

# University of Dayton Department of Physics

## Assessment Plan - May 15, 2010

The following assessment plan is for UD physics majors.

Our exit interview form has been changed to reflect the measures of the outcomes listed below. It is our plan to collect and analyze the measures with the 2011 graduating class. Based on these results, we will make changes to our program during the 2011-2012 academic year to better implement the outcomes. We will again collect and analyze the measures with the 2012 graduating class. At this point we will see if we need to make modifications to our assessment plan.

***HIR outcome - Scholarship:*** All undergraduates will develop and demonstrate advanced habits of academic inquiry and creativity through the production of a body of artistic, scholarly or community-based work intended for public presentation and defense.

For the physics department, the following outcomes reflect this Scholarship learning outcome.

**Physics Scholarship Outcome 1:** The physics major will present physics research in public forums.

Measure 1: Before graduation, 75% of our physics majors will present research in current physics areas at the Stander Symposium.

Measure 2: All physics majors will do final presentations (10 to 15 minute talks) of Advanced Laboratory projects.

Measure 3: All of our graduating students will answer Strongly Agree or Agree to question 7 (You have made formal oral presentations in laboratory coursework, research projects, or teaching projects.) on our physics department exit interview.

**Physics Scholarship Outcome 2:** The physics major will acquire knowledge in the core physics curriculum that will allow him/her to succeed in a program of advanced study or in the workplace.

Measure 1: Of those physics majors wanting advanced degrees, 80% will gain admittance to graduate or professional school. Of those wanting employment, 80% will be employed in a technical field within three months after graduation.

Measure 2: 75% of those physics majors applying for undergraduate research experiences, internships, or co-op experiences will be accepted into these programs.

Measure 3: All of our graduating students will answer Strongly Agree or Agree to question 2 (You have the knowledge in the core areas of your major that will allow you to succeed in graduate school or in the workplace.) on our physics department exit interview.

**Physics Scholarship Outcome 3:** The physics major will have multiple experiences in writing technical reports.

Measure 1: All of our graduating students will have taken PHY210L, PHY211L, PHY430 and PHY431 all of which require formal laboratory reports.

Measure 2: 50% of our physics majors will do an honors thesis.

**Physics Scholarship Outcome 4:** The physics major will be skilled in using modern laboratory instrumentation.

Measure 1: All of our graduates will answer Strongly Agree or Agree to question 3 (You can use modern instrumentation.) on our physics department exit interview.

Measure 2: 50% of our graduates will have done a research project or honors thesis using laboratory instrumentation.

***HIR outcome - Critical Evaluation of Our Times:*** Through multidisciplinary study, all undergraduates will develop and demonstrate habits of inquiry and reflection, informed by familiarity with Catholic Social Teaching, that equip them to evaluate critically and imaginatively the ethical, historical, social, political, technological, economic, and ecological challenges of their times in light of the past.

For the physics department, the following outcome reflects this Critical Evaluation of Our Times learning outcome.

**Physics Critical Evaluation of Our Times Outcome:** The physics major will understand how science (and physics in particular) has influenced, and will continue to influence, human problems such as energy, environment and sustainability.

Measure 1: All of our graduates will have successfully completed the introductory physics sequence where these issues are presented and discussed from a scientific viewpoint.

Measure 2: All of our graduates will answer Strongly Agree or Agree to question 9 (You understand how physics relates to human problems such as energy, environment and sustainability.) on our physics department exit interview.

***HIR outcome - Community:*** A Catholic and Marianist university is specially committed to the ideals and responsibilities of community in the design and delivery of its common academic program. These ideals and responsibilities are powerfully conveyed through the concept of “family spirit.” The common academic program should reveal a community of learning dedicated to challenging itself to realize the highest academic and ethical standards and to supporting its members fully in this challenge.

For the physics department, the following outcome reflects this Community learning outcome.

**Physics Community Outcome:** The physics major will have had multiple experiences in living and working in groups.

Measure 1: All of our graduates will answer Strongly Agree or Agree to question 10 (You used the Physics Student Room to work and study with the community of physics majors.) on our physics department exit interview.

Measure 2: All of our graduates will answer Strongly Agree or Agree to question 11 (You participated in non-physics related student organizations while at UD.) on our physics department exit interview.

***HIR outcome - Vocation:*** Education in the Catholic and Marianist traditions strives to support academically students’ efforts to find and explore the deep purposes that lend meaning, wonder, and fulfillment to their lives. These purposes consist not merely in what students may find themselves especially fit for pursuing but in what each student is specially called to do. The university’s commitment to support students’ discernment of their vocations in academically appropriate ways follows from the fundamental objective to educate whole persons, in mind, spirit, and body, for whole lives.

For the physics department, the following outcome reflects this Vocation learning outcome.

**Physics Vocation Outcome:** The physics major will understand the responsibilities of being a scientist.

Measure 1: All of our majors will have taken the ASI-150 section for physics majors where they will have discussed what it means to do science and to be a scientist.

Measure 2: All of our majors will answer Strongly Agree or Agree to question 8 (You were involved in a research project.) on our physics department exit interview.