

Physics



WASHINGTON
& JEFFERSON
COLLEGE

The Physics major introduces students to the **principles and techniques that scientists and engineers use to understand the natural world**. There is a strong emphasis on practical skills, such as computation, electronics, communication and independent research, resulting in a near 100% placement rate after graduation. There are several interdisciplinary programs that prepare students for careers in **engineering, medicine, finance, research and software**.

Major Requirements

General Physics I: Forces & Energy (PHY 107)

General Physics II: Electricity & Magnetism (PHY 108)

Modern Physics (PHY 209)

Introduction to Experimental Techniques (PHY 219)

Mathematical Methods (PHY 250)

Computation for Physical Scientists (PHY 220)

Senior Research (PHY 400 or 441/442)

Calculus I (MTH 151)

Calculus II (MTH 152)

Three courses from:

- Electricity & Magnetism (PHY 313)
- Thermal & Statistical Physics (PHY 317)
- Classical Mechanics (PHY 319)
- Electronics (PHY 322)
- Biological Physics (PHY 327)
- Quantum Mechanics (PHY 331)
- Advanced Lab (PHY 350)

Minors

Physics: essential physics science paradigms that can provide a technical background to many other fields

Engineering Foundations: for those wanting to pursue graduate study in engineering after 4 years at W&J

Elective Courses

Good Vibrations (PHY 149)

Seeing the Light (PHY 150)

Tinkering with Technology (SCI 163)

Microcontrollers for the Masses (SCI 137)

Scientific Glassblowing (PHY 137)

Our Physical Environment (EVS 150)

Students interested in pursuing a career in engineering might consider the 3+2 Engineering Program. For more information, please consult the Engineering Dual Degree (3+2) program sheet or scan the QR code.

Major Emphases

Biological Physics: core plus biology, good for biotechnology research or medicine

Chemical Physics: core plus chemistry, good for materials science, quantum, or engineering careers

Experimental Physics: core plus more experimental courses, good for graduate school or engineering careers

Philosophy & Physics: mix of physics and philosophy, good for law school adjacent fields like science communication

Mathematical Physics: physics plus math, good for a variety of technical careers like medical imaging, finance, high energy physics



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Department Chair

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» Particle Physics
» Machine Learning

William Sheers, Ph.D.
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» Biological Physics
» Pulsed Power



Students participate in physics-related activities outside of the classroom

Notable Alumni

Kiera MacWhinnie '21, physics and French major - Pursuing patent law at the University of New Hampshire

Alondra Martinez-Osorno '21, biophysics major - Research fellow in pediatric oncology at the National Cancer Institute

Matt Prezioso '21, physics major - Received a B.S. in mechanical engineering at Case Western Reserve University and serves as an energy engineer in Pittsburgh

Lottie Murray '19, physics major - Worked in aerospace engineering before pursuing a Ph.D. in materials science at University of Delaware

Blynn Shideler '19, physics and math major - Received a B.S. in biomedical engineering at Columbia University and is pursuing a M.D./Ph.D. at Stanford University



Program Website

washjeff.edu/physics



Society of Physics students trip to Brookhaven National Lab in New York