



THE UNIVERSITY  
OF TAMPA

**B.S. in Physics**

**Minor in Physics**

Physics provides the foundation from which all other sciences grow. The study of physics is the endeavor to understand and define the properties of energy and matter — the building blocks of the universe. Advances in science and technology, including spaceflight, lasers, transistors, MRI devices, prosthetic limbs and other wonders of the modern age, are all rooted in the study of physics. Above, associate professor Simon Schuler assists a student in using one of UT's computerized telescopes.

## What Will You Learn?

UT's Department of Chemistry, Biochemistry and Physics offers students a comprehensive program of study in **physics and astronomy**. The B.S. in physics is designed to prepare students not only for advanced studies at the graduate level but also to provide important problem-solving and research skills and experience needed for employment in physics and other scientific and technology disciplines.

Physics majors study the fundamental nature of reality using mathematical models based on experiment, observation and intuition. The curriculum covers topics ranging from the tiniest of subatomic particles to the largest — the universe — and includes coursework in classical mechanics, electromagnetism, quantum mechanics, nuclear physics, relativity, astrobiology and astrophysics.

In upper-level courses, the average class size drops to approximately 10, allowing for frequent, direct interaction with faculty and giving students the opportunity to work with equipment not often available to undergraduates at larger institutions.

A minor in physics is a helpful addition for students majoring in biology, chemistry or mathematics, or those who wish to pursue interdisciplinary studies in biophysics or geophysics.

### Research Opportunities

Students are encouraged to assist with ongoing projects or to pursue their own independent research under the guidance of faculty. Students working with faculty have completed projects in astrochemistry, exoplanet research, stellar spectral analysis and more. They not only receive academic credit, but many have presented their findings in scientific publications and at national conferences.

### Computerized Telescopes

UT recently purchased six Celestron Nexstar 8SE computerized telescopes for student use. These cutting-edge, portable devices allow for superior viewing of star clusters, planetary nebula, double-star systems, the moon and planets. Physics professors lead field trips to prime nighttime viewing areas across the state.

### Sample Courses

- Modern Physics
- Astrophysics
- Mathematical Methods for Physics
- Classical Mechanics
- Electricity and Magnetism
- Introduction to Astronomy
- Quantum Mechanics
- Advanced Physics Lab
- Thermodynamics and Statistical Mechanics
- Differential Equations
- General Physics with Calculus
- Astrobiology
- Physics Research

# Physics



**Kelli Shar '20**

**Double major: physics and philosophy**

**Activity: Society of Physics Students, president**

**Hometown: Pittsburgh, PA**

"I would encourage anyone to join the physics department at UT if they are looking for a program that truly feels like a family," said Kelli Shar, who spent last summer researching physics education, a specialty that focuses on how to make physics accessible to everyone. "The faculty are dedicated to creating an environment where each student can grow and thrive. As students, we work and support each other as a team, and I am confident that I made the best possible choice for my career in physics. After graduating, I plan to pursue my Ph.D. and spread the message that everyone can learn and love physics."

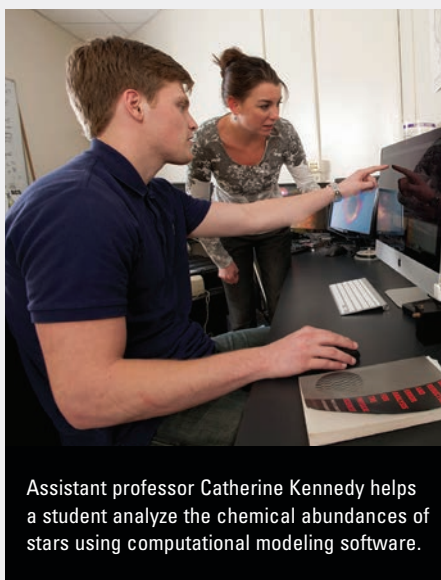
## Career Preparation

An education in physics puts special emphasis on problem-solving and out-of-the-box abstract thinking — skills that are portable across many disciplines. Physics majors are particularly suited toward careers in engineering or laboratory science, but a large number can be found in finance, education, computer science and other high-tech industries. Graduates are also well prepared for master's or doctoral studies in a wide range of subspecialties within the fields of physics and astronomy, as well as mathematics and engineering.

## Faculty Highlights

- Ethan Deneault, Ph.D., specializes in computational modeling of chemical processes that drive the formulation of presolar grains and interstellar dust. Through the study of terrestrial meteorites, he searches for clues to the origins of the solar system and the galaxy's chemical evolution.
- Catherine Kennedy, Ph.D., studies the compositions of the oldest stars in the galaxy using spectroscopic data gathered from large ground-based telescopes worldwide. Her research is focused on the early production of carbon, nitrogen and oxygen, as well as neutron-capture elements.

- Simon Schuler, Ph.D., researches the compositions of various galactic stellar populations using high-resolution optical and near-infrared spectroscopy. He holds a grant from NASA to study the compositions of stars hosting planets discovered by the Kepler space telescope.
- Denija Crnojevic, Ph.D., investigates the life and death of galaxies through the analysis of the stellar content of the closest galaxies. Her other areas of interest include the evolution of dwarf galaxies, the star formation history of giant galaxies and dark matter cosmology.



Assistant professor Catherine Kennedy helps a student analyze the chemical abundances of stars using computational modeling software.



## About UT

The University of Tampa is a medium-sized, private university offering more than 200 undergraduate and graduate programs of study. Richly diverse, UT is the school of choice for approximately 10,000 students from all 50 states and 132 countries.

For more information about studying physics at UT, visit [www.ut.edu/physics](http://www.ut.edu/physics).

