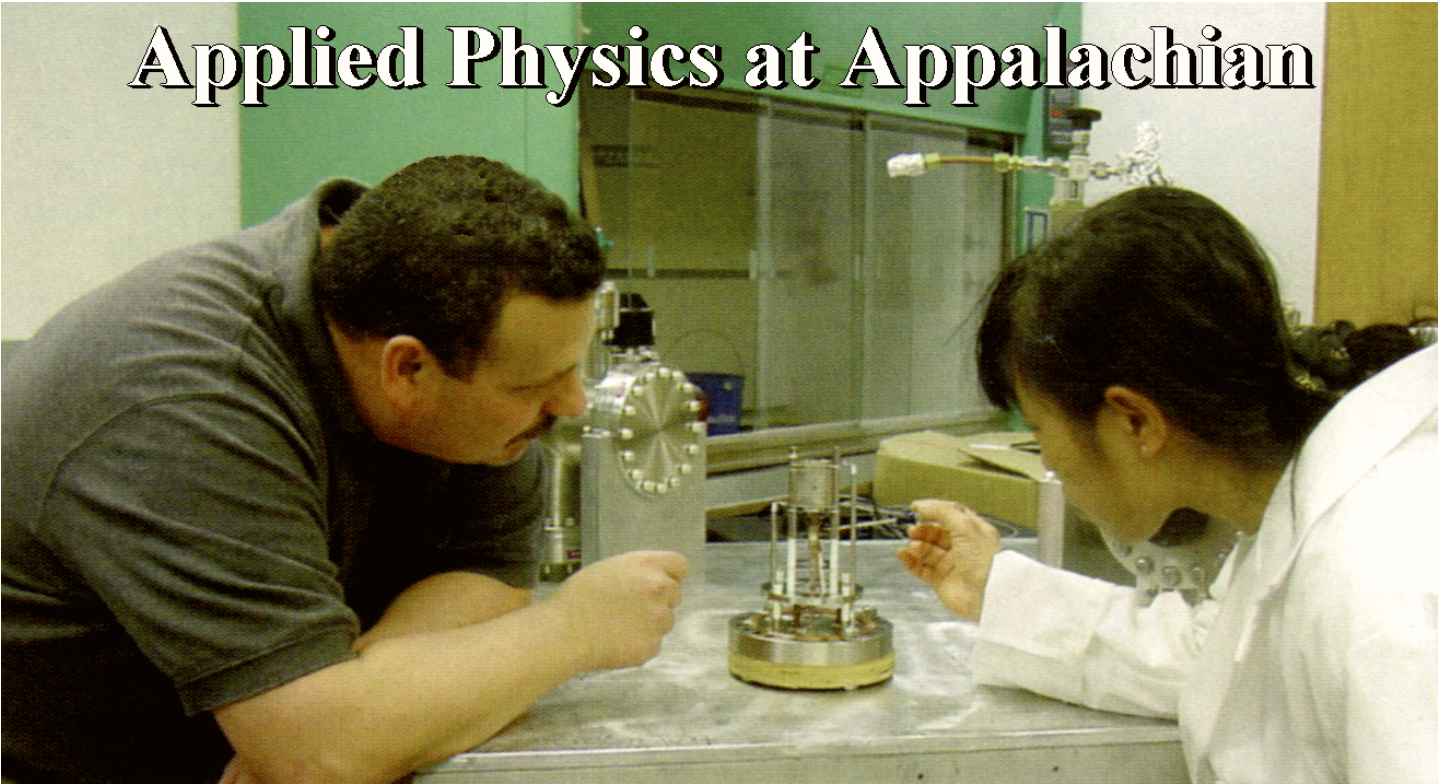


Applied Physics at Appalachian



[The Applied Physics Major at Appalachian State University](#)

The Department of Physics and Astronomy at Appalachian offers a B.S. degree in Applied Physics. Our departmental curriculum has an applied nature that includes a core of fundamental physics courses and laboratory experiences. We also encourage our majors to become involved with projects and research experiences outside the classroom. We have a dedicated faculty and staff that support such student participation with state-of-the-art research laboratories, observatories, and other educational programs that will enhance the student's future professional prospects. The flexibility of the curriculum permits interdisciplinary exploration, not only among the physics and astronomy disciplines, but also the other natural sciences, mathematics, and computer science. We expect our curriculum to result in physics graduates who are capable of applying and adapting their undergraduate education in a variety of scientific, teaching, or engineering professions, as well as future educational endeavors.

Major program tracks in the Department of Physics & Astronomy include:

1. Applied Physics (B.S.) as well as Physics (B.A.)
2. Applied Physics with Concentration in Astronomy (B.S.)
3. Pre-engineering including cooperative agreements with NCSU, NC A&T, Clemson, and Auburn

Along with the basic requirements for any of our degree concentration options, the student interested in applied physics will also have the opportunity to study, among others, the topics listed below.

1. Computer Design, Programming, and Interfacing
2. Digital and Analog Electronics
3. Environmental Physics
4. Classical Physics: Electricity, Magnetism, and Optics
5. Modern Physics: Quantum Physics and Relativity
6. Computational Physics, Physics Education, Physics Demonstration and Laboratory Management

Upon completion of the Applied Physics curriculum, our majors will have a solid foundation in both the classical

and modern views of physical reality and have the ability to apply their critical-thinking abilities to the solutions of a variety of real-world problems. In addition, the student will develop skills in electronics and computer science.

Instructional Facilities

In the summer of 1998 our Department moved into the newest science building on campus. This state-of-the-art facility contains classrooms, computer labs, undergraduate study carrels and instructional and research laboratories. The Department also operates two observatories and a nationally recognized laboratory/demonstration facility.

Research Facilities & Activities

Numerous research laboratories exist within the new science building that house state-of-the-art research apparatus and support programs directed by departmental faculty. Present and developing research programs within the department include: applied electrostatics, astronomy and astrophysics, accelerator-based and ion-beam physics, automated Braille display technologies, laser spectroscopy of solid-state materials, physics education research, precision optical studies, remote-sensing technology, stored-ion and time-of-flight mass spectroscopy studies, and a scanning probe microscopy facility. The Dark Sky Observatory is the major astronomical research observatory for the department. Advanced departmental majors assist faculty with their research and have co-authored publications resulting from that research. Students also attend professional meetings and assist with introductory labs, facility tours, and open houses.

Career Opportunities

Applied physicists often do interdisciplinary work in areas that combine elements of both physics and engineering. Industrial laboratories such as Lucent Technology, Xerox, General Electric, Ford, Westinghouse, and IBM support applied and basic research in areas such as condensed matter physics, materials science, optics, electronics, and communications. Large government laboratories such as Brookhaven, Oak Ridge, Fermilab, Livermore, Argonne, Los Alamos, and Lincoln Labs - support both basic and applied research in many areas such as high-energy physics, nuclear physics, medical physics, energy research, and solid state physics. Opportunities exist for physics graduates as computer programmers, technicians, and research assistants in university, government, and industrial laboratories. With a bachelor's degree and the appropriate certification, graduates can teach high school physics and obtain the certification to teach mathematics as well. Graduate study in astronomy, engineering, and physics, as well as law and medical school, are open to the qualified applied physics B.S. recipient and will lead to advanced degrees and higher-level professional appointment opportunities with the above institutions, as well as, the possibility of university faculty status.

Additional Information

If you are interested in any of the Applied Physics programs at Appalachian, we would be glad to answer any questions about the department, specific programs, or about Appalachian in general. Please contact:

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More information about majoring in Applied Physics, the Physics and Astronomy Department and Appalachian in general is available at www.phys.appstate.edu on the Internet.