



## PHYSICS

### Academics

As a physics major 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.

Beyond the core curriculum of physics, math and chemistry coursework, dive deep into one of four options based on your interest:

- **Professional**—for the broadest study in experimental physics and astronomy
- **Optics and Lasers**—for employment or graduate study in optical or laser physics or related engineering disciplines
- **Materials Physics**—for coursework in chemistry and materials science in addition to physics
- **Computational Physics**—for coursework in computer science in addition to physics

### Opportunities

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. Here are examples of recent graduates' employment:

- Process Engineer I / **GARMIN**
- Research Assistant / **UNIVERSITY OF NEBRASKA-LINCOLN**
- Science Teacher 9-12 / **MILLARD PUBLIC SCHOOLS**
- Science Teacher / **LINCOLN PUBLIC SCHOOLS**
- Software Developer Engineer / **CSG INTERNATIONAL**
- Software Developer / **APPLIED UNDERWRITERS**
- Systems Programmer / **BRYAN HEALTH**
- Teaching Assistant / **UNIVERSITY OF NEBRASKA-LINCOLN**
- Technician / **J.A. WOOLLAM**

### Experience

In the College of Arts and Sciences, we know experience is valuable and goes beyond the classroom. We strive to help you connect your academics with research, internships, education abroad, service learning and leadership experiences. Take advantage of opportunities in physics such as:

- Studying abroad in Iceland to learn about renewable energy and sustainability
- Serving as the UNL Society of Physics Students president
- Interning with Holland Computing
- Researching optics and laser physics
- Volunteering with the Holmes Lake Observatory



## PHYS—SAMPLE 4-YEAR PLAN (BS / PROFESSIONAL OPTION)\*

ACE = Achievement-Centered Education    CDR = College Distribution Requirements

### FIRST SEMESTER

PHYS 201: Modern Topics in Physics & Astronomy	1
PHYS 211 / 221: General Physics I with Lab (ACE 4) (CDR)	5
MATH 106: Calculus I (ACE 3)	5
CDR: Language	3
<b>Total Hours</b>	<b>14</b>

### SECOND SEMESTER

PHYS 212 / 222: General Physics II with Lab (CDR)	5
MATH 107: Calculus II	4
Written Texts / Research & Knowledge Skills (ACE 1)	3
CDR: Language	3
<b>Total Hours</b>	<b>15</b>

### THIRD SEMESTER

PHYS 213 / 223: General Physics III with Lab	5
MATH 208: Calculus III	4
CHEM 113A / 113L: Fundamental Chemistry I	4
CDR: Written Communication (ACE 1)	3
<b>Total Hours</b>	<b>16</b>

### FOURTH SEMESTER

PHYS 231: Electrical & Electronic Circuits	3
MATH 221: Differential Equations	3
Communication Skills (ACE 2)	3
Humanities (ACE 5)	3
Elective / Minor / Secondary Major / Pre-Professional	3
<b>Total Hours</b>	<b>15</b>

### FIFTH SEMESTER

PHYS 431 / 831: Thermal Physics	3
PHYS 311: Mechanics	3
PHYS 441: Experimental Physics I (ACE 10)	3
Social Sciences (ACE 6)	3
Elective / Minor / Secondary Major / Pre-Professional	3
<b>Total Hours</b>	<b>15</b>

### SIXTH SEMESTER

PHYS 451 / 851: Electromagnetic Theory	3
PHYS 461 / 861: Quantum Mechanics	3
PHYS 442: Experimental Physics II	3
CDR: Human Diversity in U.S. Communities	3
Elective / Minor / Secondary Major / Pre-Professional	3
<b>Total Hours</b>	<b>15</b>

### SEVENTH SEMESTER

PHYS 452: Optics and Electromagnetic Waves	3
PHYS 462: Atoms, Nuclei, and Elementary Particles	3
Global Awareness & Human Diversity (ACE 9)	3
CDR: Social Science	3
Elective / Minor / Secondary Major / Pre-Professional	3
<b>Total Hours</b>	<b>15</b>

### EIGHTH SEMESTER

Physics Track Elective	3
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Fine Arts (ACE 7)	3
Ethics / Civics / Stewardship (ACE 8)	3
Elective / Minor / Secondary Major / Pre-Professional	3
<b>Total Hours</b>	<b>15</b>

\*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.