BIO PHYSICS, EMPHASIS

- General Education Course

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

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 https://www.marshall.edu/gened/.

Course Requirements

Code	Title	Credit Hours
Core Curriculum		
Core 1: Critical Thinking		
FYS 100	First Yr Sem Critical Thinking	3
MTH 229	Calculus/Analytic Geom I (CT)	5
Critical Thinking Course		3
Core 2		
ENG 101	Beginning Composition	3
ENG 201	Advanced Composition	3
Core II Communication		3
MTH 229	Calculus/Analytic Geom I (CT)	5
Core II Humanities		3
Core II Social Science		3
Core II Fine Arts		3
BSC 120	Principles of Biology I (Core II Natural/Physical Science)	3
BSC 120L	Principles of Biology I Lab	1
Additional University Requirements		
PHY 350	Biological Physics (Writing Intensive)	3
Writing Intensive		3
Multicutural or International		3
PHY 491 & PHY 492	Capstone and Capstone	2
Major-Specific		
BSC 120	Principles of Biology I	3
BSC 120L	Principles of Biology I Lab	1
BSC 121	Principles of Biology	4
BSC 121L	Prin of Biology II Lab	1
BSC 322	Principles Cell Biology	4
CHM 211	Principles of Chemistry I	3
CHM 212	Principles Chemistry II	3
CHM 217	Principles of Chem Lab I	2
CHM 218	Principles of Chem Lab II	2
PHY 211	University Physics I	4
PHY 202	General Physics I Laboratory	1
PHY 213	University Physics II	4
PHY 204	General Physics 2 Laboratory	1
PHY 304	Optics	3
PHY 405	Optics Lab	2
PHY 300	Electricity & Magnetism	3
PHY 308	Thermal Physics	3
PHY 330	Mechanics	3
PHY 320	Intro Modern Physics	3
PHY 350	Biological Physics (WI)	3
PHY 421	Modern Physics Lab	2
PHY 442	Quantum Mechanics	3
PHY 445	Math Methods of Physics	3
PHY 446	Math Methods of Physics II	3
PHY 491	Capstone	1
PHY 492	Capstone	1
Physics Elective		3
Physics Elective		3
MTH 230	Calculus/Analytic Geom II	4
MTH 231	Calculus/Analytic Geom III	4
BSC 417	Biostatistics	3
Free Elective (BSC recommended for Minor)		4
Free Elective		3
Free Elective		3
Free Elective		3
Free Elective		2

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.
- Advanced physics courses are offered every two to three semesters; check with the Physics Department for availability.
- Let the Department Chair know if you have an interest in a particular elective course as soon as possible.

Semester Plan

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. Bio Physics is designed for those who are interested in future study or work in a biophysics or biotechnological field.

First Year

First Semester

		Credit Hours
PHY 211	University Physics I	4
PHY 202	General Physics I Laboratory	1
MTH 229	Calculus/Analytic Geom I (CT)	5
FYS 100	First Yr Sem Critical Thinking	3
ENG 101	Beginning Composition	3
UNI 100	Freshman First Class	1
	Credit Hours	**17**

Second Semester

MTH 230	Calculus/Analytic Geom II	4
PHY 204	General Physics 2 Laboratory	1
PHY 213	University Physics II	4
ENG 201	Advanced Composition	3
Core II Social Science (MC/I)		3
	Credit Hours	**15**

Second Year

First Semester

MTH 231	Calculus/Analytic Geom III	4
PHY 320	Intro Modern Physics	3
PHY 421	Modern Physics Lab	2
PHY 445	Math Methods of Physics	3
CHM 211	Principles of Chemistry I	3
CHM 217	Principles of Chem Lab I	2
	Credit Hours	**17**

Second Semester

PHY 446	Math Methods of Physics II	3
CHM 212	Principles Chemistry II	3
CHM 218	Principles of Chem Lab II	2
PHY 304	Optics	3
PHY 405	Optics Lab	2
	Credit Hours	**13**

Third Year

First Semester

BSC 120	Principles of Biology I	3
BSC 120L	Principles of Biology I Lab	1
PHY 300	Electricity & Magnetism	3
Core II Humanities (WI, CT)		3
PHY 308	Thermal Physics	3
PHY 330	Mechanics	3
	Credit Hours	**16**

Second Semester

BSC 121	Principles of Biology	4
BSC 121L	Prin of Biology II Lab	1
PHY 350	Biological Physics (WI)	3
PHY 442	Quantum Mechanics	3
Core II Communication		3
CHM 355	Organic Chemistry I	3
	Credit Hours	**17**

Fourth Year

First Semester

PHY 491	Capstone	1
PHY Elective		3
BSC 322	Principles Cell Biology	4
Core II Fine Arts		3
Free Elective		3
	Credit Hours	**14**

Second Semester

PHY 492	Capstone	1
PHY Elective		3
BSC 417	Biostatistics	3
Free Elective (BCS recommended for Minor)		4
Free Elective		3
	Credit Hours	**14**
	Total Credit Hours	**123**