

Annual Assessment Report to the College 2012-13

College: Science and Math

Department: Biology

Program: MS

Note: Please submit report to your department chair or program coordinator, the assessment office and to the Associate Dean of your College by September 28, 2012. You may submit a separate report for each program which conducted assessment activities.

Liaison: Virginia Oberholzer Vandergon

1. Overview of Annual Assessment Project(s) (optional)

1a. Assessment Process Overview: Provide a brief overview of the assessment plan and process this year. The assessment process was overseen by the department assessment committee, which is composed of five individuals including the Department liaison, each representing an area in the department. Assessment results were gathered from the Proposal rubric and the Thesis Defense evaluation form. The proposal is given typically during the first 3 semesters of the student's career as a Masters student and the defense is at the end of their career, typically within 2-3 years of their program. Attached are the rubrics used for this process.

2. Assessment Buy-In

2. Describe how your chair and faculty were involved in assessment related activities. Did department meetings include discussion of student learning assessment in a manner that included the department faculty as a whole?
This is the first year that we are evaluating the Master of Biology SLO's and the chair looked over the data in this report. We will report this out to the department in a department meeting soon (Fall of 2013).

3. Student Learning Outcome Assessment Project: Answer questions according to the individual SLO assessed this year. If you assessed an additional SLO, report in the next chart below.

3a. Which Student Learning Outcome was measured this year?

SLO 1. Students can demonstrate specialized knowledge in one or more disciplines of Biology;

3b. Does this learning outcome align with one of the following University Fundamental Learning Competencies? (check any which apply)

Critical Thinking SLO 1

Oral Communication _____

Written Communication _____

Quantitative Literacy _____

Information Literacy SLO1

Other (which?) Content Knowledge

<p>3c. Does this learning outcome align with University's commitment to supporting diversity through the cultivation and exchange of a wide variety of ideas and points of view? In what ways did the assessed SLO incorporate diverse perspectives related to race, ethnic/cultural identity/cultural orientations, religion, sexual orientation, gender/gender identity, disability, socio-economic status, veteran status, national origin, age, language, and employment rank?</p> <p>This SLO is measuring the previous knowledge Masters' students have in the life sciences. Students are provided many tools and resources which will help them gain this knowledge. This includes extended time on exams, interpreters, tutors etc. There is also substantial time spent with their mentors and journal clubs.</p>
<p>3d. What direct and indirect instrument(s) were used to measure this SLO?</p> <p>This is measured as contributions to the field of study (#2 on the rubric) and knowledge of the student's specific field (narrowing in on their research topics)(#3 on the rubric). This was measured on the Proposal evaluation and again when they defend their thesis (see attached charts and rubrics columns 2 and 3).</p>
<p>3e. Describe the assessment design methodology: For example, was this SLO assessed longitudinally (same students at different points) or was a cross-sectional comparison used (comparing freshmen with seniors)? If so, describe the assessment points used.</p> <p>The current comparison with cross-sectional, however, we are beginning to gather this data longitudinally keeping track of students' proposal results and comparing to their final defense results. We have only recently instituted the proposal evaluation and therefore our numbers are still small. We hope to have a larger sample size within the next couple of years to measure students' growth.</p>
<p>3f. Assessment Results & Analysis of this SLO: Provide a summary of how the evidence was analyzed and highlight important findings from collected evidence. SEE ATTACHED CHARTS</p> <p>If we compare the average of all students measured for "contribution to field of study" (column 2) and "knowledge of field of study" (column 3), early in their career (thesis proposal) versus late in their career (thesis defense), we see increases from 3.96 to 4.16 and 3.59 to 3.98, respectively. Note that this is based on a cross-sectional evaluation, not tracking of individual students over time, which we will do in the future.</p>
<p>3g. Use of Assessment Results of this SLO: Were assessment results from previous years or from this year used to make program changes in this reporting year?</p> <p>Type of change:</p> <p>changes to course content/topics covered _____</p> <p>course sequence _____</p> <p>addition/deletion of courses in program _____</p> <p>describe other academic programmatic changes <u>Added proposal evaluation</u></p> <p>student support services _____</p> <p>revisions to program SLOs _____</p> <p>assessment instruments _____</p> <p>describe other assessment plan changes <u>Added proposal evaluation rubric</u></p> <p>Have any previous changes led to documented improvements in student learning? (describe)</p> <p><u>Not at this time as we are just beginning to evaluate this information.</u></p>

Some programs assess multiple SLOs each year. If your program assessed an additional SLO, report the process for that individual SLO below. If you need additional SLO charts, please cut & paste the empty chart as many times as needed. If you did NOT assess another SLO, skip this section.

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3. Student Learning Outcome Assessment Project: Answer questions according to the individual SLO assessed this year. If you assessed an additional SLO, report in the next chart below.

<p>3a. Which Student Learning Outcome was measured this year? <u>SLO2, Students are aware of and/or capable of using new and existing methods and technologies</u></p>
<p>3b. Does this learning outcome align with one of the following University Fundamental Learning Competencies? (check any which apply)</p> <p>Critical Thinking <u>SLO2</u></p> <p>Oral Communication _____</p> <p>Written Communication _____</p> <p>Quantitative Literacy <u>SLO2</u></p> <p>Information Literacy <u>SLO2</u></p> <p>Other (which?) _____</p>
<p>3c. Does this learning outcome align with University's commitment to supporting diversity through the cultivation and exchange of a wide variety of ideas and points of view? In what ways did the assessed SLO incorporate diverse perspectives related to race, ethnic/cultural identity/cultural orientations, religion, sexual orientation, gender/gender identity, disability, socio-economic status, veteran status, national origin, age, language, and employment rank?</p> <p><u>This SLO involves learning new methods and technologies and applying them to the students' specific research question. These students are mentored by their major professor and their committee so one on one help is available for all students as well as peer help with others in the lab. These students should not be limited by any diverse perspectives. All resources are available to these students.</u></p>
<p>3d. What direct and indirect instrument(s) were used to measure this SLO?</p> <p><u>This is measured as knowledge and use of methods appropriate to the students' research question (#4 on the rubric). This was measured at the thesis proposal evaluation and again when they defend their thesis (see attached charts and rubrics column 4).</u></p>
<p>3e. Describe the assessment design methodology: For example, was this SLO assessed longitudinally (same students at different points) or was a cross-sectional comparison used (comparing freshmen with seniors)? If so, describe the assessment points used.</p> <p><u>As mentioned above, we are beginning to gather this data longitudinally keeping track of students' proposal results and comparing to their final defense results. We have only recently instituted the proposal evaluation and therefore our numbers are still small. We hope to have a larger sample size within the next couple of years to measure the students' growth.</u></p>
<p>3f. Assessment Results & Analysis of this SLO: Provide a summary of how the evidence was analyzed and highlight important findings from collected evidence. SEE ATTACHED CHARTS</p> <p><u>We saw that early knowledge of methods at the thesis proposal stage was 3.67 and final knowledge at the thesis defense was 3.98 based on cross-sectional comparison.</u></p>
<p>3g. Use of Assessment Results of this SLO: Were assessment results from previous years or from this year used to make program changes in this reporting year?</p> <p>Type of change:</p> <p>changes to course content/topics covered _____</p> <p>course sequence _____</p> <p>addition/deletion of courses in program _____</p> <p>describe other academic programmatic changes <u>Added proposal evaluation</u></p>

<p>student support services _____</p> <p>revisions to program SLOs _____</p> <p>assessment instruments _____</p> <p>describe other assessment plan changes <u>Added proposal evaluation rubric</u></p> <p>Have any previous changes led to documented improvements in student learning? (describe)</p> <p><u>Not at this time as we are just beginning to evaluate this information.</u></p>
<p>3. Student Learning Outcome Assessment Project: Answer questions according to the individual SLO assessed this year. If you assessed an additional SLO, report in the next chart below.</p>
<p>3a. Which Student Learning Outcome was measured this year?</p> <p><u>SLO 3, Students can demonstrate facility in applying the methods of scientific inquiry, including observation, hypothesis testing, data collection, and analysis;</u></p>
<p>3b. Does this learning outcome align with one of the following University Fundamental Learning Competencies? (check any which apply)</p> <p>Critical Thinking <u>SLO 3</u></p> <p>Oral Communication _____</p> <p>Written Communication _____</p> <p>Quantitative Literacy <u>SLO3</u></p> <p>Information Literacy _____</p> <p>Other (which?) _____</p>
<p>3c. Does this learning outcome align with University's commitment to supporting diversity through the cultivation and exchange of a wide variety of ideas and points of view? In what ways did the assessed SLO incorporate diverse perspectives related to race, ethnic/cultural identity/cultural orientations, religion, sexual orientation, gender/gender identity, disability, socio-economic status, veteran status, national origin, age, language, and employment rank?</p> <p><u>The nature of science and students' knowledge of how science works is what this SLO is focusing on, so human aspect of science includes embracing all ideas no matter where they come from and then designing and testing these ideas. Part of the progression of science is the creativity of the individual scientists and the ability to test their ideas. Given this SLO3 certainly aligns with the University's commitment.</u></p>
<p>3d. What direct and indirect instrument(s) were used to measure this SLO?</p> <p><u>This is also measured as knowledge and use of methods appropriate to the students' research question (#4 on the rubric). Though the same rubric row is used it is looking at the way that students' choose to use the methods that they learn to test their research questions. This was measured on the Proposal evaluation and again when they defend their thesis (see attached charts and rubrics column 4).</u></p>
<p>3e. Describe the assessment design methodology: For example, was this SLO assessed longitudinally (same students at different points) or was a cross-sectional comparison used (comparing freshmen with seniors)? If so, describe the assessment points used.</p> <p><u>Again as mentioned above, we are beginning to gather this data longitudinally keeping track of students' proposal results and comparing to their final defense results. We have only recently instituted the proposal evaluation and therefore our numbers are still small. We hope to have a larger sample size within the next couple of years to measure the students' growth.</u></p>
<p>3f. Assessment Results & Analysis of this SLO: Provide a summary of how the evidence was analyzed and highlight important findings from collected evidence. SEE ATTACHED CHARTS</p>

Results are the same as for SLO2 above in that early knowledge of methods at the thesis proposal stage was 3.67 and final knowledge at the thesis defense was 3.98 based on cross-sectional comparison.

3g. Use of Assessment Results of this SLO: Were assessment results from previous years or from this year used to make program changes in this reporting year?

Type of change:

changes to course content/topics covered _____

course sequence _____

addition/deletion of courses in program _____

describe other academic programmatic changes Added proposal evaluation

student support services _____

revisions to program SLOs _____

assessment instruments _____

describe other assessment plan changes Added proposal evaluation rubric

Have any previous changes led to documented improvements in student learning? (describe)

Not at this time as we are just beginning to evaluate this information.

3. Student Learning Outcome Assessment Project: Answer questions according to the individual SLO assessed this year. If you assessed an additional SLO, report in the next chart below.

3a. Which Student Learning Outcome was measured this year?

SLO 4, Students can demonstrate professional level oral and written communication skills within a discipline of Biology.

3b. Does this learning outcome align with one of the following University Fundamental Learning Competencies? (check any which apply)

Critical Thinking SLO 4

Oral Communication SLO 4

Written Communication SLO 4

Quantitative Literacy SLO 4

Information Literacy SLO 4

Other (which?) _____

3c. Does this learning outcome align with University's commitment to supporting diversity through the cultivation and exchange of a wide variety of ideas and points of view? In what ways did the assessed SLO incorporate diverse perspectives related to race, ethnic/cultural identity/cultural orientations, religion, sexual orientation, gender/gender identity, disability, socio-economic status, veteran status, national origin, age, language, and employment rank?

This more than any other SLO allows for diversity and different perspectives to be addressed. Again the point of science is to question and look for evidence to support answers. This can be done in a variety of ways and this SLO allows for these ideas to be formulated and presented. Most students are encouraged to expand their thoughts and ideas through the discussion portion of the written theses and this often gets lively non-threatening debates going during a thesis defense.

3d. What direct and indirect instrument(s) were used to measure this SLO?

This is measured as quality of writing and presentation (#5 and 6 respectively on the rubric). This was measured on the Proposal evaluation and again when they defend their thesis (see attached

[charts and rubrics column 5 and 6\).](#)

3e. Describe the assessment design methodology: For example, was this SLO assessed longitudinally (same students at different points) or was a cross-sectional comparison used (comparing freshmen with seniors)? If so, describe the assessment points used.

[All students in the Master's program take a Proseminar course early on in their career which focuses on how to write and present their research. They then have to do this both for their proposal and their final thesis, both written and orally defended. This is measured as number 5 and 6 on the rubrics for both the proposal and the final evaluation \(see attached charts and rubrics column 5 and 6\).](#)

3f. Assessment Results & Analysis of this SLO: Provide a summary of how the evidence was analyzed and highlight important findings from collected evidence. **SEE ATTACHED CHARTS**

[As we would expect, we see tremendous growth in the students' ability to explain and defend their research orally and through writing. The proposal scores of 3.15 and 3.78 are lower than the final defense numbers of 3.71 and 4.12. Again, this is based on cross-sectional comparison, and in the future, longitudinal comparisons will be made.](#)

3g. Use of Assessment Results of this SLO: Were assessment results from previous years or from this year used to make program changes in this reporting year?

Type of change:

changes to course content/topics covered _____

course sequence _____

addition/deletion of courses in program _____

describe other academic programmatic changes [Added proposal evaluation](#)

student support services _____

revisions to program SLOs _____

assessment instruments [Added proposal evaluation rubric](#)

describe other assessment plan changes _____

Have any previous changes led to documented improvements in student learning? (describe)

[Not at this time as we are just beginning to evaluate this information.](#)

4. Assessment of Previous Changes: Present documentation that demonstrates how the previous changes in the program resulted in improved student learning.

[At this point we are new in to assessing our SLO's for our Masters program and we instituted the proposal defense early in the career of the students. We hope this focuses the students on their research question, provides and opportunity for them to organize their experimental design and get feedback from their committee. We hope that then students can finish a quality thesis in a reasonable amount of time, 2-3 years.](#)

5. Changes to SLOs? Please attach an updated course alignment matrix if any changes were made. (Refer to the Curriculum Alignment Matrix Template, http://www.csun.edu/assessment/forms_guides.html.)

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No

6. Assessment Plan: Evaluate the effectiveness of your 5 year assessment plan. How well did it inform and guide your assessment work this academic year? What process is used to develop/update the 5 year assessment plan? Please attach an updated 5 year assessment plan for 2013-2018. (Refer to Five Year Planning Template, plan B or C, http://www.csun.edu/assessment/forms_guides.html.)

As we are just beginning this process we will update our department 5 year plan as desired.

7. Has someone in your program completed, submitted or published a manuscript which uses or describes assessment activities in your program? Please provide citation or discuss.

No, not at this time

8. Other information, assessment or reflective activities or processes not captured above.

Our Masters students do take some core classes in their disciplines and we would like to work on assessing their progress in these courses. This will be a goal of the department and committee this year.