

Draft: Outcomes Assessment Plan
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Educational Goals

A physics degree from the University Colorado Denver is designed to give students a quality education in physics that prepares students the opportunity to seek further education in graduate school or gain employment in a associated field. During their time at UCD, the faculty endeavor to provide students with the following:

- knowledge and proficiency in the subject areas in physics such as classical mechanics, quantum mechanics, electromagnetism, optics, and thermodynamics and their interrelationships,
- problem solving skills that generalize to situations not limited to classroom, discussion, laboratory, and presentation situations,
- independent learning skills,
- group learning skills,
- skills associated with completing a physics degree, for example computation, modeling, experimentation, scientific writing, and presentation skills,
- opportunities to perform collaborative physics research,
- and preparation for a job in a applicable field.

Outcomes Assessment

Our Outcomes Assessment is a three part process. Firstly are the goals of the assessment which are related to the Educational Goals. Second, we have the methods of implementation to identify/measure areas of success and those that need improvement. Lastly is dissemination of this information to the faculty to give us the opportunity to act on the information.

Assessment Goals

We want to assess, through more than grades, our success in the above educational goals. This includes what we can measure of our students' progress and our perceptions of our students' success. It also includes the students' perceptions about their own personal success in all programmatic areas. Our assessment also needs to include a post graduate survey 2 years (or so) after students graduate about what they feel they benefited from, what they did not, and/or what they would have liked to experience.

Assessment Methods

The students that will do the assessing and that the faculty will assess are our majors. Here is an outline of methods that we currently engage in those that we plan to implement. Existing methods are specifically noted.

- 1.) Existing: We give an FCQ type survey on student perceptions about course requirements, learning objectives, their success in understanding and applying and the concepts of the course.
- 2.) Existing: A faculty self assessment in upper division courses. These are designed to highlight specific areas of success and areas that need improvement.

- 3.) Expand on item 2.) that includes something specific from the course. Options include:
 - a. A course pre-test/post-test scenario featuring the major concepts in the course.
 - b. A single representative in-class assessment (assignment, presentation, lab exercise, etc) with a focus on specific learning goals.
- 4.) Gain general educational background experience on our cohort of majors to provide context while tracking forward.
- 5.) We currently have juniors and seniors present material from Junior Lab I and II and Senior Lab I and II. We should explicitly include these in our assessment.
- 6.) We currently offer a senior thesis option where a student presents an exploration of something in physics. We should explicitly include this in our assessment.
- 7.) Existing: An exit survey for graduating seniors inquiring about their future plans and their UCD educational experience.
- 8.) Expand item 7 to include an Exit Interview that includes questions on the students UCD experience in physics and in general.
- 9.) Reach out to our past graduates and inquire about their current situations, whether their education in physics is relevant, what about their education was valuable and what they could have used.

Data Analysis

The goal is to try to make as much of this data quantitative as possible. It will be necessary to have faculty assess rough scores about learning performance. Assessments need to be promptly delivered to the Assessment Coordinator for summary and presentation to the faculty.

Feedback

The overall goal is to try to continually better our program. To this end, the faculty need to be given the summary data in a timely fashion after each term to be able to make appropriate decisions about our program's overall goals, methods to achieve those goal, assessments to measure our progress, successes, areas or improvement, and curriculum.