Assessment Date: June 2013

Faculty Name(s): Laurie Issel-Tarver

1. Course Name and Number:
   Biot101: Environmental Biotechnology Research Projects

2. All Course SLOs from the Course Outline of Record:

   **Student Learning Outcomes**
   1. Demonstrate the appropriate behaviors and safety procedures to work in a biotechnology laboratory environment.
   2. Demonstrate good record-keeping, including maintaining a professional laboratory notebook.
   3. Design and carry out an independent biotechnology research project.
   4. Analyze and interpret data from experiments.
   5. Describe research progress and results in written and oral forms.

3. Specific Course SLO(s) assessed as part of this project:
   all five

4. Assessment strategy or tool used in the assessment. (Describe below, and *if applicable copy/paste any additional related documents at end of this form* (i.e. Rubric, score sheet, test questions, essay assignment, etc.):

   1. Students were evaluated on behavior and safety procedures every day in lab by the instructor based on close observations.
   2. Student lab notebooks were evaluated based on a rubric (see end of form.)
   3. Students developed projects with feedback from the instructor and a collaborator at University of the Pacific. Research proposals were in written form and were evaluated and modified as needed.
   4. Notebooks and final poster and oral presentations were evaluated.
   5. same as #4 above.

5. Specific aspects of the assessment tool which link up to specific Course SLOs being assessed (i.e. Which specific test questions measured which Course SLOs? Note: May describe with #4 above):

   (see #4 above)
6. Results and analysis of the data. *(Explain below and if applicable copy/paste any related documents, i.e. spreadsheets with data at the end of this document.)*

All students were given one-on-one help and feedback by the instructor and Kirk Land, the collaborating scientist at Univ. of Pacific. Ten of the twelve students were fairly advanced in the biotech program and had little trouble applying their knowledge to a research project. This included reading the scientific literature. Two of the twelve had only one previous biotechnology class, and had more trouble keeping up. They needed extra assistance at all stages of the process, and their final projects reflected their more introductory knowledge. They did well with SLOs 1 and 2, the “doing” part of the class, but they had more trouble with the higher-level experimental design and interpretation.

7. Describe any faculty dialogue that occurred as part of the assessment process *(i.e. Were results shared at a department meeting? Was there discussion about changing any SLOs? Etc.)*:

Dr. Sharma and I discussed whether we ought to change the prerequisite for the class to ensure that students have more experience in our program before taking it, that it might be better as a “capstone” to our program. The downside of this is that it might limit enrollment in an already small class.

8. Next steps *(i.e. any planned revisions to curriculum or teaching strategies to promote student success, future assessment plans, etc.)*:

We will revisit the possibility of revising the prerequisites after offering the class this year. Overall the class was a success, with students learning a great deal by working on an authentic research project in collaboration with Dr. Land’s research group.

9. Results of implemented changes, if available at this time:

Please save your finished document in the following format:

`yyyysemester-sloa-courseid.doc`
`example: 2012fall-sloa-engl101c.doc`

LAB Notebook Rubric:
- Bound Notebook
- Entries in ink only
- Name on front or inside cover
- Table of Contents
- Numbered pages
- Signature at bottom of every page
- Instructor signature after each lab
- Sign across edge of attachments
- Void blank areas
- Single line through corrections
- Dated entries
- Clear and legible entries
- Continuation notes as necessary
- Clear explanations of experiments (procedures, results, conclusions)