Assessment in the Department of Physics, CSU East Bay

B.A. and B.S. Programs

The mission of the Department of Physics is to provide our students with the theoretical and practical training which will allow them to excel in the workplace or alternatively to pursue an advanced degree in physics or a related field. Above all our goal is to train good scientists who are able to think critically to solve problems.

Learning Objectives

Physics graduates should:

- have a broad understanding of the different physical principles encompassed by physics.
- have an in depth understanding of the major branches of physics including: analytical mechanics, thermodynamics and statistical mechanics, quantum mechanics, and electrodynamics.
- be able to use reasoning and logic to define a problem using principles of physics.
- be able to analyze and interpret physical data.
- have the ability to communicate effectively, both orally and in writing.
- have the ability to work effectively in a laboratory environment and to use modern equipment to conduct a scientific investigation.
- acquire the technical skills needed to obtain and hold an appropriate place in our technological society.

Learning Outcomes

1) Students will have a general understanding of the fundamental principles of physics.

During each quarter of the year-long freshman physics sequence (PHYS 1001, 1002, 1003) pre- and post-tests will be administered to measure student learning.

2) Students should be able to effectively perform a physics experiment, analyze the acquired data, draw meaningful conclusions, and communicate these results to their peers.

This outcome is measured in PHYS 3281 and PHYS 3283. A Student laboratory report and presentation is scored with a standardized rubric.

3) Students have in-depth knowledge of the foundational subjects in physics (primarily analytical mechanics, quantum mechanics, thermodynamics and statistical mechanics, and electrodynamics).

The physics department requires a capstone course for graduating seniors where these subject areas are reviewed. At the end of the course a standardized exam in given.