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>M.S. and Ph.D in Chemistry, M.S. in Biochemistry, Ph.D. in Radiochemistry</th>
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<td>Department</td>
<td>Chemistry and Biochemistry</td>
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<td>College</td>
<td>Sciences</td>
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<td>Department Chair</td>
<td>Spencer M. Steinberg</td>
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<td>Assessment Coordinator</td>
<td>Pradip K. Bhowmik</td>
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<td>Date Submitted</td>
<td>5/7/18</td>
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Contact Person for This Report

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<thead>
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<th>Pradip K. Bhowmik</th>
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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.
Department of Chemistry and Biochemistry 2017 Graduate Program Assessment Report

As was pointed out in our latest 3-year Assessment Plan, the most significant issue that affects the department’s graduate programs is the issue of program size, both in numbers of faculty as well as graduate students. This affects the number and variety of courses that can be offered/taken and therefore limits

1) student engagement in scholarship and expanded extensive knowledge in fields of study,
2) critical analysis activities and
3) development of the professional skills to prepare graduates to enter the profession as researchers and/or educators.

Note that department faculty are primarily assigned to teach undergraduate courses. Therefore teaching a core set of graduate courses within the department’s various divisions is not possible without a critical mass of faculty positions (six positions) within each division. Excluding the Biochemistry division, about three faculty positions are assigned to the other traditional divisions, with some faculty assigned to overlap two or more divisions. Responding to this issue, the department has been offering 4XX and 6XX courses, but ideally, 7XX courses should comprise the bulk of the graduate programs.

In recent years, the Biochemistry division has established a core set of graduate courses required for all biochemistry degrees. This has been possible only because there are now six FTE positions devoted to the division enabling the rotation of teaching assignments to these graduate courses. We are therefore able to offer the core set of courses within a reasonable time window to offer the number and variety of courses for a graduate Biochemistry degree.

The growth of the Biochemistry division was made possible with the hiring of two faculty in “Target of Opportunity” positions. This enabled the division to achieve critical mass. It is the moderate to long term goal to selectively hire faculty in very productive research areas to add to the number of divisions that have achieved critical mass. Other divisions are yet to achieve the critical mass.

With respect to the number of students, and related enrollments, the faculty teaching graduate courses have incorporated expanded curricular topics in an attempt to attract graduate students from other departments. We have observed some small degree of success in increasing enrollments in graduate Biochemistry courses with students from Life Sciences. However, the number of graduate students from other departments that would be interested in our offerings is rather limited.

Institutional policy requires an enrollment of eight students in graduate courses. Those with fewer students are supposed to be cancelled. Without a sufficient number of incoming first year graduate students entering the program, there will not be a sufficient number of enrolled students to meet this policy requirement. It has been estimated that about a total of 50 + graduate students across all programs would be necessary to achieve this critical mass, without which there would not be enough students enrolled to meet the minimal enrollment requirement.

The single most significant factor that limits the number of graduate students entering each year, is the number of Graduate Assistantships assigned to our department. Currently, the radiochemistry division that brings in millions of research and contract dollars each year has never been provided a single Graduate Assistantship. Fortunately, the Radiochemistry Faculty have been able to provide funding for a limited number of Research Assistantships for its students. A search for a highly productive, senior faculty member is currently underway to increase external grant support and provide mentoring for graduate students. The assignment of a significant number of state funded Graduate Assistantships
would provide the degree program with assets consistent with other and increase the ability to recruit high quality students. The recruitment of an Associate/Full Professor of Radiochemistry that would be tasked with leading the effort to expand the program is therefore critical.

The physical infrastructure needs as well as faculty and staff position needs are the bottlenecks to excellence in our graduate program. Only with administrative support and a sizable investment in the Department to correct these deficiencies will the Department’s graduate program be in a position to improve and grow to a level commensurate with an institutional aspiring to achieve Tier I status. The department will continue to assess those parameters and assess the path of our graduate programs. Nonetheless, graduate students in our program publish regularly in peer reviewed journals and participate regularly in national meetings all of which indicate that our program is in the right trajectory.