Total	11
	Total Credit Hours	40

^aStudents who have not had an undergraduate course in radiation physics or the equivalent covering the material in NRE 3301 are advised to take that course as a make-up prior to NRE/MP6756. NRE 3301 cannot be counted towards the credit hour requirement.

^b Biology 3751 (3 credit hours) is a prerequisite for MP 6405 which can be taken concurrently with MP 6405 if needed. Biology 3751 cannot be counted toward the credit hour requirement.

^cPrerequisites: MP 4750, MP 6204, MP 6402, and MP 6407.