Physics
Bachelor of Science in Physics

Why Should I Major in Physics at Seton Hall?

All physics courses are taught by our dedicated Ph.D. faculty. Our classes are small, and students receive highly individualized attention. Qualified students participate in ongoing, federally funded research projects beginning in their sophomore year. We have an active Society of Physics Students, a subdivision of the American Institute of Physics, and qualified students are annually inducted into Sigma Pi Sigma, the National Physics Honor Society. Summer internship and co-op participation are highly recommended. Our dual degree in physics and engineering with the New Jersey Institute of Technology (NJIT) significantly enhances student opportunities in an increasingly competitive job market. Students can also pursue employment opportunities within the department.

The Curriculum:

The **Applied Option** prepares students for graduate or advanced study in physics or an allied field, such as astronomy, engineering, mathematics, chemistry, the geosciences, medicine, life science technologies, law or computer science.

The **Industrial Option** is designed to prepare students for a professional career in industry, government or secondary education.

The **Five-year Dual Degree Engineering Program** is offered jointly with NJIT, leading to a Bachelor of Science in Physics from Seton Hall and a Bachelor of Science in Engineering (biomedical, civil, computer, electrical, industrial or mechanical) from NJIT.

What Does It Take to Graduate?

Students in all three physics curriculum options complete the same physics core requirements for the first three years. Those who select the physics/engineering option are required to take selected NJIT courses before they transfer to NJIT. Students in the other options must complete the physics curriculum in the fourth year.

Career Opportunities:

Internship and career opportunities for those with a bachelor’s degree in physics include positions in the electronics, computer, semiconductor, biophysical, geophysical, astronomy, medical, materials science, nuclear and radiology industries.

A bachelor’s degree in physics is an excellent foundation for graduate school. Opportunities for continued studies include physics, engineering, materials science, computer science, biophysics, medicine, mathematics, geophysics, oceanography, meteorology, actuarial science, astronomy, chemistry, management, journalism, patent law and education.

How Do I Apply for Admission?

Send your application to Seton Hall University and include the $55 non-refundable application fee ($45 if applying online). Freshman applicants must submit official high school transcripts and any college or university transcripts where credit was attempted, plus the results of the SAT I or ACT assessments. Transfer students must submit transcripts from each college or university where credit was attempted. Those with fewer than 24 earned credits must complete the freshman requirements. Applications are available at admissions.shu.edu.

Can I Get Financial Aid?

Almost 90 percent of the students who entered Seton Hall last year received some form of financial aid, and 75 percent of these students received money directly from the University. The four types of financial aid include scholarships, grants and discounts, loans, and part-time jobs on campus. For further information, visit admissions.shu.edu/FinancialAid.htm or call (973) 761-9332.
Physics Requirements:

Core Curriculum Requirements*
A minimum of 68 hours for all three options (for the first three years), including:

Note: Students must complete six credits at the 2000 level before taking any 3000-level courses.

I. For the Applied and Industrial options, additional hours are required during the fourth year. For the Physics/Engineering option, upper-level NJIT courses must be transferred back to Seton Hall to satisfy the fourth year of physics curriculum.

PHYS 1701-1702 General Physics I and II
or
PHYS 1705-1706 Principle of Physics I and II
PHYS 1811-1812 Physics Laboratory
or
PHYS 1815-1816 Physics Laboratory and Data Analysis I and II
PHYS 2185 Introduction to Modern Physics
PHYS 2186 Wave and Oscillations
PHYS 2883 Electronics I
PHYS 3119 Mathematical Methods of Physics
PHYS 3121 Mechanics I
PHYS 3185 Electricity and Magnetism I
PHYS 3217 Modern Optics

Other Core Requirements
MATH 1401-2411 Calculus I, II, III
PHYS 2112 Physical Applied Mathematical Techniques
CHEM 1123-1125 General Chemistry I and Lab
CHEM 1124-1126 General Chemistry II and Lab

II. Students intending to do graduate work must complete a minimum of 12 elective credits from the following:

PHYS 3122 Mechanics II
PHYS 3186 Electricity and Magnetism II
PHYS 4211 Quantum Mechanics I
PHYS 4212 Quantum Mechanics II
PHYS 4219 Statistical Physics
PHYS 3411 Physical Chemistry I

III. Students planning industrial employment must complete the following courses:

CHEM 2215 Analytical Chemistry I
PHYS 2884 Electronics II
CSAS 1113 Computing for Science Majors

Physics Minor
A minimum of 18 hours, including:

1. Basic Principles of Physics (6 credits)
   PHYS 1601-1602 or PHYS 1701-1702
   or
   PHYS 1705-1706
2. Laboratory Component (2-3 credits)
   PHYS 1811-1812 or PHYS 1815-1816 or PHYS 2883
3. Principles of Modern Physics (4 credits)
   PHYS 2185
4. Specialized Electives (6-8 credits)
   PHYS 2112, PHYS 2186, PHYS 2883, PHYS 2884, PHYS 3121-3122, PHYS 3185-3186, PHYS 3217, PHYS 4211 or PHYS 4219

Degree Requirements: 150 total credit hours
Students can minor or double major in any of the College of Arts and Sciences disciplines.

For more information, call an admissions counselor at 1-800-THE-HALL, send an e-mail to thehall@shu.edu or visit admissions.shu.edu.

To talk to a faculty adviser, contact Sedong Kim, Ph.D., Chair of the Department of Physics at (973) 761-9050 or kimsedon@shu.edu.

Web site: artsci.shu.edu/physics

Revised September 2006

Seton Hall University is a major Catholic university. In a diverse and collaborative environment it focuses on academic and ethical development. Seton Hall students are prepared to be leaders in their professional and community lives in a global society and are challenged by outstanding faculty, an evolving technologically advanced setting and values-centered curricula.

SHU-281-06