We have a long history of providing our students with a great educational experience. Our physics department awarded its first PhD in 1899. Since then, our students have earned degrees in virtually every area of physics, and our faculty have played key roles in a myriad of important research efforts.

Physics is the science of the properties of matter, radiation, and energy in all forms. As such, it is the most fundamental of the sciences. It provides the underlying framework for the other physical sciences and engineering and for understanding physical processes in biological and environmental sciences.

**WHY STUDY PHYSICS?**

- **Intellectual Satisfaction.** First, and foremost, physics satisfies our deep desire to understand how the universe works. Physics is interesting.
- **Intellectual Challenge.** By striving for fundamental understanding, the physicist accepts the challenge to move past a merely descriptive approach of our world and probes deeply into how and why it works.
- **Physics Produces New Technology.** Today’s esoteric physics research will become tomorrow’s technological advances.
- **Technical Expertise.** Physicists exploit forefront technologies in their pursuits.
- **Flexibility.** In a fast-paced and changing world, it is much more important to have a broad substantive education than to be trained in a specific skill. We teach people how to think, and how to apply and extend what they know to new types of problems.
- **Physics is Analytical and Quantitative.** People who can reason analytically and quantitatively are essential for the success of almost any pursuit.

The undergraduate physics program will provide an overall view of both classical and modern physics with the flexibility to continue learning in fields that interest you. It will also help you develop skills in analysis, problem-solving, and quantitative reasoning that will aid you in whatever career you pursue after graduation.

**A MAJOR IN PHYSICS CAN...**

- Prepare you for employment in industrial or governmental laboratories.
- Prepare you for graduate studies for master’s or doctoral degrees in experimental or theoretical physics.
- Provide a broad background for further work in other sciences, such as materials sciences, aerospace, astronomy, computer science, geophysics, meteorology, radiology, medicine, biophysics, engineering, and environmental studies.
- Provide a science-oriented liberal education. This training can be useful in some areas of business administration, law, or other fields where a basic knowledge of science is useful.
- Provide part of the preparation you need to teach physics. To teach physics in high school, you will also take education courses to become certified. You will need a doctoral degree to become a college or university professor.


**OTHER PROGRAMS**

**AMEP**
A program in applied mathematics, engineering and physics (AMEP) (http://guide.wisc.edu/undergraduate/letters-science/mathematics/applied-mathematics-engineering-physics-bs-amep/) is described in its own section of the Guide.

**ASTRONOMY–PHYSICS**
Students interested in an Astronomy–Physics major should contact the Astronomy Department (http://guide.wisc.edu/undergraduate/letters-science/astronomy/).

**EDUCATION–PHYSICS**
A student working toward the Bachelor of Science–Education degree may major or minor in physics. Interested students should contact the School of Education (http://guide.wisc.edu/undergraduate/education/). Upon request, the physics department will assign an advisor.

**MEDICAL PHYSICS**
A suggested curriculum for students interested in graduate study in medical physics is available on the medical physics webpage (https://www.medphysics.wisc.edu/graduate-program/admissions/#requirements).

**DEGREES/MAJORS/CERTIFICATES**

**DEGREES/MAJORS/CERTIFICATES**

- Physics, BA (http://guide.wisc.edu/undergraduate/letters-science/physics/physics-ba/)
- Physics, BS (http://guide.wisc.edu/undergraduate/letters-science/physics/physics-bs/)
- Physics, Certificate (http://guide.wisc.edu/undergraduate/letters-science/physics/physics-certificate/)

**PEOPLE**

**FACULTY**
More details about each faculty member (https://www.physics.wisc.edu/people/faculty/) and the research areas can be found on the Physics website.

Yang Bai, Professor
Baha Balantekin, Eugene P. Wigner Professor
Vernon Barger, Van Vleck Professor and Vilas Research Professor
Keith Bechtol, Associate Professor
Kevin Black, Professor
Stanislav Boldyrev, Professor
Uwe Bergmann, Martin L. Pearl Professor in Ultrafast X-Ray Science
Tulika Bose, Professor
Victor Brar, Van Vleck Associate Professor
Rogerio Manuel Jorge, Assistant Professor  
Duncan Carlsmith, Professor  
Daniel Chung, Professor  
Susan Coppersmith, Emeritus Robert E. Fassnacht Professor and Vilas Research Professor  
Kyle Cranmer, Professor & Data Science Institute Director  
Sridhara Dasu, Professor  
Jan Egedal, Professor  
Mark Erikkson, John Bardeen Professor and Department Chair  
Ilya Esterlis, Assistant Professor  
Lisa Everett, Professor  
Ke Fang, Assistant Professor  
Cary Forest, Prager Professor of Experimental Physics  
Pupa Gilbert, Vilas Distinguished Achievement Professor  
Francis Halzen, Gregory Breit Professor, Hilldale Professor, & Vilas Research Professor  
Kael Hanson, Professor  
Aki Hashimoto, Professor  
Matthew Herndon, Professor  
Robert Joynt, Emeritus Professor  
Albrecht Karle, Professor  
Roman Kuzmin, Dunson Cheng Assistant Professor  
Alex Levchenko, Professor  
Lu Lyu (aka Lu Lu), Assistant Professor  
Dan McAmmon, Professor  
Robert McDermott, Professor  
Moritz Muenchmeyer, Assistant Professor  
Matthew Otten, Assistant Professor  
Yibin Pan, Associate Professor  
Brian Rebel, Professor  
Mark Rzchowski, Associate Chair and Professor  
Mark Saffman, Professor  
John Sarff, Professor  
Tiancheng Song, Assistant Professor  
Gary Shiu, Professor  
Paul Terry, Professor  
Peter Timbie, Professor  
Justin Vandenbroucke, Associate Professor  
Maxim Vavilov, Professor  
Thad Walker, Vilas Distinguished Achievement Professor  
Sau Lan Wu, Enrico Fermi Professor, Hilldale Professor, and Vilas Research Professor  
Deniz Yavuz, Professor  
Vladimir Zhdankin, Assistant Professor  
Ellen Zweibel, William L Kraushaar Professor of Astronomy & Physics

AFFILIATED FACULTY
David Anderson, Professor, Electrical & Computer Engineering  
Paul Campagnola, Professor, Biomedical Engineering  
Jennifer Choy, Assistant Professor, Engineering Physics  
Elena D’Onghia, Professor, Astronomy  
Chang-Beom Eom, Professor, Materials Science & Engineering  
Chris Hegna, Professor, Engineering Physics  
Sebastian Heinz, Professor, Astronomy  
Mikhail Kats, Associate Professor, Electrical & Computer Engineering  
Jason Kawasaki, Associate Professor, Materials Science & Engineering  
Irena Knezevic, Professor, Electrical & Computer Engineering  
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Oliver Schmitz, Professor, Engineering Physics  
Micheline Soley, Assistant Professor, Chemistry  
Carl Sovinec, Professor, Engineering Physics  
Ying Wang, Assistant Professor, Materials Science & Engineering  
Jun Xiao, Assistant Professor, Materials Science & Engineering