

Working with Faculty on Graduate Program Assessment

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Overview

- ▶ Campus initiative and phases of implementation
- ▶ Factors that make each phase of assessment
 - ▶ feasible
 - ▶ difficult
 - ▶ valuable
- ▶ Best practices / valuable results
- ▶ Future directions

Campus initiative & framework

- ▶ One framework for both undergraduate and graduate programs
- ▶ Campus-wide initiative across five academic divisions
- ▶ Faculty-led process
- ▶ Program-specific outcomes vs. a common set for all graduate programs

Example of the PLOs

Ph.D. graduates will demonstrate:

- ▶ 1. **Mastery of the fundamental knowledge** in microbiology or environmental toxicology.
- ▶ 2. **Ability to conduct independent research**, and manage a research project in either microbiology or environmental toxicology.
- ▶ 3. **Ability to communicate** scientific concepts and results in both written and oral forms.
- ▶ 4. Be equipped with **interdisciplinary skills** needed for success in microbiology and environmental toxicology fields, where there is a great need for scientists who have broad, interdisciplinary training.
- ▶ 5. Knowledge and understanding of **ethical standards** in proposing and executing professional scientific research.
- ▶ 6. Ability to **effectively teach science** in a classroom environment.

Phase 1 Articulating Graduate Program Learning Outcomes

- ▶ Feasible: almost all programs articulated within the first year
- ▶ Difficult: for interdisciplinary programs or new, non-traditional programs
- ▶ Valuable: generated discussions among faculty to clarify the program's goals and curriculum (in established and recently founded programs)
- ▶ Remaining Challenges: PLOs too general or formal, too specific, overly centered on the traditional, academic career path, still new & not used by students or faculty

Phase 2 Linking Outcomes to the curriculum and milestones

- ▶ Feasible: PhD programs have a similar structure: 2 years of coursework, QE, and Thesis Defense
- ▶ Almost all programs generated curriculum matrices by the end of the second year
- ▶ Difficult: include individualized learning experiences (courses outside home department, sole or collaborative publication, research assistantship, internship)
- ▶ Valuable: for review of the curriculum, especially if wanted to restructure
- ▶ Remaining challenges: use the assessment results to discuss the curriculum

Phase 3 Developing a timeline and tools to measure outcomes

- ▶ Feasible: developing assessment tools (rubrics) for some outcomes, esp. independent research skills and communication, assessed at QE and Defense, data collection for 2-3 years
- ▶ Difficult: developing rubrics for foundational knowledge, often interdisciplinary, outcomes measured in first or second years
- ▶ Valuable: encourages faculty conversations about curriculum and exams
- ▶ Remaining challenges: switching from individual-centered evaluation of student progress to program-level analysis; thinking ahead about how they may use the results

Phase 4 Conducting assessment and storing data

- ▶ Feasible: established practice of committee-based evaluation at QE and Defense
- ▶ Difficult: switching from pass/fail & informal feedback to providing rubric results to students
- ▶ Difficult: logistics of how to store data over time
- ▶ Valuable in itself if results are shared with the student (assessment as teaching)
- ▶ Remaining challenges: quality of rubrics and using them as formative feedback

Phases 5-6 Interpreting the results and using the results

- Feasible: depends on the results
- Difficult: if too general or no insight
- Valuable: yes if relevant
- Remaining challenges: bringing the results into faculty conversations about the program or curriculum revision

Best practices / valuable results

Case 1. Replaced informal feedback with formative assessment, helps students address faculty critique of their draft version of the project.

Case 2. Measured an aspect (communication to non-expect audience) that was not influential in the individual student evaluation.

Case 3. Assessment of the 1st year exam showed that students' scope of knowledge is not similar across four subdisciplines as was asserted in the PLO.

Future Directions

- ▶ To focus assessment work on the earlier years of the PhD program
- ▶ To develop tools for criteria-based assessment for the first year exam, second year paper, dissertation proposals
- ▶ To develop rubrics for assessment as formative feedback
- ▶ To develop good quality rubrics (clear, detailed but not verbose, informative for faculty and for individual students)
- ▶ To use assessment results for evaluation of the curriculum
- ▶ To develop tools for formative assessment of student teaching skills (aside from the instructor evaluations)
- ▶ To review the established PLOs (and the curriculum) with the lens of career tracks outside of academia

Information and support

<http://iraps.ucsc.edu/assessment>

