Physics (Biophysics), Bachelor of Science

Program Overview

A Physicist has a solid understanding of fundamental laws, which in turn can be applied to a wide area of scientific and engineering fields. It is an exciting career that requires discipline and significant amount of work. It also requires development of mathematical, experimental, theoretical, and computational skills. As a result of the Physicist's solid and broad background, Physicists can apply to a wide range of job opportunities, including National Laboratories and Research Centers, Industry, and Academia.

Core Curriculum - 42 hours

The Core Curriculum serves as a broad foundation for the undergraduate degree. All candidates for a bachelor's degree must achieve core student learning outcomes, including communication, critical thinking, empirical and quantitative skills, teamwork, personal responsibility, and social responsibility, by completing courses within each category or component area of the Core Curriculum as outlined below.

The University has approved specific courses that satisfy Core Curriculum Requirements. Approved courses can be found on the Core Curriculum Page. Students seeking the most efficient way to complete the core curriculum and major or minor requirements are advised to take approved courses that can fulfill both requirements. Although core curriculum courses can also be used to fulfill major or minor requirements, earned credits hours are only applied once.

The courses listed below fulfill core curriculum and major requirements. Students who have completed a core curriculum category with courses other than those listed below will still be required to take the listed course(s) to meet major requirements.

020 Mathematics - 3 hours

MATH 2413	Calculus I	4

Three credit hours from MATH 2413 applies.

030 Life and Physical Sciences - 6 hours

PHYS 2425	Physics for Scientists and Engineers I	4
PHYS 2426	Physics for Scientists and Engineers II	4

Six credit hours from PHYS 2425 and PHYS 2426 apply.

090 Integrative and Experiential Learning - 6 hours

CSCI 1380	Introduction to Programming in Python	3
PHYS 2425	Physics for Scientists and Engineers I	4
PHYS 2426	Physics for Scientists and Engineers II	4
BIOL 1406	General Biology I	4

Three credit hours from the lab component of PHYS 2425, PHYS 2426, and BIOL 1406 applies.

Major Requirements - 78 hours

Required Courses - 48 hours

~~PHYS 1311~~	~~Learning to be a Physicist~~	~~3~~
PHYS 2380	Special Topics in Physics	
PHYS 2327	Physics for Scientists and Engineers III	3
PHYS 3305	Classical Mechanics	3
PHYS 3303	Thermodynamics	3
PHYS 3304	Optics	3
PHYS 3402	Modern Physics	4
PHYS 3411	Math Methods in Physics I	4

PHYS 3412	Math Methods in Physics II	4
PHYS 4305	Statistical Mechanics	3
PHYS 3301	Electromagnetic Theory I	3
PHYS 3302	Electromagnetic Theory II	3
PHYS 4303	Quantum Mechanics I	3
PHYS 4304	Quantum Mechanics II	3
PHYS 4300	Undergraduate Research Project	3
PHYS 4101	Laboratory Research	1
	Or	
PHYS 4306	Advanced Physics Lab	3

If selected, students must take PHYS 4101 Laboratory Research three times or PHYS 4306 Advanced Physics Lab one time.

In lieu of PHYS 2380, students may take a 3-credit hour STEM course with the following prefix: ASTR, BIOL, CSCI, CHEM, ECEE, ENGR, ENGT ENVR, GEOG, GEOL, MARS, MATH, MECE, PHYS, or PSCI. PHYS 1401, PHYS 1402, PSCI 1421, and PSCI 1422 cannot be used to used to satisfy this requirement.

Biophysics Concentration - 15 hours

BIOL 1406	General Biology I	4
PHYS 3306	Introduction to Biophysics	3
PHYS 3308	Introduction to Nanoscience	3
PHYS 3309	Introduction to Medical Imaging	3
PHYS 3310	Radiation Biophysics	3

Three credit hours from BIOL 1406 applies.

Support Courses - 12 hours

MATH 2413	Calculus I	4
MATH 2414	Calculus II	4
MATH 2415	Calculus III	4
MATH 3341	Differential Equations	3

One credit hour from MATH 2413 applies.

Free Electives - 3 hours

Free elective credit hours at the advanced level may be needed to achieve the institutional minimum of 42 advanced hours.

Subtotal: 42

Total Credit Hours: 120

View this program's recommended roadmap to graduation.

UTRGV Roadmaps are a suggested sequence of courses designed to assist students in completing their undergraduate degree requirements. This is a term-by-term sample roadmap of courses required to complete the degree. Students must satisfy all requirements in their catalog including, but not limited to course prerequisites, grade point average and course grade benchmarks, progression requirements, and graduation requirements.

Students should meet with their academic advisor every semester to discuss their individualized path toward completion. Degree progress within this roadmap depends upon such factors as course availability, individual student academic preparation and readiness, student time management, work and personal responsibilities, and financial considerations. Students may choose to take courses during summer terms to reduce course loads during long semesters.