



UNIVERSITY OF WISCONSIN
WHITEWATER

ACADEMIC ASSESSMENT

PHYSICS- ENGINEERING

MISSION STATEMENT

The Department of Physics, as a member of the College of Letters and Sciences, strives to:

- Create an environment that supports learning and research,
- Improve students' ability to analyze problems and develop appropriate solutions; and
- Create a community of scholars and students who aspire to high standards of achievement.

As a science department, we regard our mission to include:

- Teaching students systematic methods for evaluating evidence and information by helping them build and test physical hypotheses and theories; and
- Fostering students' critical thinking skills, such as drawing conclusions, inferring relationships, solving problems and making predictions about the natural world.

As a department of physics we are committed to providing:

- A rigorous and effective curriculum for physics majors and minors, with depth of study for those students who desire to pursue a career in, or further study of, physics, astronomy, engineering, technology or science education;
- Effective and engaging courses for students who choose to take physics or astronomy courses either as part of the breadth of a liberal arts education or whose majors or career goals require them;
- Educational experiences in physics and astronomy through public outreach, with emphasis on the UW - Whitewater service area; and
- Opportunities for students and faculty to engage in research.

STUDENT LEARNING OUTCOMES

Student learning outcomes (SLOs) are statements of what a student will know or be able to do when they have completed a program. They represent the knowledge and skills a program has determined are most important for students to gain from that program. The most useful SLOs are specific and measurable so the program can accurately assess the degree to which students have achieved each outcome, and they align with college and institution mission and values. Data on achievement of SLOs is used to make improvements in the program and increase student success.

Physics Department student learning outcomes:

- **[Theoretical calculations]** Students will be able to demonstrate the ability to perform theoretical calculations in basic areas of physics (Mechanics, Electricity & Magnetism, and Modern Physics) as evidenced through performance on homework or other assignments, reports, exams, or other activities.
- **[Problem solving skills]** Students will be able to demonstrate quantitative and qualitative analysis of physical problems as evidenced through performance on homework or other assignments, reports, exams, or other activities.
- **[Laboratory Techniques]** Students will gain proficiency with equipment and procedures used to acquire and analyze data of physical phenomena through performance in laboratory activities.
- **[Data Analysis]** Students will be able to perform analysis and calculations based on experimental data, draw and present valid conclusions, and process and visualize their data.
- **[Written Presentations]** Students will be able to report in written format the results of their calculations, research projects, and reading of technical literature.
- **[Oral Presentations]** Students should be able to create and effectively present on oral report on the results of their calculations, research projects, and reading of technical literature.
- **[Career Learning]** Students should know about their career options, what skills and experiences are required for those careers, and be able to develop a resume that advances them towards their career goals.
- **[Community Outreach]** Physics majors are strongly encouraged to join the Society of Physics Students where they will engage in extra-curricular activities relating to physics.
- **[Independent Projects]** Physics Majors are strongly encouraged to participate in undergraduate research with a faculty mentor, a summer Research Experience for Undergraduates (REU) programs, or an outside internship with participating companies.