Physicists study the fundamental laws of nature. The scope of physics is truly enormous, and physicists analyze everything from nuclear reactors to lasers, cosmology to chaos theory. Given the extraordinary rate of change and growth in the field, students interested in studying physics must possess creative insight, intellectual curiosity, and a commitment to proper scientific method.

THE PROGRAM
Gonzaga University’s Physics Department offers a major in Physics (54 credits) 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 Physics minor (27 credits).

The Department’s student-to-faculty ratio is about 3-to-1. This results in upper-division courses that typically have just five students. Such small classes allow for better and more personalized instruction.

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 very 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 laboratory work, the Physics Department provides equipment for gamma ray spectroscopy, electron diffraction, a Michaelson interferometer, and an Atomic Force microscope. A linear electronics laboratory is also available for student learning/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 acquiring 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 being pursued by 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 other areas. The 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, mathematics, philosophy, medicine, law, medical physics, and engineering. Additionally, recent graduates seeking immediate employment have found jobs in education, engineering, and finance.

THE PEOPLE
The Physics Department faculty emphasize teaching, and are also active in research. In addition, they hold positions on regional and national physics committees such as the American Association of Physics Teachers and the Board of Directors for the Pacific Northwest Association for College Physics.

FACULTY CONTACTS & SPECIALTIES
Allan Greer | Dept. Chair
Ph.D., College of William and Mary mechanics, electricity and magnetism, astronomy, laboratory technique current research: high temperature superconductors greera@gonzaga.edu

Erik Aver
Ph.D., University of Minnesota theoretical and computational physics, astronomy, classical and quantum mechanics current research: astrophysics/cosmology aver@gonzaga.edu

Jeffrey Bierman
Ph.D., University of Washington advanced mechanics, intermediate laboratory technique current research: heavy ion reactions bierman@gonzaga.edu

Christian Fink
Ph. D., University of Michigan introductory physics and laboratory current research: biophysics finkt@gonzaga.ed

Adam Fritsch
Ph.D., Michigan State University nuclear and particle physics, computational physics current research: nucleon clusters in nuclei fritscha@gonzaga.edu

Matthew Geske
Ph.D., Penn State University classical mechanics and modern physics laboratory current research: cosmic ray physics geske@gonzaga.edu

Eric Kincanon
Ph.D., University of Missouri, Columbia statistical mechanics and time current research: potential structures from scattering data and the philosophy of time kincanon@gonzaga.edu

Nicole Moore
Ph.D., University of Rochester optics and quantum mechanics current research: optical tweezers mooren@gonzaga.edu

John Byrne
Ph.D., Fordham University Professor Emeritus mechanics, optics, quantum mechanics current research: chaotic structures and acid rain