Physics

Physics is the fundamental science: the study of matter and energy and of their interactions. Physics is the basis for all science and for all applied science and engineering. Physicists study everything from elementary particles to galaxies, from semiconductors to chaos.

Because physics is the basic underpinning for all science and technology, physics majors have many career alternatives. Many continue their education at graduate and professional schools—in physics or in chemistry, biology, geology, engineering, medicine, law or business. Those who enter the job market directly find their knowledge and technical skills, particularly in problem solving, modeling, computers and electronics, to be strong selling points.

The physics department at Wichita State University affords close personal interaction among undergraduate students, graduate students and professors. Many students take advantage of the opportunities for individual studies and research.

Admission

When you choose to study physics, you will be admitted to the Fairmount College of Liberal Arts and Sciences. The physics department undergraduate advisor will help you develop your program of study, and all of our faculty will be available to advise you and help you at any point in your studies.

If you are still deciding on a major when you begin taking classes at WSU, the Liberal Arts and Sciences Advising Center can help you explore career and major options.

Related Opportunities

As a physics major, you may participate in the Student Physics Society, an informal social organization. If eligible, you may be selected for the physics honor society, Sigma Pi Sigma, and for university academic honor societies such as Phi Kappa Phi, and Mortar Board.

Each semester, every physics major maintaining a B average earns an Academic Achievement Award.

In addition, three scholarships—the Schenk, the Knight, and the Unruh—are awarded yearly to the three most outstanding upper-division physics majors.

Related Programs

The physics department offers the bachelor of arts and the bachelor of science degrees in physics. If you’re interested in teaching physics, you may earn a bachelor of arts in education.

In addition to these programs, we also offer students the opportunity to select a special option within the physics major. With the chemical physics option, a student interested in molecular physics or biophysics can substitute upper-division courses in chemistry for physics electives. With the engineering physics option, a student interested in applications of physics can substitute upper division engineering courses. Other options, in mathematics, geology, computer science, biology, or business, are also possible on an individual basis.

General Education Program Requirements

What is the overall goal?

The goal of general education is to enable you to live a rich, meaningful life by developing: an informed appreciation of the arts, humanities, and natural and social sciences; an ability to intelligently follow and participate in current events; and a sensitive and tutored appreciation of diverse cultures and ways of living.

What are the expected outcomes?

Embedded throughout general education and furthered in the major are the skills that enable graduates to contribute productively to society and the on-going culture. Therefore, upon graduation the faculty expects you to:

- Have acquired knowledge in the arts, humanities, and natural and social sciences
- Think critically and independently
- Write and speak effectively
- Employ analytical reasoning and problem solving techniques

For more information

If you have further questions or would like to schedule a campus visit, please contact the Office of Admissions.

Marcus Welcome Center
Office of Admissions
1845 Fairmount
Wichita, KS 67260-0124
**Major Requirements**

*Requirements for the BA or BS Degree*

- **Phys 213-214**
  - OR
  - Phys 313-316 - 10 credit hours
- **Topics in Modern Physics** - 3 credit hours
- **Quantum Mechanics** - 3 credit hours
- **Analytical Mechanics** - 3 credit hours
- **Electricity and Magnetism** - 3 credit hours
- **Thermophysics** - 3 credit hours
- **Chemistry** - 5 credit hours
- **Differential Equations I AND Integration Techniques & Applications**
  - OR
  - Advanced Calculus I
  - OR
  - Partial Differential Equations for Engineers - 3 credit hours
- **Linear Algebra** - 3 credit hours

**Additional Requirements for the BA Degree**

- Advanced Physics Laboratory
  - OR
  - Electronics Laboratory
  - OR
  - Computational Physics Laboratory - 2 credit hours
- Upper-division physics electives - 6 credit hours

**Additional Requirements for the BS Degree**

- Advanced Physics Laboratory
  - AND/OR
  - Electronics Laboratory
  - AND/OR
  - Computational Physics Laboratory - 6 credit hours
- Upper-division physics electives - 8 credit hours
- Chemistry - 5 credit hours

**Additional Requirements for the Chemical Physics Option (with the BA or BS degree in physics)**

- Upper-division chemistry courses (as physics electives) - 9 credit hours

**Additional Requirements for the Engineering Physics Option (with the BA or BS degree in physics)**

- Upper-division engineering courses (as physics electives) - 9 credit hours

There are additional requirements to earn certification to teach physics. Consult the College of Education or request the “Secondary Education: Sciences” information sheet.

*Some of the courses listed in Major Requirements will count toward the General Education Requirements.*

For more information on Physics at WSU visit [wichita.edu/physics](http://wichita.edu/physics) or call (316) 978-3190.