Annual Academic Assessment Report Cover Sheet

Assessment reports are due the 1st Wednesday after the Fall Term

Email to: assessment@unlv.edu

Program Information:

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<tr>
<th>Program Assessed</th>
<th>PhD</th>
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<tbody>
<tr>
<td>Department</td>
<td>School of Life Sciences</td>
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<tr>
<td>College</td>
<td>Sciences</td>
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<tr>
<td>Department Chair</td>
<td>Frank van Breukelen</td>
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<tr>
<td>Assessment Coordinator</td>
<td>Lawrence Walker</td>
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<tr>
<td>Date Submitted</td>
<td>8 Dec 2015</td>
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Contact Person for This Report

<table>
<thead>
<tr>
<th>Name</th>
<th>Lawrence Walker</th>
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<tbody>
<tr>
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<td>Email</td>
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Please attach a narrative (not to exceed 4 pages, excluding appendices) addressing the following:

- What are the student learning outcomes? Please provide a numbered list.
- Which learning outcomes were assessed?
- How were they assessed? (Programs must use at least one direct assessment of student learning.)
- Undergraduate programs should assess at least one University Undergraduate Learning Outcome (UULO) each year, which may or may not overlap with a program learning outcome.
- Graduate programs should assess at least one outcome related to one of the following graduate level requirements each year:
  - student engagement in research, scholarship, creative expression and/or appropriate high-level professional practice.
  - activities requiring originality, critical analysis and expertise.
  - the development of extensive knowledge in the field under study.
- What was learned from the assessment results?
- How did the program respond to what was learned?

Please limit the narrative portion of your report to no more than four pages. You may attach appendices with data, tables, charts, or other materials as needed. Please explain the relevant conclusions from any appendices in your narrative. Please contact the Office of Academic Assessment if you have questions or need assistance.
Ph.D. Graduate Program

General Status: We currently have 38 Ph.D. students in our program, including the 3 that we admitted in Spring 2015. An additional 2 Ph.D. students are on leave this year. Of the 39, 16 are women and 22 are men, 3 are in Integrated Physiology, 6 in Ecology and Evolution, 7 in Microbiology, and 22 in Cell and Molecular Biology. State graduate assistantships funded 16 of our MS students for the 2015-2016 academic year with an average stipend of $18,000. The average stipend was increased by $4,000 due to scholarships, federal funds, and other sources. In 2015, graduate students (M.S. and Ph.D. combined) published a total of 13 manuscripts in peer-reviewed journals with 12 different faculty members (students or former students, co-authored with current faculty, not including in press or submitted manuscripts). We have 25 active tenure/tenure track faculty, so half of our faculty had one or more manuscripts with students in 2015. Our graduate students maintain two student organizations, BIOS and a student chapter of the American Society of Microbiology.

Learning Outcome 5: Oral communication of scientific results

Our specific focus for 2015 was learning outcome 8: that all students graduating with a Doctor of Philosophy (Ph.D.) in Biological Sciences should be able to “communicate scientific results effectively in oral presentations to general and specialized audiences.”

We made minor progress on our multiple goals for this focal area (see Table 1), but plan to lead a broader, faculty-wide discussion on this topic in Spring 2015. This year we collated graduate student presentations, both to broader audiences and to our department (Graduate Colloquium).

1. Graduate student presentations: 8 talks were given by current graduate students (this is likely an underestimate due to incomplete faculty response) in 2015 and includes both M.S. and Ph.D. students. Talk could be given to the UNLV GPSA symposium, local, regional, national, and international audiences (with or without faculty members as co-authors). Judging at science fairs and outreach to local grade schools were not included, although several students are engaged in such laudable activities.

2. Our Graduate Colloquium meets every Wednesday and is dedicated to graduate student presentations on their work. With 49 active graduate students, the number of presentation slots is too few to accommodate all students each year so we will need to re-evaluate the frequency of talks. This colloquium was initiated to improve the oral communication skills of our graduate students and informal reports are that it has done just that: the quality of the presentations has generally increased according to several faculty members. Attendance of faculty has not been consistently favorable, with less than 1/3 of our faculty attending a typical seminar. Written feedback is given to each speaker (after
being vetted for any offensive remarks by the faculty coordinator) and these are in two categories: “positive comments” and “constructive comments.” One recent talk received 39 sets of comments, including such positive comments as: good slide transitions, you were calm and composed, you answered questions directly and appropriately, good pace. Constructive comments included: too much background, missing the big picture at the end, too much text on some slides, your speech was a little robotic/memorized, be more enthusiastic. There were also lots of content-rich comments in both categories. Our review of the last three sets of these comments in the Fall 2015 semester and informal discussions with the Graduate Student Coordinator and the faculty member currently coordinating this class suggest that this colloquium provides a very good process of graduate student peer review and some faculty input, although attending faculty are not required to write comments (and faculty comments are not separated from the mix of comments received by the student or by our committee but comments are signed when written). Some support was indicated for our suggested 10 point rubric (Table 2) to expand/clarify feedback in comments. Another idea floated was to decrease the time each student speaks from an hour to 20 minutes, resembling a scientific talk. This change might ameliorate scheduling a presentation for each student each year. We will discuss the Colloquium in a Spring 2016 faculty meeting.

3. Scientific Presentations class. This class (Biol 498x/796 section 003) was offered in Spring 2004 and Spring 2006 by Javier Rodriguez. It had 7 students each time and could be taken for 1 or 2 credits. Students liked the class. We discussed offering this class again, setting aside several Colloquia to discuss these topics, or merging this class with the now-required Ethics class for all graduate students. Another suggestion was to consider a revised Science Communication class that might incorporate training in oral presentations and writing (grants and papers). These topics will be discussed in the Spring 2016 faculty meeting.

In summary, we had a perhaps overly-ambitious set of goals for 2015 (see Table 1), had changing and last minute (Oct. 2015) committee membership changes, and did not begin collating and collecting data until October. We got some feedback that perhaps we were adding too much work to overburdened faculty, and graduate student committees, or that perhaps it was not our goal to guarantee that each graduate student receive multiple layers of feedback on their oral communication skills. In a Spring 2016 faculty meeting we will initiate a faculty discussion on the following topics:
   1. Oral communication: how important is it for us to develop better training for our graduate students?
   2. Graduate Colloquium: Should we: a) expand scheduling to continue current model that each student presents each year? b) dedicate 1-2 meetings each year to
principles of scientific presentations? c) separate out faculty assessments from graduate student ones? d) request that members of our Graduate Operations Committee (GOC) attend and evaluate talks? e) request that a GOC member or separate faculty member sit down annually with each student to evaluate all feedback on oral communication skills (including Colloquium, presentations to graduate committee, talks given in classes, defense, outside presentations? f) switch to a more thorough evaluation form (e.g., Table 2)? Other ideas are to a) fold the Colloquium into the Ethics class, b) fold it into a Science Communication class (with writing skills), c) shorten talks to 20 minutes to fit more students in each year and to resemble a scientific talk length.

3. Scientific Presentations class: should this be offered again? Integrated into Ethics class?
Table 1. Proposed efforts and progress to further Learning Outcome 8 (develop oral communication skills) for 2015.

<table>
<thead>
<tr>
<th>Proposed</th>
<th>Accomplished</th>
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<tr>
<td>1. Revisit colloquium talks, create more effective evaluation rubric</td>
<td>Received some written evaluations, discussed with GAC and GOC coordinators, plan faculty meeting in Spring 2016</td>
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<td>2. Ask student advisory ctte. to evaluate presentations to ctte.</td>
<td>Got feedback from coordinators; will take up in faculty meeting</td>
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<td>3. Evaluate other talks (journal club, graduate seminar classes)</td>
<td>Topic for faculty meeting</td>
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<td>4. Have faculty member collate all feedback and meet with student</td>
<td>Coordinators suggest too time-consuming. Necessary? Faculty meeting topic</td>
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<td>5. Give student feedback and suggestions (more talk practice, take class on scientific presentations)</td>
<td>Another topic for faculty meeting</td>
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<td>6. Evaluate student progress over time and even thesis defense</td>
<td>Probably useful at programmatic level, but not for graduating students?</td>
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GAC = Graduate Admissions Committee; GOC = Graduate Operations Committee

Table 2. Student talk evaluations (suggested scoring: 1a-1d, 2a-2e, and 3: 10 points each for total of 100 points)

1. Preparation
   a. Grasp of concept
   b. Knowledge of concept
   c. Organization
   d. Summary of concepts
2. Presentation
   a. Ability to interest audience
   b. Use of visual aids
   c. Use of other literature
   d. Style and clarity of presentation
   e. Ability to involve audience, elicit participation
3. Overall effort