

# PHYSICS MEDICAL PHYSICS

## REQUIREMENTS

**CORE CURRICULUM** The Core Curriculum is designed to foster critical thinking skills and introduce students to basic domains of thinking that transcend disciplines. The Core applies to all majors. Information on specific classes in the Core can be found at [marshall.edu/gened](http://marshall.edu/gened).

### CORE 1: CRITICAL THINKING

CODE	COURSE NAME	HRS	GRADE
FYS 100	First Year Seminar	3	_____
MTH 229	Critical Thinking Course	5	_____
_____	Critical Thinking Course	3	_____
<b>Additional University Requirements</b>			
_____	Writing Intensive	3	_____
_____	Writing Intensive	3	_____
_____	Multicultural or International	3	_____
PHY 491/492	Capstone	2	_____

### CORE 2:

CODE	COURSE NAME	HRS	GRADE
ENG 101	Beginning Composition	3	_____
ENG 201	Advanced Composition	3	_____
_____	Core II Communication	3	_____
MTH 229	Calculus I	5	_____
_____	Core II Humanities	3	_____
_____	Core II Social Science	3	_____
_____	Core II Fine Arts	3	_____
BSC 120	Principles of Biology	4	_____

### MAJOR-SPECIFIC

All Medical Physics majors are required to take the following courses:

CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE
PHY 202	General Physics I Lab	1	_____	CHM 211	Principles of Chemistry 1	3	_____
PHY 211	University Physics	4	_____	CHM 217	Principles of Chemistry 1 Lab	2	_____
PHY 204	General Physics II Lab	1	_____	CHM 212	Principles of Chemistry II	3	_____
PHY 213	University Physics II	4	_____	CHM 218	Principles of Chemistry II Lab	2	_____
PHY 300	Electricity and Magnetism	3	_____	CHM 355	Organic Chemistry	3	_____
PHY 304	Optics	3	_____	CHM 356	Organic Chemistry II	3	_____
PHY 405	Optics Lab	2	_____	CHM 361	Organic Lab	3	_____
PHY 308	Thermal Physics	3	_____	CHM 365	Intro to Biochemistry	3	_____
PHY 320	Intro Modern Physics	3	_____	BSC 120	Principles of Biology	4	_____
PHY 330	Mechanics	3	_____	BSC 121	Principles of Biology II	4	_____
PHY 360	Medical Physics	3	_____	_____	PHY Elective (PHY 350 Rcmd.)	3	_____
PHY 421	Modern Physics Lab	2	_____	MTH 230	Calculus II	4	_____
PHY 491/492	Capstone (C)	2	_____	MTH 231	Calculus III	4	_____
PHY 442	Quantum Mechanics	3	_____				
PHY 445	Math Methods of Physics	3	_____				
PHY 446	Math Methods of Physics II	3	_____				

### MAJOR INFORMATION

- Students are required to know and track their degree requirements for graduation or for entrance to a professional school.
- In addition to the Core General Education requirements, the College of Science requires 3 hours of Calculus, and 40 hours of upper level credit.
- Coursework listed as "elective" may vary for each student. Students are encouraged to use elective hours toward a 2nd minor or toward prerequisites.
- Students are strongly encouraged to select courses that meet two or more Core or College requirements. For example, a writing intensive literature course could satisfy the Core II humanities requirement as well as the university writing intensive requirement.
- Course offerings and course attributes are subject to change each semester.

- Please consult each semester's schedule of courses for availability and attributes.
- Math is based on an ACT Mathematics score of 27 or higher. Students with an ACT Mathematics score less than 27 will be placed in the appropriate prerequisite mathematics and science courses.
- In order to graduate, students must maintain a 2.00 Overall GPA and receive a grade of C or better in each course required for the major.

Major Requirement  
 Area of Emphasis  
 College Requirement  
 General Education Requirement

Milestone Course: This is a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.

# PHYSICS MEDICAL PHYSICS

A course of study in physics, resulting in a B.S. degree in physics, prepares students for a wide variety of opportunities, such as engineering careers in the private sector, careers in the health professions, employment in industry and government laboratories, advanced technology jobs in science and technology related fields, and careers as science teachers. The B.S. degree program is also excellent preparation for advanced degrees in physics, astronomy, engineering, medicine, or law. Medical Physics is designed for those who are interested in going to the medical school, or working in a biochemical physics field.

		FALL SEMESTER				SPRING SEMESTER				
		CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE	
YEAR ONE		PHY 202	General Physics I Lab	◆	1		ENG 201	Advanced Composition	●	3
		PHY 211	University Physics	◆	4		PHY 204	General Physics II Lab	◆	1
		MTH 229	Calculus I (CT)	●◆	5		PHY 213	University Physics II	◆	4
		ENG 101	Beginning Composition	●	3		_____	Core II Social Science	●	3
		FYS 100	First Year Sem Crit Thinking	●	3		MTH 230	Calculus/Analytical Geom II	◆	4
		UNI 100	Freshman First Class		1					
		<b>TOTAL HOURS</b>		<b>17</b>		<b>TOTAL HOURS</b>		<b>15</b>		
Summer Term (optional):										
		FALL SEMESTER				SPRING SEMESTER				
		CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE	
YEAR TWO		PHY 320	Intro Modern Physics	◆	3		PHY 446	Math Methods of Physics II	◆	3
		PHY 421	Modern Physics Lab	◆	2		CHM 212	Principles of Chemistry II	◆	3
		PHY 445	Math Methods of Physics	◆	3		CHM 218	Principles of Chemistry II Lab	◆	2
		CHM 211	Principles of Chemistry I	◆	3		PHY 304	Optics	◆	3
		CHM 217	Principles of Chemistry I Lab	◆	2		PHY 405	Optics Lab	◆	2
		MTH 231	Calculus/Analytical Geom III	◆	4		_____	Multicultural or International (CT)	●	3
		<b>TOTAL HOURS</b>		<b>17</b>		<b>TOTAL HOURS</b>		<b>16</b>		
Summer Term (optional):										
		FALL SEMESTER				SPRING SEMESTER				
		CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE	
YEAR THREE		CHM 355	Organic Chemistry I	◆	3		PHY 442	Quantum Mechanics	◆	3
		PHY 300	Electricity & Magnetism	◆	3		_____	PHY Elective (PHY 350 Rcmd.)	◆	3
		PHY 330	Mechanics	◆	3		CHM 356	Organic Chemistry II	◆	3
		PHY 308	Thermal Physics	◆	3		CHM 361	Intro Organic CHM Lab	◆	3
							_____	Core II Communication	●	3
		<b>TOTAL HOURS</b>		<b>12</b>		<b>TOTAL HOURS</b>		<b>15</b>		
Summer Term (optional):										
		FALL SEMESTER				SPRING SEMESTER				
		CODE	COURSE NAME	HRS	GRADE	CODE	COURSE NAME	HRS	GRADE	
YEAR FOUR		PHY 491	Capstone	●◆	1		PHY 492	Capstone	●◆	1
		_____	Core II Humanities	●	3		PHY 360	Medical Physics	◆	3
		BSC 120	Principles of Biology	●◆	4		BSC 121	Principles of Biology II	◆	4
		CHM 365	Intro to Biochemistry	◆	3		_____	Core II Fine Arts	●	3
		_____	Writing Intensive	●	3		_____	Writing Intensive	●	3
		<b>TOTAL HOURS</b>		<b>14</b>		<b>TOTAL HOURS</b>		<b>14</b>		
Summer Term (optional):										

◆ Area of Emphasis

◆ Major Requirement

■ College Requirement

● General Education Requirement

Milestone Course: This is a key success marker for your major. See your advisor to discuss the importance of this course in your plan of study.