

PHYSICS BACHELOR OF ARTS

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.

B.A. Degree Requirements

This degree is suitable for students who want a rigorous background in physics or astronomy. It also can be used as the basis for graduate studies and careers in engineering, actuarial science, medicine, law, computer programming and finances. It can be accompanied by the Biophysics concentration for those students interested in applications of physics to biological systems. The physics B.A. program is rigorous in Mathematics.

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 191	PHYSICS SEMINAR I	1
PHY 192	PHYSICS SEMINAR II	1
Select one of the following:		1
PHY 197	RESEARCH I	
PHY 198	RESEARCH II	
PHY 199	PHYSICS & ASTRONOMY CAPSTONE	0
Electives		
Select at least one of the following:		2-4
ASTR 041	ASTRONOMICAL TECHNIQUES	
ASTR 185	INTRODUCTION TO ASTROPHYSICS I	
ASTR 195	INTRODUCTION TO ASTROPHYSICS II	
PHY 132	MEDICAL BIOPHYSICS	
PHY 133	ELECTRONICS	
PHY 149	ADVANCED LAB II	
PHY 180	COMPUTATIONAL PHYSICS	
PHY 181	QUANTUM THEORY	
PHY 182	THERMO/STATISTICAL PHYSICS	
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		55-57

- 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.

Note: Students in the B.A. program must be advised that graduate studies in physics will require more of the advanced courses.

Depending on the student’s career goals, the academic advisor may recommend courses chosen from electives.

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, 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/archive/2024-2025/undergraduate/academic-information/drake-curriculum/>), including Areas of Inquiry (AOI)

Student must also satisfy university graduation requirements (<https://catalog.drake.edu/archive/2024-2025/undergraduate/academic-information/graduation-requirements/>) for all undergraduate students..