



# PHYSICS

## UW-EAU CLAIRE UNDERGRADUATE FACT SHEET

Physics, the science of matter and energy, is the study of the deepest mysteries of our universe, ranging from subatomic particles to cosmology. Exploring ideas of space, time, matter, energy and radiation, it serves as the basis for the physical sciences, engineering and new technologies. At UW-Eau Claire, we also combine the study of physics with astronomy to apply the ideas of physics to the study of planets, stars, galaxies and all celestial phenomena within reach of our telescopes. These two areas share a vast array of common ideas and knowledge, and discoveries in physics often aid progress in astronomy and vice versa.

### WHY STUDY PHYSICS?

- Modern society is influenced by physics in countless ways, including recent development in such fields as laser optics, miniaturized electronics, nanotechnology, nuclear energy and medical instrumentation.
- It's a field in which you try to solve mysteries of the universe such as: What are the fundamental forces in the universe? What holds atoms together? How does an airplane fly?
- It's solid preparation for graduate studies in physics, surface science, astronomy, materials science, medical physics, medicine, teaching, engineering, architecture, law and for careers working in computer companies, planetariums, government laboratories, the military, industry and the Peace Corps.
- Participate in life-changing endeavors like developing methods and tools that diagnose and cure disease; managing traffic flow in large cities; predicting geological

phenomena like earthquakes, tornadoes and floods; creating new materials; and developing cleaner fuels for automobiles.

### THE EAU CLAIRE ADVANTAGE

- Small classes, individual attention.
- Opportunities to work one-on-one with faculty in physics research (atomic physics, optics, acoustical physics), materials science research, astronomy research (asteroid photometry, near-IR spectroscopy of planetary nebulae, X-ray spectroscopy of hot stars), computational science research, planetarium science and science outreach.
- Excellent on-campus science facilities including the L.E. Phillips Planetarium, which serves

### UW-EAU CLAIRE FACTS AT A GLANCE

- Location: Eau Claire, Wis.; city pop. 64,000, metro. pop. 151,000
- Average enrollment: 10,500
- Undergraduates: 10,063
- Graduate students: 503
- International students: 124
- Multicultural students: 485
- Average men-women ratio: 2-to-3
- Students who spend at least a semester studying abroad: 24%
- Students doing undergraduate research with faculty/staff: 710+
- ACT composite average: 24+
- Average high school rank: 77%
- Average class size: 28
- Faculty-student ratio: 1-to-20
- Computers-student ratio: 1-to-9
- Student organizations: 224
- Walk across campus: About 10 minutes
- Nickname: Blugolds
- Colors: Navy and old gold

thousands of visitors each year; the Materials Science Center, which includes a transmission electron microscope, a scanning electron microscope, an x-ray photoelectron spectrometer, and a scanning tunneling electron microscope; an optics laboratory; an electronics lab; surface science labs; CCD cameras; research-grade high vacuum systems; machine and wood shops; an observation platform on the roof of Phillips Hall, which uses Celestron 8-inch telescopes; and several computer labs (one of which is wireless).

- Students have access to the Hobbs Observatory, located east of Eau Claire, which is for research and public service, and has 14-inch and 24-inch telescopes in separate domes.
- In addition to gaining knowledge in the field of physics, students gain speaking and writing skills to better communicate ideas and findings.
- Students have had summer research opportunities at UW-Eau Claire and other locations, including the University of Minnesota, the Cyclotron Laboratory at Michigan State University, the Department of Astronomy at Cornell University and research groups at Argonne Laboratories.

### CAREER OPTIONS

- High school teacher – physics, chemistry, mathematics
- Engineer – civil, mechanical, electrical, nuclear
- Technician
- Technical writer
- Planetarium director
- Continue on to graduate school and receive your master's degree or Ph.D. in physics, astronomy, materials science, engineering, medical physics, etc.

## UNDERGRADUATE PROGRAMS

The UW-Eau Claire department of physics offers:

### Majors/Minors

- Physics – liberal arts emphasis, applied emphasis or dual degree emphasis
- Physics – teaching

### Comprehensive Majors (require no minor)

- Physical Science – teaching
- Physics-Math – teaching

### Pre-engineering (see separate Fact Sheet)

UW-Eau Claire has a strong pre-engineering program where students usually spend two years at UW-Eau Claire before transferring to an engineering school to complete their degree. We also offer a dual degree program, which allows students to earn two bachelor's degrees in five years – a physics degree from UW-Eau Claire and an engineering degree from either UW-Madison or the University of Minnesota.

## HIGH SCHOOL PREPARATION

- To study physics, students should have curiosity, imagination and personal satisfaction from solving problems. They also should enjoy mathematics and analysis of the physical world.
- Ideally, students interested in physics should complete four years of high school college preparatory mathematics and at least three years of high school science, including chemistry and physics.
- All students who enroll at UW-Eau Claire are required to have a minimum of 17 college preparatory units including:
  - 4 years of English (at least 3 composition and literature)
  - 2 years of a single foreign language
  - 3 years of math (algebra, geometry, 1 advanced college preparatory math)

- 3 years of natural science
- 3 years of social science (1 must be world or American history)
- 2 additional units in the areas already mentioned or other academic areas

## FRESHMAN COURSE WORK

### Sample First Year

#### FALL SEMESTER

COURSE#	TITLE	CREDIT
Engl 110	Introduction to College Writing	5
Math 112	Precalculus Mathematics	4
or		
Math 114	Calculus I	4
Chem 103	General Chemistry	5

#### SPRING SEMESTER

COURSE#	TITLE	CREDIT
Math 114	Calculus I	4
or		
Math 215	Calculus II	4
Phys 231	University Physics I	5
Phys 229	Astronomy-Stars/ Galaxies	4
Social sciences or humanities course		3

## FOR MORE INFORMATION

For more information about UW-Eau Claire's programs in mathematics, contact:

### Mathematics

Hibbard Hall 508  
UW-Eau Claire  
Eau Claire, WI 54702-4004  
715-836-3301  
[www.uwec.edu/math](http://www.uwec.edu/math)

For more information about campus including costs, housing, admission requirements and tours:

### Admissions

Schofield Hall 112  
UW-Eau Claire  
Eau Claire, WI 54702-4004  
715-836-5415  
[admissions@uwec.edu](mailto:admissions@uwec.edu)  
[www.uwec.edu/admissions](http://www.uwec.edu/admissions)



Experience the Eau Claire Advantage.