PHYSICS

The Department of Physics has a long history of providing students with a great educational experience. The department awarded its first Ph.D. in 1899. Since then, physics students have earned degrees in virtually every area of physics, and the department’s faculty has 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.

CHOOSE TO BE A PHYSICS MAJOR

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.

A degree in physics helps prepare students for employment in industry, research, government, and academia. A bachelor’s degree from the undergraduate physics program will provide an overall view of both classical and modern physics along with problem-solving ability and the flexibility to continue learning.

Your education 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 in the medical physics (https://www.medphysics.wisc.edu/) department office.

DEGREES/MAJORS/CERTIFICATES

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

PEOPLE

FACULTY
Yang Bai (https://www.physics.wisc.edu/people/yangbai/), Professor
Baha Balantekin (https://www.physics.wisc.edu/people/bahabalantekin/), Eugene P. Wigner Professor
Vernon Barger (https://www.physics.wisc.edu/people/vernon-dbarger/), Vilas Professor and Van Vleck Professor
Keith Bechtol (https://www.physics.wisc.edu/people/keithbechtol/), Assistant Professor
Uwe Bergmann (http://www.physics.wisc.edu/people/uwebergmann/), Martin L. Perl Endowed Professor in Ultrafast X-Ray Science
Kevin Black (https://www.physics.wisc.edu/people/kevinblack/), Professor, Associate Chair for Graduate Program
Stas Boldyrev (https://www.physics.wisc.edu/people/stanislavboldyrev/), Professor
Tulika Bose (https://www.physics.wisc.edu/people/tulikabose/), Professor
Victor Brar (https://www.physics.wisc.edu/people/victorbrar/), Van Vleck Assistant Professor
Duncan Carlsmith (https://www.physics.wisc.edu/people/duncancarlsmith/), Professor
Daniel Chung (https://www.physics.wisc.edu/people/daniel-jchung/), Professor
Sridhara Dasu (https://www.physics.wisc.edu/people/sridharadasu/), Professor
Jan Egedal (https://www.physics.wisc.edu/people/janegeadal/), Professor
Mark Eriksson (https://www.physics.wisc.edu/people/markeriksson/), Department Chairperson and John Bardeen Professor of Physics
Lisa Everett (https://www.physics.wisc.edu/people/lisa-leverett/), Professor
Ke Fang (http://www.physics.wisc.edu/people/kefang/), Assistant Professor
Cary Forest (https://www.physics.wisc.edu/people/cary-bforest/), Prager Professor of Experimental Physics
Pupa Gilbert (https://www.physics.wisc.edu/people/pupagilbert/), Vilas Distinguished Achievement Professor
Francis Halzen (https://www.physics.wisc.edu/people/francis-halzen/), Gregory Breit Professor and Hilldale Professor
Kael Hanson (https://www.physics.wisc.edu/people/kael-dhanson/), Professor, WIPAC Director
Aki Hashimoto (https://www.physics.wisc.edu/people/akihashimoto/), Professor
Matthew Herndon (https://www.physics.wisc.edu/people/matthew-herndon/), Professor
Robert Joynt (https://www.physics.wisc.edu/people/robert-joynt/), Professor
Albrecht Karle (https://www.physics.wisc.edu/people/albrechtkarle/), Professor, IceCube Associate Director, Science and Instrumentation
Shimon Kolkowtiz (https://www.physics.wisc.edu/people/shimonkolkowitz/), Assistant Professor
James Lawler (https://www.physics.wisc.edu/people/james-elawler/), Arthur and Aurelia Schawlow Professor
Alex Levchenko (https://www.physics.wisc.edu/people/alexlevchenko/), Professor
Lu Lu (http://www.physics.wisc.edu/people/lulu/), Assistant Professor
Dan Mcammon (https://www.physics.wisc.edu/people/danmccammon/), Professor
Robert McDermott (https://www.physics.wisc.edu/people/robert-fmcdermott/), Professor
Moritz Cornelius Muenchmeyer (http://www.physics.wisc.edu/people/moritz-corneliumuenchmeyer/), Assistant Professor
Marshall Onellion (https://www.physics.wisc.edu/people/marshall-fonellion/), Professor
Yibin Pan (https://www.physics.wisc.edu/people/yibinpan/), Associate Professor
Brian Rebel (https://www.physics.wisc.edu/people/brianrebel/), Associate Professor
Mark Rzchowski (https://www.physics.wisc.edu/people/markrzchowski/), Associate Chairperson and Professor
Mark Saffman (https://www.physics.wisc.edu/people/marksaaffman/), Professor
John Sarff (https://www.physics.wisc.edu/people/john-ssarff/), Professor
Gary Shiu (https://www.physics.wisc.edu/people/garyshiu/), Professor
Paul Terry (https://www.physics.wisc.edu/people/paul-wwterry/), Professor
Peter Timbie (https://www.physics.wisc.edu/people/peter-ttimbie/), Professor
Justin Vandenbroucke (https://www.physics.wisc.edu/people/justinvandenbroucke/), Associate Professor
Maxim Vavilov (https://www.physics.wisc.edu/people/maxim-gvavilov/), Professor
Thad Walker (https://www.physics.wisc.edu/people/thad-gwalker/), Professor
Sau Lan Wu (https://www.physics.wisc.edu/people/sau-lanwu/), Enrico Fermi Professor and Vilas Professor
Deniz Yavuz (https://www.physics.wisc.edu/people/denizyavuz/), Professor
Ellen Zweibel (https://www.physics.wisc.edu/people/ellen-gzweibel/), William L Kraushaar Professor of Astronomy & Physics