Physics

The mission of the Physics Department is to enrich the lives of its students through understanding the awe-inspiring structure of the physical universe, from sub-atomic particles to distant galaxies. The department strives to impart an appreciation for this pursuit and to equip students with tools they can apply both in and beyond the physics classroom and laboratory. This mission is carried out within the halls of the Physics Department, as well as through student and faculty participation in the broader University, scientific, and civic communities.

THE PROGRAM

Gonzaga University's Physics Department offers a major in Physics leading to a Bachelor of Science degree. Course topics include mechanics, electricity and magnetism, optics, statistical physics, nuclear physics, and quantum mechanics. Students develop a basic knowledge of experimental procedure and analysis through accompanying laboratory sessions. Additionally, students majoring in physics are expected to achieve a familiarity with computer programming and computational physics methods.

Students who wish to major in another field, but have a strong interest in physics, may pursue a minor or a Bachelor of Arts degree.

The number of physics majors to faculty is about 2-to-1, and upper-division courses typically have just ten students. Such small classes allow for more personalized instruction.

RECENT PROJECTS

Recent projects completed by students and faculty at Gonzaga include:

- Using a cloud chamber to measure the rate of alpha decay in the atmosphere
- Design and assembly of a modified optical tweezer for scattering measurements
- Monte Carlo acceptance simulations for nuclear reactions
- Finding a relation between galactic red shift and radial distance
- Exploring the biophysics of EEG associated with epileptic seizures
- Determining the primordial helium abundance

DISTINCT OPPORTUNITIES

Frequently, physics majors have participated in summer research projects on campus with GU Physics faculty or off-campus in the National Science Foundation's (NSF) Research Experience for Undergraduates summer research programs. These programs, offered by a wide variety of schools, give undergraduates the opportunity to be part of a NSF-funded research project. Students may spend one summer on a GU physics project and then apply for NSF programs the next summer. GU students have had positive experiences both on campus and in the NSF program and have found these experiences instrumental in identifying a career path.

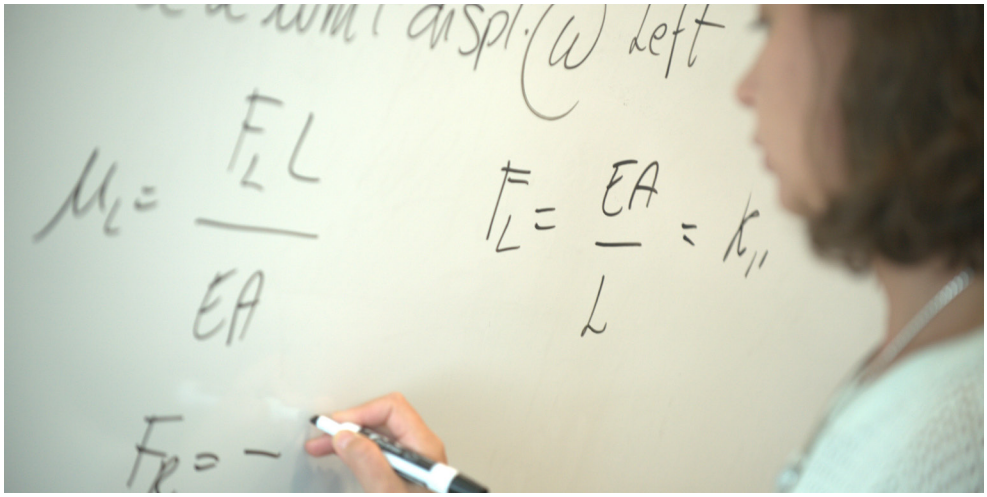
In order to expand and improve the program's laboratory offerings through hands-on work, the Physics Department provides equipment for gamma ray spectroscopy and electron diffraction, as well as a Michelson interferometer and an atomic force microscope. A linear electronics laboratory is also available for student learning and usage. This equipment is used in the upper-division lab courses.

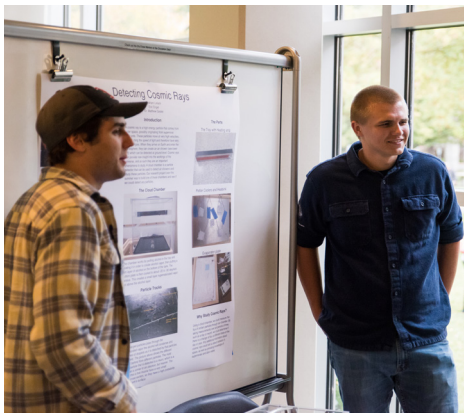
OUTCOMES

A recent survey by the American Institute of Physics indicated that physics graduates were evenly split between those who sought immediate employment and those who opted for graduate studies. Of those pursuing immediate employment, the majority accepted positions in industry or government. Of those pursuing graduate studies, 60 percent remained in the area of physics.

Gonzaga's Physics Department recognizes the diversity of careers available to Physics graduates today. The 54 required credits for a major in Physics gives students flexibility in their program of study, depending on their academic and career goals. The student planning on graduate studies in physics will likely take additional upper-division Physics Department courses beyond what is required for the major. However, students planning to pursue graduate studies in other areas may complete a second major, or a minor in those areas. This flexibility may also be used simply to take elective courses in other disciplines (engineering, chemistry, philosophy, etc.) that may be of interest or use.

Recent Gonzaga Physics students have entered a wide array of fields following graduation. **Recent Physics degree recipients are pursuing graduate studies in physics, engineering, medicine, software development, data science, and philosophy.** Additionally, recent graduates seeking immediate employment have found jobs in engineering, software development, data analysis, and project management.





EMPLOYERS

Recent graduates have found employment with the following organizations:

- NIST (National Institute of Standards and Technology)
- PNNL (Pacific Northwest National Laboratory)
- Resource Systems Group, Inc. (data analytics)
- Porch (a Seattle-based web startup)
- Northwest Electric & Solar
- Picarro, Inc. (environmental sevices & scientific instrumentation)
- Novuson (a Seattle-based medical devices startup)
- STEM from Dance
- NAVAIR
- Washington State Patrol Crime Lab

GRADUATE SCHOOLS

Recent graduates have been admitted to the following institutions for graduate study:

- Colorado School of Mines
- Colorado State University
- Michigan State University
- Montana State University
- Penn State University
- Texas A&M University Medical School
- Tulane University
- University of Central Florida
- University of Washington

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