



# PHYSICS



About 2,500 years ago Thales of Miletus sat in a cave high above the shore of the Mediterranean sea. This cave was visited by Greeks when they wished to meditate and to commune with the spirits. While meditating, Thales asked, “What is the nature of things?” The Greek word he used for “nature” was *physis*. Physics, then, began from a desire to study and understand nature. Most of us study physics because we are motivated by the same burning desire that drove Thales – to understand to the *physis* of things.

As a physics major at Berea you can expect:

- ◆ A commitment to academic excellence;
- ◆ Small class sizes, individual attention, and the opportunity to work closely with your professors;
- ◆ Opportunities for research both on and off campus;
- ◆ A solid background in physics and mathematics that will prepare you for either graduate school or the job market;
- ◆ The chance to gain a deeper understanding of the fundamental principles that govern the universe.

## Curriculum

The physics program at Berea College is designed to give our physics majors a broad view of the physics practiced in the modern world, and to help them develop the fundamental skills they will need to pursue graduate school in physics or a related field, and in jobs as diverse as teaching, research and development, scientific reporting and in publishing.

At Berea we offer a rigorous foundation in physics and mathematics coupled with a strong liberal arts curriculum. Physics students begin their study with a three-semester sequence of classical and modern physics. Upper division courses include electrodynamics, classical mechanics, quantum mechanics, and electives such as optics, thermal physics, astrophysics, mathematical methods, and solid-state physics.

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## Research Opportunities

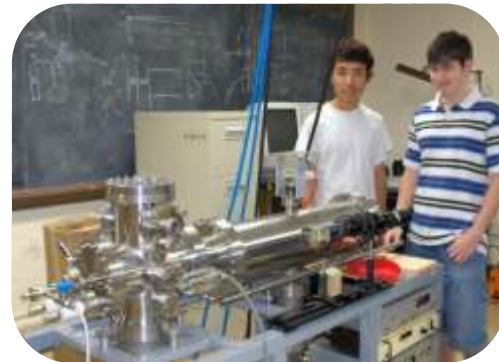
Research is an essential component of the undergraduate physics curriculum at Berea. We provide our students with research opportunities on campus through the college labor program as well as the Undergraduate Research and Creative Projects Program. Our students have participated in projects to monitor variable stars with the College Observatory, use laser ablation to create and study buckyballs ( $C_{60}$ ), and synthesize new materials like half-metals.

Our facilities include

- An NSF funded x-ray diffraction lab;
- A Mössbauer spectrometer;

- A time-of-flight mass spectrometer;
- A laser ablation apparatus;
- Fully equipped labs for optics and digital electronics;
- A newly renovated 16" telescope and CCD camera;
- A 30' planetarium;
- Workstations running both Windows and Linux;

Research opportunities off campus are available through internships and NSF-sponsored REU programs. Through such opportunities our students have conducted research in solar physics at the University of Montana, astrophysics at the University of Wisconsin-



Madison, biophysics at the University of Louisville, engineering at the University of Kentucky, and particle physics at Fermilab in Chicago.

Our students regularly present the results of their research at the Kentucky Academy of Science annual meeting.

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## Faculty



DR. AMER LAHAMER, Chair (B.S.E.E., M.S.E.E., M.S., University of Iowa; Ph.D. Vanderbilt University) is a solid state physicist whose research interests include Mössbauer spectroscopy, half-metals, fullerenes, and chirality in nature.

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DR. TRACY HODGE (BA, Rice University; Ph.D., University of Wyoming) is an infrared astronomer who studies the dust environment of stars. Dr. Hodge is the advisor for the 3-2 dual degree engineering program. [hodget@bera.edu](mailto:hodget@bera.edu)

DR. MARTIN VEILLETTE (B.S., Laval University; M.S. McMaster University; Ph.D., University of California Santa Barbara) is a theoretical physicist who is interested in the study of strongly correlated materials.

For more information please visit our website

<http://physics.berea.edu>

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