

Engineering Physics Dual Degree



The Juniata Advantage

At Juniata, you can study engineering physics for four years and earn a bachelor's degree. Or, you can take advantage of **Juniata's cooperation with some elite engineering schools** and earn two bachelor's degrees—one from Juniata and one from the affiliated university. We call it our "Dual Degree Engineering Program."

- **Research and Presentations:** At Juniata, you can conduct **research alongside experienced faculty** and **present your findings** at the National Conferences on Undergraduate Research, Juniata's Liberal Arts Symposium, or professional conferences like the American Physical Society or American Optical Society meetings.
- **Physics Facilities:** Juniata's facilities are designed for hands-on experience. And what's more: **we encourage undergraduates to use as many scientific instruments as possible.** Facilities include: a machine shop, quantum optics facilities, an optical tweezers lab, adjustable cavity HeNe lasers, the Paul E. Hickes Observatory, and a physics and engineering students' lounge.
- **Faculty:** All full-time faculty are active researchers and teachers. They've won teaching awards for their **interactive and engaging teaching** and are committed to your success. And they're available to give you **personal attention.** Our upper-level classes average fewer than 12 students per class.
- **Liberal arts:** A dual degree allows you to build analytical, communication, presentation, and management skills. The result: **your education is well rounded** and you are prepared to excel in your engineering specialization.

Juniata's Outcomes

Juniata alumni have **gone on to careers** in engineering, environmental monitoring, and teaching. They've also **earned entry into graduate programs** at Stanford, MIT, Princeton, Case Western Reserve University, and other esteemed institutions.

Our Recent Graduates

- David Milligan '14 is currently **employed as a staff scientist** with the research and development team at Axion Power.
- Lauren Taylor '13 is a **Ph.D. student at Rochester Institute of Technology** in the field of Imaging Science.
- Erik Wijmans '15 completed three years of study at Juniata in spring 2015 and is now completing two years of the 3-2 engineering program at Washington University in St. Louis, where he has **received a Brown Fellowship**, which provides a half-tuition scholarship for these final two years of study.

"Juniata is a very friendly and an incredibly close community. I will leave this institution with the technical skills required for my occupation as well as the knowledge to better understand the world through my liberal arts education."

—Bradley Spayd '16
ENGINEERING PHYSICS

Engineering Fields

1 Clarkson University; 2 Columbia University; 3 Penn State University; 4 Washington University of St. Louis

Aerospace Engineering 1,4
Biological Engineering 3
Biomedical Engineering 2,4
Chemical Engineering 1,2,4
Civil Engineering 1,2,4
Computer Engineering 1,2,4
Computer Science 2,3,4
Earth and Environmental Engineering 2
Electrical Engineering 1,2,4
Energy Engineering 3
Engineering and Management Systems 2
Engineering Management 4
Engineering Mechanics 2
Engineering Science 3
Environmental Systems Engineering 3
General Engineering 3
Industrial Engineering 2
Material Science and Engineering 2,3
Mechanical Engineering 1,2,4
Mining Engineering 3
Operations Research 2
Software Engineering 1
Systems and Science Engineering 4

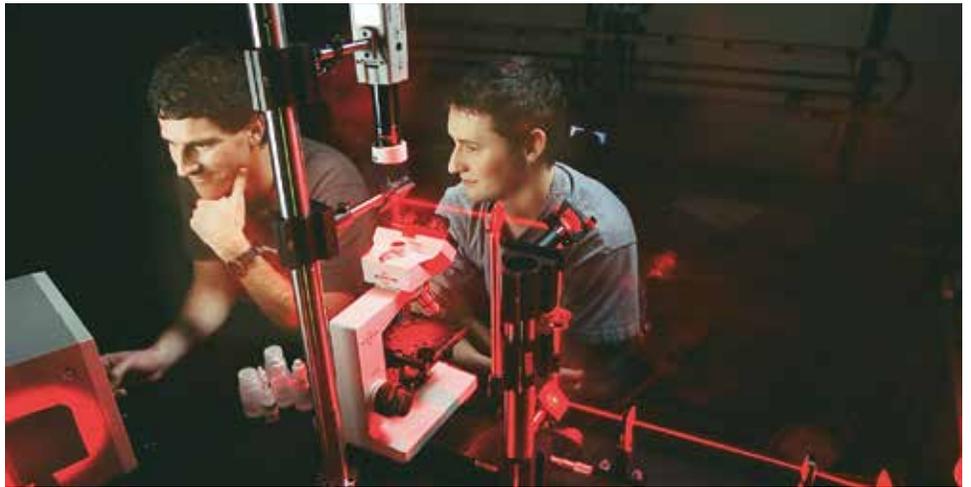
An Engineering Physics POE Story

At Juniata, you can choose to study engineering physics for four years and earn a bachelor's degree or take advantage of **Juniata's cooperation with some elite engineering schools** and earn two bachelor's degrees, one from Juniata and one from the affiliated university.

Here's how it works. Spend your first three years at Juniata gaining a broad introduction to the field while enjoying **one-on-one interaction with faculty**. While you're here, gain extensive laboratory experience and take advantage of the broader liberal arts curriculum with interdisciplinary explorations that result in your well-rounded education. Our graduates find that this additional breadth helps them earn leadership roles in engineering.

Our graduates—including **Dr. Bill Phillips '70, who won the Nobel Prize in physics**—consistently land spots in top graduate programs and in industry, corporations, and research centers. And, they cite Juniata's **interdisciplinary, personalized, and experiential program** as the secret behind their success. But don't just take our word for it.

"The physics professors at Juniata truly care about the success of their students, and I was lucky enough to have been taught by some of the brightest minds I've ever met." says Ethan Cree '15. "Studying engineering at a liberal arts college isn't scary but challenging. And, once you gain an understanding about concepts, engineering is the most interesting and rewarding experience."



Student Opportunities

Research: Physics and engineering students have the opportunity to conduct **research on campus** with Juniata faculty or go **off campus to national labs** like the Pacific Northwest National Laboratories in Hanford, Wash.; Jefferson Labs in Newport News, Va.; Lowell Observatory in Flagstaff, Ariz.; and the National Institute of Standards and Technology in Gaithersburg, Md. Propose a project that's of interest to you and pursue it rigorously.

Study Abroad: Study for four years at Juniata and take advantage of great opportunities to **study abroad** in India, Australia, England, France, Japan, Germany, and beyond. We have programs on every continent except Antarctica.

Clubs: Our nationally recognized **Society of Physics Students Club** produces one of Juniata's most popular events—Physics Phun Night. Entertain the campus and Huntingdon community with engaging demonstrations.

Recent Student Research: Before graduating from Juniata and Penn State in 2009, Brenton Forshey held a research internship at the Smithsonian National Air & Space Museum during the summer of 2007. Here are some additional **examples of recent student research:** MaryElizabeth Petrie '15, "Exploring Non-Equilibrium Behavior Using the Ising Model;" Teresa Turmanian '16, "Riding the (Electromagnetic) Wave: Using EM Waves to Measure Material Properties."



Faculty

At Juniata, **93 percent** of faculty hold the highest degree in their field. In the physics and physics engineering department, our faculty are excellent teachers. Several have conducted research projects supported by the National Science Foundation and the II-VI Foundation and, most recently, one has been named an American Institute of Physics State Department Fellow. To learn more about our physics faculty, visit: www.juniata.edu/academics/departments/physics/faculty.php

Physics Department Chair and Book Professor of Physics: Jamie White, B.A., M.Ed., Ph.D.



JUNIATA
COLLEGE

