



The University of Texas at Austin

Texas Institute for Discovery

Education in Science

College of Natural Sciences

Physics Program Learning Outcomes:

Graduates from the BS Physics undergraduate degree program will be able to:

- *Outcome 1:* Demonstrate a thorough conceptual understanding in the core areas of physics (classical mechanics, electrodynamics, statistical mechanics, quantum mechanics) and the supporting mathematics, including the range of validity of key concepts (e.g. conservation laws).
- *Outcome 2:* Identify the most relevant physics concepts in approaching a “messy” problem that might arise in everyday life, and devise a strategy in order to arrive at the solution. Additionally, achieve an understanding of the connection between key physics concepts and technological applications.
- *Outcome 3:* Demonstrate level of proficiency in using mathematical concepts and methods that allows for applying key physics concepts effectively when solving problems.
- *Outcome 4:* Use software tools and coding at a level necessary to perform mathematical operations, statistical analysis and simulations in solving complex problems.
- *Outcome 5:* Use basic laboratory equipment correctly and effectively in order to conduct measurements, and analyze and interpret the results, including a quantitative understanding of uncertainties.
- *Outcome 6:* Locate existing scientific research relevant to a given topic, and evaluate its accuracy.
- *Outcome 7:* Communicate the results of scientific work effectively, making use of clear and well organized writing and presentation skills, and employ equations and visualization tools as needed.

Furthermore, the physics program will promote and provide opportunities to students for collaborative work and for experiential participation in advanced laboratories, independent research, internships, and study abroad programs.