PHYSICS BACHELOR OF SCIENCE: APPLIED PHYSICS

Program Overview

The basic physics major is designed for students who are interested in a career in industry, government laboratories and applied science or in further study toward a graduate degree.

Applied Physics track

The Applied Physics track is an optional track for students pursuing the B.S. in Physics. The Applied Physics track requires 45 credit hours in the department with the choice of either "Quantum Theory" or "Thermodynamics and Statistical Physics" instead of both being required. "Computational Physics" is a required choice for this track, along with 1 credit hour of research and 1 topical course. These requirements reflect the needed preparation for applied physics careers or advanced studies, with less focus on theoretical courses and more focus on applied topics.

Code	Title	Hours
PHY 001	INTRODUCTION TO PHYSICS I (with lab and discussion)	4
PHY 002	INTRODUCTION TO PHYSICS II (with lab and discussion)	4
PHY 003	CONTEMPORARY TOPICS SEMINAR	1
PHY 021	INTRO TO METHODS IN PHYSICS	3
PHY 050	MODERN PHYSICS	4
PHY 059	ADVANCED LAB I & ERROR THEORY	2
PHY 121	THEORETICAL MECHANICS	4
PHY 122	ELECTROMAGNETIC THEORY	4
PHY 133	ELECTRONICS	4
PHY 149	ADVANCED LAB II	2
PHY 180	COMPUTATIONAL PHYSICS	3
PHY 191	PHYSICS SEMINAR I	1
PHY 192	PHYSICS SEMINAR II	1
PHY 197 & PHY 198	RESEARCH I and RESEARCH II [1]	1
PHY 199	PHYSICS & ASTRONOMY CAPSTONE	0
Select one of the following:		4
PHY 181	QUANTUM THEORY	
PHY 182	THERMO/STATISTICAL PHYSICS	
Select one topical course:		3
ASTR 185	INTRODUCTION TO ASTROPHYSICS I	
ASTR 195	INTRODUCTION TO ASTROPHYSICS II	
ASTR 041	ASTRONOMICAL TECHNIQUES	
PHY 132	MEDICAL BIOPHYSICS	
PHY 188	ADVANCED CLASSICAL PHYSICS	
Topical courses [2]		
Additional requirements outside the department:		
MATH 050	CALCULUS I	3
MATH 070	CALCULUS II	3
MATH 080	LINEAR ALGEBRA	3
MATH 100	CALCULUS III	3
MATH 110	MULTIVARIATE CALCULUS	3
MATH 120	APPLIED DIFFERENTIAL EQUATIONS I	3
CHEM 001	GENERAL CHEMISTRY I [3]	3
CS 065	INTRODUCTION TO COMPUTER SCIENCE I	3
Total Hours		**69**

1. Research Participation: 1 cr (min) of PHY 197 RESEARCH I and/or PHY 198 RESEARCH II at Drake and/or at least one REU (Research Experience for Undergraduates).
2. Other courses occasionally offered depending on interest and faculty availability.
3. Students who take General Chemistry I at Drake University must take CHEM 001 GENERAL CHEMISTRY I with the lab (CHEM 003 GENERAL CHEMISTRY I LAB), as they are co-requisites. Students should note that a general chemistry lab is recommended for those pursuing certain pre-professional/career paths.

Grade Requirements for Graduation

2.0 minimum (C) average is required in all physics-credit courses. In addition, a C is required for Modern Physics, Advanced Lab I with Error Theory, Theoretical Mechanics, and Electromagnetic Theory.

In addition to programmatic requirements, students are responsible for satisfying all requirements of the Drake Curriculum (https://catalog.drake.edu/undergraduate/academic-information/drake-curriculum/), including Areas of Inquiry (AOI)

Student must also satisfy university graduation requirements (https://catalog.drake.edu/undergraduate/academic-information/graduation-requirements/) for all undergraduate students..