



## Assessment Plan Example: Ecology Ph.D. Program

### Mission Statement

The mission of the Ecology Ph.D. program is to provide research training in the highly interdisciplinary study of ecological theory, principles, and current areas of research. In addition to producing scholarship, the program seeks to generate a community of professionals prepared to enter a variety of career paths in the public, private, and academic sectors.

#### 1. Communication Skills

- a. Program Goal 1: Graduates will be able to articulate key components of their research to both lay and expert audiences.
  - i. Program Learning Outcome (PLO) 1 for Goal 1: Students will be able to accurately and concisely summarize the methods, results, and implications of their research in a brief context.

1. Assessment Method 1 for PLO 1 for Goal 1: Most of the students completing this program seek employment in the postsecondary sector as faculty members, however, others pursue employment in the governmental or private sector. In all employment destinations, it is essential to efficiently communicate their research impact to obtain employment.

All graduates are required to take the course CLASS XXXX, Professional Development, in which they learn, among other things, the principles of effective communication and delivery. These skills are additionally developed in student experiences as teaching assistants and in delivering reports to their committees.

One assignment in CLASS XXXX is the elevator pitch competition, in which students video record 60-second elevator pitches about their research and its implications and share in scoring each other's pitches. The winner of the competition receives an opportunity to meet individually with one of the many highly esteemed seminar speakers invited to present for the department during the semester.

After the course has concluded, the pitches are scored separately by the department's graduate committee along a scale designed to mimic the job application context. The committee agrees to score the pitches based on communication efficiency instead of perceptions of professional demeanor, appearance, or other unrelated characteristics. The scoring scale begins with the prompt: Based on the ability of the student to concisely and accurately portray the important parts of their research, how likely would you be to invite this candidate to interview for a position in the department? The response options are: Very Likely, Likely, Neither Likely nor Unlikely, Unlikely, Very Unlikely.

If the program achieves its goal in this area, 85% of students will be scored at least "Likely," because students have grown into their ability to concisely describe their research throughout the program. The scores will be averaged across all committee members, and if one committee member rates a pitch as "Very Unlikely" and another as "Very Likely," the group will discuss to come to a consensus on the appropriate score for the pitch.

NOTE: While writing and publishing articles related to their research in esteemed journals is one of the desired outcomes of the program, the external

forces influencing publication output make it a poor assessment of the goal of communicating research.

## 2. Discipline Specific Knowledge and Skills

- a. Program Goal 2: Graduates will be able to produce new knowledge through novel and/or accepted ecological methods, situated in the context of current gaps in understanding.
  - i. PLO 1 for Goal 2: Students will synthesize the broad-based knowledge they gain from various sub-disciplinary courses to situate the importance of their research project.
    1. Assessment Method 1 for PLO 1 for Goal 2: In preparation for candidacy, at the midpoint of the second year, students must complete a Qualifying Examination. The Qualifying Examination is a 5-question written test. Each of the five questions is scored on different criteria, and scores on all five questions are used to determine the preparation of the student for continuation in the degree.

The assessment of this outcome uses one question from the Qualifying Examination that asks students to discuss the connections between theories and information that they have gathered in the required reading for the first- and second-year journal course to their chosen sub-discipline (e.g., Population Biology, Evolutionary Genetics, Conservation Biology, Behavior). These written responses are scored by the individual student's dissertation committee members on a scale from 0-100% in the major criterion of Synthesis (i.e., the integration of multiple threads of knowledge in a meaningful way to respond to the question).

The scores assigned to this question undergo inter-rater reliability testing through Cohen's kappa calculations to ensure that the scores are sufficiently precise. Then, all student scores are analyzed in support of this outcome. If the program is succeeding in this outcome, the average score will be 75% out of 100%, with the lower end of the range falling no less than 50%.

- ii. PLO 2 for Goal 2: Students will design appropriate and feasible strategies to answer important research questions.
  1. Assessment Method 1 for PLO 2 for Goal 2: After the student progresses to candidacy, they must complete a research prospectus. The prospectus includes 3 significant components: (1) Literature Review & Theoretical Framework, (2) Research Questions, and (3) Methodology (including fieldwork). The student defends their prospectus in front of their graduate committee consisting of 4 faculty members, three from within the department (including the student's major professor), and one external to the department. Each component of the prospectus is scored independently on its balance of novelty and adherence to appropriate disciplinary strategies on a five-point scale: Expert, Milestone, Improving, Novice, and Beginner. All four committee members will discuss scores and assign a single score as a group. In each category (Literature Review, Question, Methods), it is anticipated that 90% of students will score at least "Milestone," because this is an important step needed to proceed in the program. Students are highly motivated to be successful on their prospectus and major professors are involved in guiding students through a drafting stage that is anticipated to improve outcomes on the prospectus component scores.