



## Department of Physics & Astronomy

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Majors offered: ☉ Physics, B.A., B.S. (four concentrations: fundamental physics, astronomy and space science, high school physics teaching, applied physics)

Links to Web sites: [Catalogs Department of Physics & Astronomy](#) (department maintained)

The Department of Physics & Astronomy is an exciting place where you explore the very foundations of the universe. Whether you are studying in the observatory with our computer-controlled telescope, working with our particle accelerator or with our subcritical nuclear reactor, you have the opportunity to explore the underpinnings of our existence.

## What Is Distinctive About Valpo's Program?

Facilities: Valpo is fully computerized in astronomy, nuclear physics, and more. This includes high speed computers and computer interfaces that enable students to learn valuable laboratory techniques, applicable immediately after graduation in employment and in graduate school. Our astronomical observatory features a 16-inch computer controlled reflecting telescope. Valpo physics labs feature a subcritical nuclear reactor, as well as laboratory stations with ultrasonic motion detectors, LED photogates, and thermocouples.

Students have hands-on experience running the particle accelerator in the nuclear physics laboratories, the astronomical telescope and sophisticated data collection

College of Arts & Sciences - Valparaiso University  
equipment, etc. Astronomy students learn to operate the Valparaiso University  
Astronomical Observatory and have full responsibility for open viewing sessions  
for people from the community and from the campus. They also participate in data  
collection at the observatory if they are engaged in astronomical research. See  
[www.valpo.edu/physics/deparment/facilities.php](http://www.valpo.edu/physics/deparment/facilities.php).

Research: Valpo has a 20-year history of supporting undergraduate research.  
Research is possible for interested students, especially in the summer when, if  
selected, they are paid a salary and work on front-line research in astronomy or  
physics. This includes freshman through senior students. Students have been  
awarded competitive research opportunities at laboratories such as Los Alamos  
National Laboratory, Goddard Space Flight Center, and Oak Ridge National  
Laboratory. See [www.valpo.edu/physics/research/](http://www.valpo.edu/physics/research/).

Weekly Colloquium: A regular weekly colloquium for all major students brings in  
active researchers to tell of their research in astronomy and physics. Speakers  
have included Dr. Osheroff, the 1998 Nobel Prize Winner in Physics. See  
[www.valpo.edu/physics/colloquia/](http://www.valpo.edu/physics/colloquia/)

## **What Can You Do with this Major?**

Degree, Skills or Experience Needed for Beginning a Job in This Field: Most of  
our graduates report that their background in problem solving, laboratory skills,  
and computer applications and computer programming skills have been central  
to their employment success. Our physics and astronomy curriculum emphasizes  
learning these skills and developing these experiences so you will be well prepared  
to respond to employment opportunities in which these are likely to be valued. The  
several focused Applied Physics minors emphasize more specific knowledge and  
skill development aimed toward a more specific employment market.

Kinds of Work Available to Graduates in this Major: Many physics majors  
graduating from Valparaiso University pursue advanced degrees in physics or  
astronomy. Our students have been accepted at major respected universities  
and received teaching and research assistantships to support their graduate  
study. Other physics majors go directly into employment upon graduation from  
Valpo. A survey of our physics and astronomy alumni has revealed a wide  
diversity of fields, including, but not limited to, the following: Applied Mathematics,  
Astrophysics, Computational Physics Medicine, Health Physics, Elementary  
Particle Physics, Industrial Research & Development Medical Radiation Physics,  
Nuclear Engineering, Nuclear Physics, High School or College Teaching, Systems  
Engineering, Patent Law, Medicine, Biophysics, Technical Writing.

Potential Hiring Institutions: Abbott Laboratories, Argonne National Laboratory,  
Fermi National Accelerator Laboratories, General Dynamics, Motorola Corporation,  
Nichols Research Corporation, Valparaiso Public School System (and other school  
systems), Microsoft Corporation, NASA.

Graduate Schools: Many Valpo graduates pursue post-graduate study with full  
support at schools such as California Institute of Technology, Stanford University,  
Cornell University, Duke University, University of Chicago, Northwestern University,  
Ohio State University, and Washington University.

## **What Beyond-the-Classroom Opportunities Does Valpo Offer You in English?**

Extracurricular Activities: Valpo is host to a local chapter of the Society of Physics Students and to the honor society Sigma Pi Sigma. See [www.valpo.edu/physics/students/sps.php](http://www.valpo.edu/physics/students/sps.php)

### **Off-Campus Opportunities**

Study Abroad: Valpo students are encouraged to take advantage of study-abroad programs in countries such as Mexico, England, France, Germany, Greece, Spain, China, Japan, and Namibia, as well as programs in Washington, D.C., Chicago, and New York.

### **Notable Alumni:**

Nathan Bachmann (VU '93), Ph.D. in condensed matter physics from Northwestern University; now at Harvard University

Dirk Busse (VU '95), M.S. in Electrical Engineering from Cornell University; technical consultant, Siemens AG, Information & Communication Networks, Munich, Germany

Jay Dittmann (VU '92), Ph.D. in sub-nuclear physics from Duke University; Fermi National Accelerator Laboratory, Batavia, IL

Lindsey Hillesheim (VU '99), Ph.D. candidate in biophysics at the University of Minnesota

Laura Nickerson (VU '96), M.S. from Northern Illinois University; physics teacher at the Illinois Math and Science Academy, Aurora, IL