

## PHYSICS

The program in physics is designed to meet the needs of those students who wish to major in physics, as well as those who wish to major in science and those who wish to enter pre-professional programs in health.

### Bachelor of Science in Physics

Required Physics Core (30 Hours):

<i>Course</i>	<i>Title</i>	<i>Hours Required</i>
PHYS 1301	General Physics Laboratory I	1
PHYS 1401	General Physics Laboratory II	1
PHYS 2114	General Physics I	4
PHYS 2124	General Physics II	4
PHYS 3104	Intermediate Laboratory	4
PHYS 3113	Physical Mechanics	3
PHYS 3213	Electricity and Magnetism -Field Theory	3
PHYS 4104	Advanced Laboratory	4
PHYS 4113	Waves and Physical Optics	3
PHYS 4313	Modern Physics	3

Supporting Courses (27 Hours):

MATH 1745	Calculus I	5
MATH 2225	Calculus II	5
MATH 3233	Linear Algebra	3
MATH 3243	Calculus III	3
<i>and</i>		
CHEM 1111	General Chemistry Laboratory I	1
CHEM 1121	General Chemistry Laboratory II	1
CHEM 1113	General Chemistry I	3
CHEM 1123	General Chemistry II	3
<i>and</i>		
CSCI 2143	Programming in "C/C++" I	3

Recommended Mathematics and Science Electives:

CHEM 4411	Physical Chemistry Laboratory I	1
CHEM 4413	Physical Chemistry I	3
CHEM 4421	Physical Chemistry Laboratory II	1
CHEM 4433	Physical Chemistry II	3
<i>and</i>		
MATH 3353	Differential Equations	3
MATH 4413	Numerical Analysis	3

### Minor in Physics

18 hours to be selected with approval of physics advisor.

## COURSE LISTINGS in PHYSICS

- 1301 GENERAL PHYSICS LABORATORY I  
Simple experiments concerning basic laws of physics. 1 hour.
- 1401 GENERAL PHYSICS LABORATORY II  
Simple experiments concerning basic laws of physics with emphasis on electrical measurements. 1 hour.
- 2114 GENERAL PHYSICS I

- Mechanics, heat, and wave motion. 4 hours. Prerequisites: MATH 1513 and MATH 1613.
- 2124 GENERAL PHYSICS II  
Continuation of PHYS 2114. Electricity and magnetism, physical optics, and modern physics. 4 hours.  
Prerequisite: PHYS 2114.
- 2214 GENERAL PHYSICS FOR ENGINEERS I  
Includes topics from mechanics, heat and wave motion. 4 hours. Co-requisite: MATH 1745.
- 2224 GENERAL PHYSICS FOR ENGINEERS II  
Continuation of PHYS 2214. Includes topics from electricity, magnetism and light. 4 hours. Prerequisite:  
PHYS 2214. Co-requisite: MATH 2225.
- 2880 SPECIAL TOPICS  
Special topics in physics. 1-4 hours (may be repeated for total of 6 hours).
- 2900 WORKSHOP  
Guided study in physics under faculty supervision; various topics and methods of instruction. 1-6 hours (may  
be repeated for total of 6 hours with change in title and topic.)
- 2990 TUTORIAL  
Independent study in physics under faculty supervision. 1-3 hours (may be repeated for total of 9 hours with  
change in title and content).
- 3100 INTERMEDIATE LABORATORY  
Junior-level experiments in physics, and analog and digital electronics. 1-2 hours (may be repeated for total of  
4 hours). Prerequisite: PHYS 2124 *or* PHYS 2224.
- 3113 PHYSICAL MECHANICS  
Statics and dynamics of a particle; potential theory; introduction to orbit theory and rigid body dynamics. 3  
hours. Prerequisites: MATH 2225 *and* PHYS 2124 *or* PHYS 2224.
- 3213 ELECTRICITY AND MAGNETISM-FIELD THEORY  
Laws and principles of electrostatics, moving electric charges and electromagnetism. 3 hours. Prerequisites:  
MATH 2225 *and* PHYS 2124 *or* PHYS 2224.
- 3301 SEMINAR  
1 hour. Prerequisite: approval of instructor.
- 4100 ADVANCED LABORATORY  
Senior level experiments in physics and digital electronics. 1-2 hours (may be repeated for total of 4 hours).  
Prerequisite: PHYS 3100.
- 4113 WAVE MOTION AND PHYSICAL OPTICS  
Wave equations, wave propagation, coherence, interference, diffraction, polarization, interaction of light with  
matter, and radiation. 3 hours. Prerequisites: MATH 3243 *and* PHYS 3213.
- 4313 SELECTED TOPICS IN MODERN PHYSICS  
Consideration of such topics as atomic and molecular structure, nuclear physics, or solid state physics. 3 hours  
(may be repeated for total of 9 hours with change in title and topic). Prerequisites: MATH 3243, PHYS 3113,  
*and* PHYS 3213.
- 4880 SPECIAL TOPICS  
Special topics in physics. 1-4 hours (may be repeated for total of 6 hours with change in title and content).
- 4900 WORKSHOP

Related topics and problems in physics. 1-6 hours (may be repeated for total of 9 hours with change in title and content).

4990 TUTORIAL

Independent study in physics under faculty supervision. 1-3 hours (may be repeated for total of 9 hours with change in title and content).