

DEPARTMENT OF PHYSICS AND ASTRONOMY

Introduction

Everything around you is influenced or governed by physics. Physics seeks to understand the fundamental workings of the universe, from the smallest particles like neutrinos to the vast structure of the cosmos. It unveils the underlying principles governing the world around us and serves as the cornerstone of all natural sciences, including chemistry, biology, oceanography, and geography.

The Department of Physics and Astronomy offers a range of degree tracks tailored to various interests and career paths:

- B.A. Tracks
 - Physics
 - Astronomy
 - Computational Physics
 - Energy
 - Engineering Physics
 - Medical and Biological Physics
 - Quantitative Finance
- B.S. Tracks
 - Physics
 - Astrophysics

These tracks align with diverse employment opportunities (<https://www.aps.org/careers/physicists/prospects.cfm>) for physics graduates, spanning high schools, government laboratories, financial institutions, medical facilities, data science, and high-tech industries.

Upon graduation, approximately 50 percent of physics bachelors transition directly into the workforce, while others pursue advanced degrees in physics, medical physics, business, law, or computer science.

Opt for a B.A. degree if you seek to blend your passion for physics with complementary disciplines such as computer science, environmental science, biophysics, medicine, engineering, or finance.

Consider a B.S. degree if you intend to pursue graduate study in physics, astronomy, or a related field, or a career practicing physics.

Advising

All majors and minors have a primary academic advisor from the Academic Advising Program (<https://advising.unc.edu/>). Students are encouraged to meet regularly with their advisor and review their Tar Heel Tracker each semester. The department's director of undergraduate studies and faculty advisors work with current and prospective majors by appointment (see contacts tab above). Faculty advisors are assigned to all physics majors and minors, and they assist students in a variety of physics related areas, including physics course planning, undergraduate research opportunities, the honors program, internships, career opportunities, and graduate school and fellowship applications. Physics majors are required to meet with their departmental advisor by appointment prior to registering for any semester beyond the fourth term in residence. Further information may be obtained from the department's website under the Undergraduate Program (<https://physics.unc.edu/undergrad/>).

Graduate School and Career Opportunities

Employers know that physicists understand how to think and reason effectively about the world, which equips them to solve unconventional challenging problems. Over 90 percent of physics majors do something other than teach or conduct research at a university. Physics will prepare you to pursue anything from medicine to energy to business. The American Institute of Physics' Career Resources (<http://aip.org/career-resources/>) site and our Department site (<https://physics.unc.edu/career-info/>) provides useful information about the different career paths of physics bachelor's degree recipients, including who is hiring them (<https://www.aip.org/statistics/multiple/>).

Common job titles for our physics bachelor's degree recipients include:

- Applications Engineer
- Data Analyst
- Analyst
- Data Scientist
- Staff Engineer
- System Engineer
- Software Engineer
- Design Engineer
- High School Physics Teacher
- IT Consultant
- Lab Technician
- Research Associate
- Systems Analyst
- IT Analyst

Those who are considering going on to graduate school in physics, astronomy, and other physical science and engineering fields, should contact one of the physics advisors. Those who plan careers in health sciences, including dentistry, medicine, and veterinary medicine, should consult advisors in the Health Professions Advising Office in Hanes Hall.

Majors

- Physics Major, B.A (<https://catalog.unc.edu/undergraduate/programs-study/physics-major-ba/>).
 - Physics
 - Astronomy
 - Computational Physics
 - Energy
 - Engineering Physics
 - Medical and Biological Physics
 - Quantitative Finance
- Physics Major, B.S. (<https://catalog.unc.edu/undergraduate/programs-study/physics-major-bs/>)
 - Physics
 - Astrophysics

Minors

- Astronomy Minor (<https://catalog.unc.edu/undergraduate/programs-study/astronomy-minor/>)
- Physics Minor (<https://catalog.unc.edu/undergraduate/programs-study/physics-minor/>)

Graduate Programs

- M.S. in Physics (<https://catalog.unc.edu/graduate/schools-departments/physics-astronomy/>)
- Ph.D. in Physics (<https://catalog.unc.edu/graduate/schools-departments/physics-astronomy/>)

Courses

- Astronomy (ASTR) (<https://catalog.unc.edu/courses/astr/>)
- Physics (PHYS) (<https://catalog.unc.edu/courses/phys/>)

Professors

Rosa Tamara Branca, James Christopher Clemens, Louise A. Dolan, Joaquin Emiliano Drut, Jonathan H. Engel, Adrienne Lynn Erickcek, Charles R. Evans, Fabian Heitsch, Reyco Henning, Christian G. Iliadis, Dmitri V. Khveshchenko, Nicholas M. Law, Rene Lopez, Jianping Lu, Laura Mersini-Houghton, Amy Lynn Oldenburg, Lu-Chang Qin, Daniel E. Reichart, Frank Tsui, John Franklin Wilkerson, Yue Wu, Otto Z. Zhou.

Associate Professors

Akaa Daniel Ayangeakaa, Brad Barlow, Andrew W. Mann, Amy Nicole Nicholson.

Assistant Professors

Igor Andreoni, Gökçe Başar, Julieta Gruszko, Carl Louis Rodriguez, Wei Zhang.

Research Professor

Arthur E. Champagne.

Research Associate Professor

Christina Redmon Inscoe.

Teaching Professor

Duane L. Deardorff.

Teaching Associate Professors

Colin Wallace, Jennifer Weinberg-Wolf.

Teaching Assistant Professor

Muxin Zhang.

Adjunct Professors

Gerald N. Cecil, Steven Mark Christensen, Michael R. Falvo, Brand Fortner, Yosuke Kanai, Alfred Kleinhammes, Enrique Platin, David Clarke Radford, John Michael Shull, Gregory Clayton Sloan, Rachel Lofsky Smith, Jie Tang.

Adjunct Associate Professors

David Hill, Yueh Lee, Thomas Osburn.

Professors Emeriti

Charles V. Briscoe, Bruce Carney, Gerald N. Cecil, Wayne Christiansen, Thomas Clegg, Kian S. Dy, John P. Hernandez, Robert Victor Janssens,

Sheila Kannappan, Hugon J. Karwowski, Laurie E. McNeil, Yee Jack Ng, Nalin Parikh, James A. Rose, William J. Thompson, Sean Washburn.

Contact Information

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Visit Program Website (<http://physics.unc.edu>)

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Chair

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