BA 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 BA degree provides a broad coverage of classical and modern physics while permitting a broader liberal arts education. It is normally selected by students who plan to enter a professional school later in their academic career, e.g. medicine, dentistry or law, or who desire to pursue a teaching certificate. 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.

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 3150	Introduction to Modern Physics	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
Total Credits		**48-49**

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	MATH 1700	5
MATH 1500	5	PHYSCS 2750	5
ENGLSH 1000	3	Humanities from Arts and Science	3
Missouri State Law Requirement: Social Science from Arts and Science	3	Second major, minor, certificate, or elective	3
Behavioral Science from Arts and Science	3		
	15		**16**
Second Year			
Fall	**CR**	**Spring**	**CR**
PHYSCS 2760	5	PHYSCS 3150W	3
MATH 2300	3	MATH 4100	3
Second language requirement	4	Second language requirement	4
Humanities, First Writing Intensive	3	Behavioral Science Course	3
		Second major, minor, certificate, or elective	3
	15		**16**
Third Year			
Fall	**CR**	**Spring**	**CR**
PHYSCS; 3000+ Level	3	PHYSCS; 3000+ Level	3
Second language requirement	4	CHEM 1400	3
Social Science; 3000+ Level	3	CHEM 1401 (Biological or Physical Science Lab)	1
Second major, minor, certificate, or elective	3	Humanities; 3000+ Level	3
Second major, minor, certificate, or elective	3	Second major, minor, certificate, or elective	3
	16		**13**
Fourth Year			
Fall	**CR**	**Spring**	**CR**
PHYSCS; 3000+ Level	3	PHYSCS; 4000 Level	3
PHYSCS; 3000+ Level	3	Humanities	3
Behavioral Science	3	Social Science	3
Second major, minor, certificate, or elective	3	Second major, minor, certificate, or elective	5
Second major, minor, certificate, or elective	3		
	15		**14**

Total Credits: 120