

# University of Dayton Physics Assessment Report

## August 15, 2012

The physics assessment plan was modified in the ways described in last years assessment report.

A more proactive approach to getting the assessment back from the graduating seniors resulted in 100% return of the assessment questionnaire.

***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. *Three of the four graduates presented their work at the Stander Symposium.*

Measure 2: All physics majors will do final presentations (10 to 15 minute talks) of Advanced Laboratory projects. *We know that all of the graduates presented talks in their advanced laboratory courses.*

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. *Three of the four responding graduates Strongly Agreed, and one Strongly Disagreed.*

**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. *All of the graduates applied to graduate school. At this point I know that three of the four are attending a graduate school and that these three all have support for graduate school..*

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

*Three of our four graduates applied and were accepted into undergraduate research programs. These include SOCHE and NASA 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. *Three respondents Strongly Agreed and one Agreed with this statement.*

**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. *All of the physics majors had all of these laboratory courses.*

Measure 2: 50% of our physics majors will do an honors thesis. *One out of four graduates (25%) did 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. *Three respondents Strongly Agreed and one Agreed with this statement.*

Measure 2: 50% of our graduates will have done a research project or honors thesis using laboratory instrumentation. *All of our graduates did research 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. *All of our graduates did complete the introductory physics sequence. However, there is no real measure of whether these issues were uniformly presented across the instructors who taught these introductory courses.*

Measure 2: All of our graduates will answer positively to the question: Do you feel that the physics curriculum introduced you to the human problems of energy, environment and sustainability.) on our physics department exit interview. *All answered in the affirmative with one mentioning their SEE minor achievement.*

**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 11 (You used the Physics Student Room to work and study with the community of physics majors.) on our physics department exit interview. *Three of our exit interview respondents Strongly Agreed with question 11 and one Disagreed.*

Measure 2: All of our graduates will answer Strongly Agree or Agree to question 12 (You participated in non-physics related student organizations while at UD.) on our physics department exit interview. *The four exit interview respondents all Strongly Agreed or Agreed to question 12.*

**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. *All four of our graduates took the ASI-150 course from Dr. Berney who does include information about science, about physics in particular and about the responsibilities of being 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. *Three exit interview respondents Strongly Agreed or Agreed to question 8 and one had no opinion.*