PHYSICS, B.S.

Credits: 122
CIS Code: 400801

Program Description

The Bachelor of Science Degree in Physics curriculum is designed to provide students with an understanding of the principles governing the behavior of the physical universe and helps students develop an appreciation of the scientific method and its application to current technological and environmental problems. Courses emphasize the elements of scientific thinking and techniques as well as scientific knowledge.

Admissions Requirements

Applicants to the Bachelor of Science Degree in Physics must meet the General Admissions Requirements as published in this Catalog.

Student Learning Outcomes

Graduates with a Bachelor of Science in Physics will be able to:

1. Solve calculus-based problems in mechanics, electromagnetism, and optics.
2. Perform various physics experiments to model fundamental principles in mechanics, electromagnetism, and optics.
3. Analyze and model physical systems by utilizing and constructing mathematical approximations and methods.
4. Effectively communicate concepts of related physics topics phenomena, analysis, and conclusions.

Degree Requirements

In addition to the General Degree Requirements as published in this Catalog, students pursuing the Bachelor of Science Degree in Physics must complete all required and cognate courses with minimum final grades of "C".

Code	Title	Hours
Required Courses		
CPHY 121	Physics I: Mechanics	3
CPHY 121L	Physics I: Mechanics Lab	1
CPHY 122	Physics II: Elec & Magnetism	3
CPHY 122L	Physics II:Electricity&Mag.Lab	1
CPHY 123	Physics III:Optics/Modern Phys	3
CPHY 123L	Physics III: Optics&Mod.PhyLab	1
CPHY 211	Modern Physics	3
CPHY 321	Mathematical Physics I	3
CPHY 322	Mathematical Physics II	3
CPHY 331	Classical Mechanics	3
CPHY 332	Electromagnetic Theory	3
CPHY 411	Thermo & Statistical Mechanics	3
CPHY 412	Intro to Quantum Mechanics	3
CPHY 421	Undergraduate Research I	3
CPHY 422	Undergraduate Research II	3
Select 3 Physics Electives:		9
CPHY 301		
CPHY 312		
CPHY 341		
CPHY 375		
CPHY 441	Internship	
CPHY 442		
CPHY 450		
Cognate Courses		
CCIS 253	Intro. to Comp. Sim/Analysis	3
CMAT 111	Calculus I	4
CMAT 112	Calculus II	4
CMAT 211	Calculus III	4
CMAT 212	Differential Equations	3
CMAT 214	Linear Algebra	3
Total Hours		**69**

General Education Courses

Code	Title	Hours
Area A: Humanities/Fine Arts		
Select nine credits from the following:		9
CPHI 105	Critical Thinking	
CHIS 201	United States,Africa & World	
CHIS 211	History of the United States	
CHIS 202	United States, Africa & World	
CHIS 212	History of the United States	
CREL 101	The Biblical Heritage	
CREL 103	Afr Amer Religious Experiences	
CART 150	Art Appreciation	
CMUS 120	Music Appreciation	
Area B: Social/Behavioral Sciences		
Select three credits from the following:		3
CPSY 211	General Psychology	
CSCJ 201	Intro. to Criminal Justice	
CSCJ 215	Intro. to Sociology	
CPSC 106	Politics and Global Issues	
Area C: Natural Sciences/ Mathematics/ Statistics		
CCHE 111	Gen Chem 1 & Recitation	4
CCHE 111L	General Chemistry Lab	0
CCHE 111R		0
CCHE 112	Gen Chem II Lec & Recitation	4
CCHE 112L	General Chemistry II Lab	0
CCHE 112R		0
Area D: Communications		
CENG 105	College Composition I	3
CENG 106	College Composition II	3
CENG 201	Intro to World Literature I	3
or CENG 202	Intro to World Literature II	
Area E: Financial/Technological		
CCIS 105 & 105L	Programming Principles I and Programming Principles I Lab	4
CECO 107	Introduction to Economics	3
Total Hours		**36**

Free Electives: 15 Credits

Note: Free Electives should be chosen in consultation with the advisor, depending on the choice of minor or stackable credentials.

Other University Requirements

Code	Title	Hours
CGED 100	First Year Seminar	1
CGED 101	1st-Year Seminar	1
Total Hours		**2**

Plan of Study for Physics, B.S.

(Students who are not prepared to complete calculus in their first year of study should arrange a revised plan of study in consultation with an advisor.)

Course	Title	Hours
First Year		
First Semester		
CXXX	Area A	3
CENG 105	College Composition I (Area D)	3
CGED 100	First Year Seminar	1
CMAT 111	Calculus I	4
CPHY 121	Physics I: Mechanics	3
CPHY 121L	Physics I: Mechanics Lab	1
	Hours	**15**
Second Semester		
CCIS 105 & 105L	Programming Principles I and Programming Principles I Lab (Area E)	4
CENG 106	College Composition II (Area D)	3
CGED 101	1st-Year Seminar	1
CMAT 112	Calculus II	4
CPHY 122	Physics II: Elec & Magnetism	3
CPHY 122L	Physics II:Electricity&Mag.Lab	1
	Hours	**16**
Second Year		
First Semester		
CCIS 253	Intro. to Comp. Sim/Analysis	3
CCHE 111	Gen Chem 1 & Recitation (Area C)	4
CCHE 111L	General Chemistry Lab (Area C)	0
CCHE 111R	Area C	0
CMAT 211	Calculus III	4
CPHY 123	Physics III:Optics/Modern Phys	3
CPHY 123L	Physics III: Optics&Mod.PhyLab	1
	Hours	**15**
Second Semester		
CENG 201 or CENG 202	Intro to World Literature I (Area D) or Intro to World Literature II	3
CCHE 112	Gen Chem II Lec & Recitation (Area C)	4
CCHE 112L	General Chemistry II Lab (Area C)	0
CCHE 112R	Area C	0
CMAT 212	Differential Equations	3
CPHY 211	Modern Physics	3
CXXX	Area B	3
	Hours	**16**
Third Year		
First Semester		
CXXX	Area A	3
CMAT 214	Linear Algebra	3
CPHY 321	Mathematical Physics I	3
CPHY 331	Classical Mechanics	3
Free Elective [1]		3
	Hours	**15**
Second Semester		
CHIS 202 or CHIS 212	United States, Africa & World (Area A) or History of the United States	3
CPHY 322	Mathematical Physics II	3
CPHY 332	Electromagnetic Theory	3
CXXX	Area E	3
Free Elective [1]		3
	Hours	**15**
Fourth Year		
First Semester		
CPHY 411	Thermo & Statistical Mechanics	3
CPHY 412	Intro to Quantum Mechanics	3
CPHY 421	Undergraduate Research I	3
CPHY XXX	Physics Elective [2]	3
Free Elective [1]		3
	Hours	**15**
Second Semester		
CPHY 422	Undergraduate Research II	3
CPHY XXX	Physics Elective [2]	3
CPHY XXX	Physics Elective [2]	3
Free Elective [1]		3
Free Elective [1]		3
	Hours	**15**
	Total Hours	**122**

1. Free Electives should be chosen in consultation with the advisor, depending on the choice of minor or stackable credentials.
2. Physics Electives must be at the 300-400 level.