PHYSICS

Mission Statement

The Department of Physics & Astronomy at Denison University seeks to foster an understanding and deep appreciation of the physical world and our relationship to it. Our mission is centered on an engaging curriculum that balances breadth and depth, empowering students to explore, comprehend, and apply the fundamental principles of the universe.

Our faculty prioritize undergraduate education, combining effective teaching practices with the latest scholarly insights. We invite students to become active partners in the pursuit of original investigations, nurturing a culture of inquiry and discovery. Through our comprehensive program, students achieve increasing levels of autonomy in both experimental and theoretical physics.

The key objectives of our program are for students to:

1. understand the principal laws which govern the physical world;
2. master the fundamental reasoning process used in solving problems;
3. learn mathematical techniques and computational tools to solve physics problems;
4. develop an understanding of electronics, technical measurements, and data analysis;
5. identify, organize, and conduct independent investigations and communicate the results.

Departmental Guidelines

The physics curriculum at Denison University begins with an exploration of modern physics and astronomy in the very first class, titled “Quarks to Cosmos” (Physics / Astronomy 125). In this course, students examine how time and space transform near the speed of light, the structure of atoms and nuclei, elementary particles, and the evolution of the universe. The following courses in the introductory sequence investigate motion, fluids, heat, electricity, magnetism, waves, and optics. Advanced courses dive deeper into classical mechanics, electrodynamics, quantum physics, and thermodynamics, as well as electronics and data analysis. Many of our students are also involved in research during their time at Denison, contributing to the generation of new knowledge.

A physics degree is a strong foundation for a wide range of careers, from engineering and medicine to finance and industrial management. Physics majors develop problem-solving, effective communication, quantitative reasoning, and technical skills that are highly valued by employers. They are also well-prepared for graduate study in physics, astronomy, and related fields.

All students interested in the physics major or in engineering should enroll in Physics 125 and calculus during the fall of their first year. Students can also complete a major in physics by beginning in the sophomore year, although they may have fewer course options. Students who have taken Physics 121 and Physics 122, and those that have transferred to Denison, should consult with the Department Chair about degree requirements.