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 43 Ph.D. students in our program (22 women and 21 men). Five are supported by top tier research assistantships, 17 by regular research assistantships, and 19 by teaching assistantships. In 2016, graduate students (M.S. and Ph.D. combined) published a total of 9 manuscripts in peer-reviewed scientific journals (students or former students, co-authored with current faculty, not including in press or submitted manuscripts) and presented or were co-authors on a total of 31 scientific talks. Our graduate students maintain two student organizations, BIOS and a student chapter of the American Society of Microbiology.

The BIOS group has notably begun a writing review service where volunteer graduate students proofread student papers. BIOS has also launched a blog for students to practice community outreach and writing skills. This blog has received nearly 1,000 views. BIOS is also active in prospective student interviews, leading nature hikes, helping with our new Science Café, and representing the department in UNLV’s annual Festival of Communities. Finally, BIOS provides financial support for graduate student travel to conferences to present their work.

In line with our emphasis on the promotion of oral communication (Learning Outcome #5), we re-evaluated two aspects of our Graduate Colloquium, our weekly gathering where each graduate student presents their research to the department. We are considering changing the frequency and duration of the talks and how student talks are evaluated by faculty. With 53 active graduate students, the number of presentation slots (30 per year) is too few to accommodate all students each year so we are considering leaving hour-long talks for approximately 1/3 of the year to allow graduate students who are near finishing to present their defenses and/or practice for possible job interview talks (that are typically 1 hour in length, including time for questions). We then propose the other 2/3 of the year be divided into 20 or even 15 minute presentation slots (followed by time for questions) so that the remaining enrolled graduate students can present. This is a talk length typical of a scientific meeting and encourages each student to be organized and focused in their presentation.

The other change we propose is to ask faculty attending the Colloquium talks to adopt a standard evaluation of the student talk for consistent feedback to the presenting students (Table 1). Currently, fellow students provide positive comments and constructive comments to the speakers (a process that is very helpful), but faculty generally do not participate in this evaluation. If the faculty support this change, we will create a custom scantron form to use for faculty evaluation of graduate student
presentations. Such a form will facilitate a more quantitative evaluation of the progress of our graduate students as they advance through their degree program.

Finally, the Assessment Committee instigated a discussion among faculty about a new graduate core course that would be required for all incoming graduate students and replace our current Ethics class. This core course would provide introductory information and skills for new graduate students in areas such as ethics, teaching, writing, lab protocol, UNLV resources, statistics and data management, experimental design, and other topics. It will likely be led by one or two faculty with participation by other faculty in modules in their areas of expertise. The team of faculty currently designing this course plan to include a variety of active learning approaches, including case studies, problem-based learning, group work, oral and written presentations, and hands-on experiences in both field and laboratory environments.

Our earlier ideas about asking our Graduate Operations Committee to evaluate oral communication skills were nixed by faculty as too onerous. Instead, we will hopefully formalize the faculty evaluation of Colloquium talks and encourage teaching and presentation skills in the new core course.
Table 1. Proposed faculty evaluation form for graduate student Colloquium talks (10 points max assigned to each of the ten entries). If a scantron form is utilized, each aspect will be scored on a 5-point scale as follows: A (excellent), B (good), C (acceptable), D (weak), and E (poor).

Verbal Components

1. Organization (sequence of introduction, discussion, conclusions; overall cohesiveness)
2. Language (appropriately professional; terms/jargon sufficiently explained)
3. Delivery (interesting/engaging for audience; eye contact; vocal expressiveness)
4. Supporting material (appropriate use of examples/analogies, references, figures/illustrations)
5. Central message (main idea is precisely stated and strongly supported)
6. Audience questions (professional responses; reasonable level of broad knowledge; honest about limits of knowledge)

Visual components

7. Visual design (clean layout; text is readable; graphics enhance understanding of topic)
8. Grammar/spelling (grammar and spelling are correct)

Use of time

9. Pacing (presentation is smooth, well-paced, utilizes appropriate amount of time)

Overall knowledge of research topic

10. Given the position of the student within their degree program (1st year, midway, senior), rate the overall knowledge of the research topic conveyed within the presentation.