BS in Physics

Degree Program Description

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general principles and the phenomena that have been discovered and developing the skills that enable such knowledge to be advanced through research. The BS degree in Physics is designed to prepare students for scientific careers immediately upon graduation, for further training in graduate school, or for teaching high school physics. Physics plays a pivotal role in such areas of expanding and societal importance as biomedical optical imaging/biomedicine, materials science, and homeland security, and as such, courses are offered in optical sciences, biological physics, materials sciences and nanotechnology. Students can specialize by pursuing a BS in physics with an emphasis in astronomy, biophysics, or materials science.

Major Program Requirements

In addition to University (https://catalog.missouri.edu/academicdegreerequirements/universityrequirements/), general education (https://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/), and College of Arts and Science (https://catalog.missouri.edu/collegeofartsandscience/#undergraduatetext) requirements, students must also meet the following major program requirements. All major requirements in the College of Arts and Science must be completed with grades of C- or higher unless otherwise indicated.

PHYSCS 2010	Undergraduate Seminar in Physics	1
PHYSCS 2750 & PHYSCS 2760	University Physics I and University Physics II	10
PHYSCS 3150W	Introduction to Modern Physics - Writing Intensive	3
PHYSCS 4060	Advanced Physics Laboratory I	4
PHYSCS 4100	Electricity and Magnetism I	3
PHYSCS 4120	Introduction to Thermodynamics	3
PHYSCS 4140	Mechanics	3
PHYSCS 4800	Introduction to Quantum Mechanics I	3
MATH 1500 & MATH 1700 & MATH 2300	Analytic Geometry and Calculus I and Calculus II and Calculus III	13
MATH 4100	Differential Equations	3
CHEM 1400 & CHEM 1401	College Chemistry I and College Chemistry I Laboratory	3-4
or CMP_SC 1050	Algorithm Design and Programming I	
or INFOTC 1040	Introduction to Problem Solving and Programming	
Electives		
Additional physics/astronomy		15
Additional math		6
Total Credits		**70-71**

Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	**CR**	**Spring**	**CR**
PHYSCS 2010	1	PHYSCS 2750	5
MATH 1500 (Math and Quantitative Reasoning)	5	MATH 1700	5
CHEM 1400 & CHEM 1401	4	Missouri State Law Requirement: Social Science from Arts and Science	3
ENGLSH 1000	3	Second major, minor, certificate, or elective	3
Behavioral Science	3		
	16		**16**
Second Year			
Fall	**CR**	**Spring**	**CR**
PHYSCS 2760	5	PHYSCS 3150W	3
MATH 2300	3	PHYSCS 4100	3
Humanities, First Writing Intensive	3	MATH 4100	3
Second Language or Second Language Alternative	4	Second major, minor, certificate, or elective	3
		Second Language or Second Language Alternative	4
	15		**16**
Third Year			
Fall	**CR**	**Spring**	**CR**
PHYSCS 4140	3	PHYSCS 4120	3
PHYSCS 4060	4	Physics; 3000+ Level	3
Math Elective	3	Math Elective	3
Second Language or Second Language Alternative	4	Humanities; Depth of Study	3
		Second major, minor, certificate, or elective	3
	14		**15**
Fourth Year			
Fall	**CR**	**Spring**	**CR**
PHYSCS 4800	3	PHYSCS; 3000+ Level	3
PHYSCS; 3000+ Level	3	Physcs; 3000+ Level	3
Physcs; 3000+ Level	3	Humanities	3
Social Science	3	Second major, minor, certificate, or elective	4
Second major, minor, certificate, or elective	3		
	15		**13**

Total Credits: 120