

# ILLINOIS WESLEYAN UNIVERSITY

## PHYSICS

Physicists study the universe, from the smallest subatomic particles to the largest clusters of galaxies. The field of physics is both theoretical and experimental, and the physics program at Illinois Wesleyan provides strong preparation in both. Our imaginations are challenged by the study of relativity and quantum mechanics, while the practical application of physics leads to innovations in computers, medical technology and sustainable energy sources.

### Why Physics at Illinois Wesleyan?

- Laboratory experiences support and enhance theoretical coursework throughout the curriculum.
- It prepares students to develop and explore technology and engineering in areas as diverse as electronics, telecommunications, computers and nuclear energy.
- Elective courses in optics, electronics, imaging, theoretical and astrophysics, and materials physics prepare students to work in a variety of fields.
- Students benefit from IWU's emphasis on the liberal arts: Writing, quantitative reasoning, critical thinking and discussion, oral communication and problem-solving are an integral part of every physics course.
- Students have extensive research opportunities involving state-of-the-art technology. The physics curriculum at IWU is as much a hands-on, experiment-based investigation as it is a theoretical and mathematical discipline.

### Learning from a Quality Faculty

The student-faculty relationship is the most important element of undergraduate education. Learning at Illinois Wesleyan is enhanced by the individualized instruction and attention students receive from our faculty. Faculty members work closely with students answering questions in and out of class, acting as mentors and academic advisors, and collaborating with students on independent or directed study projects. All IWU physics faculty hold doctorates or other advanced degrees in the field, and maintain ongoing research programs in contemporary areas of physics.

- **Bruno deHarak**, *Department Chair, Associate Professor of Physics; Ph.D. — University of Kentucky.*  
Specializes in experimental atomic physics, laser assisted scattering experiments.
- **Herman Detweiler**, *MST, (emeritus).*  
Specializes in observational astronomy and electronics.



“Physics is the liberal arts education for a technological society.”

— Joseph Pimbley

### A Sampling of Courses Offered by Physics:

Conceptions of the Cosmos  
Electricity, Magnetism and Optics  
Electronics  
Energy and Society  
Fundamental Astronomy  
Introduction to Astronomy and Astrophysics  
Introduction to Quantum Mechanics  
Mechanics  
Modern Physics and Thermodynamics  
Materials Physics  
Mathematical Methods of Physics  
Optical Physics  
Problems of Nuclear Disarmament  
Scientific Imaging

### Recent May Term Courses in Physics:

Experimental Physics  
Sound, Music and Hearing



“**Physics students at Illinois Wesleyan are grounded in the basic concepts of physics and challenged to apply their knowledge to the world**

- **Linda French**, *Professor of Physics; Ph.D. — Cornell University.*  
Specializes in observational studies of asteroids and comets, history of astronomy and physics.
- **Narendra Jaggi**, *Professor of Physics; Ph.D. — University of Mumbai.*  
Specializes in condensed matter physics, computational physics, conductance of high-dimensional electrical networks, and nonlinear chemical oscillators.
- **Thushara Parera**, *Associate Professor of Physics; Ph.D. — Case Western University.*  
Specializes in experimental/observational cosmology, optical properties of cosmic dusts in the laboratory.
- **Gabriel Spalding**, *Professor of Physics, Ph.D. — Harvard University.*  
Specializes in condensed matter physics, lasers, using holographically textured fields to trap and manipulate matter.
- **Raymond Wilson Ph.D.**, *(emeritus).*  
Specializes in optics, problems in nuclear disarmament.

## Undergraduate Research at Illinois Wesleyan University

Faculty members of the Physics Department at Illinois Wesleyan conduct world-class research in areas that are approachable for undergraduates. The opportunity to participate in significant research appeals to a wide range of students, serving as a useful paradigm in the classroom while providing valuable experience for the students working directly on each project. It is our belief that strong research experiences will engage our students, enhance their development, and lead to new and greater opportunities for them in the future.

Physics majors from Illinois Wesleyan University have won the prestigious national Barry Goldwater Scholarship in the sciences multiple times. Research in the department has been sponsored by the National Science Foundation, NASA, the American Petroleum Institute, the American Astronomical Society, the Council on Undergraduate Research, and the Research Corporation. Many of our students also conduct research during the summer, either on campus with IWU faculty or at leading national universities and federal research laboratories, where they often work closely with Ph.D. students. Summer research activities are generally accompanied by scholarships and stipends for the students.

## Professional Future for Physics Majors

Graduates of our physics program participate in a vast array of rewarding careers. Our alumni include executives of major corporations, engineers, high school physics teachers, scientists, accelerator operators, university professors and applied industrial physicists all around the world. Many of our graduates have continued their study of physics and engineering at leading institutions nationwide, including Washington University, Brown, Harvard, Princeton, Stanford, Yale, University of Chicago, University of Illinois, University of Minnesota, University of Wisconsin and many others.

around them. They learn valuable laboratory skills that support and enhance the theoretical side of their coursework. Beyond the classroom, they carry out research with faculty members; participate in internships in science, industry and engineering; and work closely with their peers. IWU physics majors are well prepared to go into careers in the sciences, engineering or medicine.”

### Dr. Bruno deHarak

Chair and Assistant Professor of Physics

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UNIVERSITY

**For Further Information,  
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