



PHYSICS

What YOU will learn:

As a physics major at Nebraska, you will study matter and energy and their interactions. Physics is not just a body of knowledge — it is a set of approaches that will allow you to solve all kinds of problems. Physics seeks to describe the most basic features of a system and the underlying general rules that govern them. These rules are powerful tools for understanding that system and similar ones that you may encounter later. The core curriculum includes courses in physics, math and chemistry; as well as four tracks to choose from based on your interest:

- Professional Track for graduate study or employment in physics or a related scientific or engineering discipline
- Optics and Lasers Track for graduate study or employment in optical or laser physics or related engineering disciplines
- Materials Physics Track for graduate study or employment in materials physics or related discipline
- Computational Physics Track for graduate study or employment in computational physics or related disciplines.

Career opportunities YOU will have:

Because the study of physics develops such strong analytical skills, physicists go into a wide variety of careers such as engineering, law, medicine, computer science and information technology, optical and laser science, and materials science. Many physicists work in government or industrial laboratories, but some start their own businesses. Recent Nebraska graduates include:

- Applications Programmer, Holland Computing Center
- Astronomical Instrument Technician, University of Texas
- Lead Innovator, Nanonation
- Medical Device Lead Reviewer, Federal Drug Administration
- Internet Application Developer, Garmin
- Researcher, Oak Ridge National Laboratory

Why NEBRASKA for Physics?

At Nebraska you can study nanoscale magnetic materials, perform experiments to “stop” light, research matter waves and unusual behavior of chiral molecules, and study the fundamental constituents of the matter that makes up our universe at some of the world’s highest-energy particle accelerator laboratories.

Join a department that features state-of-the-art research and teaching facilities like a Materials Research Science and Engineering Center that is one of 21 NSF-funded MRSECs nationwide; the Extreme Light Laboratory housing Diodes, which operates at over 100 terawatts. Learn from and work alongside our High Energy Physics team which is deeply engaged with research at the Large Hadron Collider at CERN, Switzerland; or students at Behlen Observatory who are updating control systems for the 30” optical telescope and constructing a radio array from commercially available materials through a grant from NASA.

Picture yourself engaging in research similar to these current student projects: *Manipulation and Focusing of Beams of Ultra-relativistic Electrons*, *Production and Characterization of Organic Ferroelectric Vinylidene Fluoride Thin Films*, *Thermal Excitation effect on Domain Wall Evolution in Ferroelectric Thin Films*, or *Measuring Refractive Index in Antarctic Ice*.

Harness your energy and connect with the Department and your peers by joining the UNL Society of Physics Students, an organization of physics majors that helps with university outreach events such as Math Day and Behlen Observatory public nights; or the Society of Physics Students which hold social events including movie and pizza nights.





COLLEGE OF ARTS AND SCIENCES

PHYSICS

	COURSE NAME	HOURS
FIRST Semester	PHYS 201: Modern Topics in Physics & Astronomy	1
	MATH 106: Calculus I (ACE 3)	5
	PHYS 211: General Physics I (CDR B)	4
	PHYS 221: General Physics I Lab (CDR BL)	1
	Language Requirement - 201 Level (CDR E)	3
	Total Hours	14

	COURSE NAME	HOURS
SECOND Semester	MATH 107: Calculus II (CDR F)	4
	PHYS 212: General Physics II (ACE 4)	4
	PHYS 222: General Physics II Lab	1
	Language Requirement - 202 Level (CDR E)	3
	ACE 1: Written texts/research & knowledge skills	3
	Total Hours	15

THIRD Semester	MATH 208: Calculus III	4
	PHYS 213: General Physics III	4
	PHYS 223: General Physics III Lab	1
	CHEM 113: Fundamentals of Chemistry I	4
	College Distribution Requirement (CDR) A: Written communication	3
	Total Hours	16

FOURTH Semester	MATH 221: Differential Equations	3
	PHYS 231: Electrical & Electronic Circuits	3
	ACE 2: Communication skills	3
	ACE 5: Humanities	3
	Elective/Minor/Secondary Major/Pre-Professional	3
	Total Hours	15

FIFTH Semester	PHYS 431: Thermal Physics	3
	PHYS 311: Mechanics	3
	Physics Track Requirement	3
	College Distribution Requirement (CDR) C: Humanities	3
	ACE 6: Social Sciences	3
	Total Hours	15

SIXTH Semester	PHYS 451: Electromagnetic Theory	3
	PHYS 461: Quantum Mechanics	3
	Physics Track Requirement	3
	ACE 8: Ethics/civics/stewardship	3
	Elective/Minor/Secondary Major/Pre-Professional	3
	Total Hours	15

SEVENTH Semester	Physics Track Requirement	3
	Physics Track Requirement	3
	ACE 9: Global awareness & human diversity	3
	CDR D: Social Sciences	3
	Elective/Minor/Secondary Major/Pre-Professional	3
	Total Hours	15

EIGHTH Semester	Physics Track Elective (ACE 10)	3
	Physics Track Elective	3
	ACE 7: Fine Arts	3
	Elective/Minor/Secondary Major/Pre-Professional	3
	Elective/Minor/Secondary Major/Pre-Professional	3
	Total Hours	15

DISCLAIMER: This document represents a sample 4-year plan for degree completion with a major of interest in the College of Arts and Sciences. Actual course selection and sequence may vary and should be discussed individually with an Academic Advisor at the college and department level.