

Program goals for the Penn State Department of Physics (Adopted 2008)

1. Introductory (service) courses

- a. Students completing introductory physics courses should show mastery of foundational material, both in terms of concepts and problem-solving skills, especially in mechanics and electricity and magnetism (E&M), needed for continuing success in engineering and physical or life science disciplines.

2. Major program knowledge base and skills

- a. Students in major courses should demonstrate mastery of commonly agreed on knowledge base expected of all Physics professionals in three basic core areas, mechanics, electricity and magnetism (E&M), and quantum mechanics, and demonstrate problem solving ability in each of these areas, across all options.
- b. Students should show mastery of high-level mathematical methods and advanced problem solving ability using such methods.
- c. Students should be able to show mastery of a variety of experimental techniques, data analysis, and scientific writing and presentation skills, appropriate to both the major and option.

3. Experiential learning

- a. Encourage all students to have at least one 'hands-on' out-of-class experiential learning component, related to their choice of specialty in the major/option.

4. Advising, major and career information and graduation outcomes

- a. Provide continual, consistent, and clear academic advising and career information at all stages of the undergraduate career, for both prospective and declared majors.
- b. Prepare students with tools for success after graduation, leading to placement in graduate and/or professional programs, employment in industrial, lab positions, teaching careers, and other career paths.