ENGINEERING PHYSICS, BS

As an engineering physics major, you'll dive into research alongside professors who work at the frontier of translating emerging science into novel technologies. With a curriculum designed specifically to launch your research career and a tight-knit community of scholars, you'll find a supportive environment to pursue a flexible math- and physics-centered curriculum and publish an undergraduate thesis. The engineering physics major is ideal for students who are already thinking about graduate school and want the flexibility to design their undergraduate experience to support that goal—but it also prepares students to join high-tech startup companies developing new technologies.

Students choose from three flexible focus areas -- nanoengineering, plasma science and engineering, and scientific computing -- that include graduate-level courses and laboratory experiences. Students in nanoengineering take courses in physics, material science, engineering mechanics, and electrical engineering to learn how to design, build, and use innovative devices and structures at the nanoscale. Plasma science and engineering students join one of the largest university plasma and fusion communities in the world, with collaborations between physics, electrical engineering, and nuclear engineering, and world-leading facilities. Scientific computing can be applied to nearly every discipline in science, combining modern computing practices with scientific discovery in research groups across campus.

As some of our best and brightest engineering students, EP majors move quickly through fundamental math and physics courses, opening the door for more advanced courses that support their research interests. With more flexibility than most engineering majors, each student works with their faculty advisor to find a selection of courses that are tuned to their specific research needs. The senior thesis is a defining aspect of this program, where students summarize their research findings and present them to a committee of professors, and possibly publish a paper in a scientific journal.

At the heart of the engineering physics program is a small learning community where students develop skills for conducting original research, with support from faculty and peers. The curriculum is designed to bring sophomores, juniors, and seniors together in a community where younger students learn from the general research experiences of their more senior counterparts. In addition, every student joins a research group where graduate students, post-docs, scientists, and faculty members support the specific skills and expertise needed for their research. Nearly all of our graduates go on to graduate degrees at the best universities in the U.S. and around the world and ultimately in careers in a variety of fields in academia, industry, or national laboratories.

OBJECTIVES OF THE ENGINEERING PHYSICS PROGRAM

- Educate students to think and participate deeply, creatively, and analytically in emerging areas of engineering technology.
- Educate students in the basics of instrumentation, design of laboratory techniques, measurement, data acquisition, interpretation, and analysis.
- Educate students in the methodology of research.
- Provide and facilitate teamwork and multidisciplinary experiences throughout the curriculum.
- Foster the development of effective oral and written communication skills.
- Expose students to environmental, ethical and contemporary issues.