### Assessment of Course Student Learning Outcomes

<table>
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<tr>
<th>COURSE ALPHA/NUMBER: BOT 210 (62302)</th>
<th>Semester/Year: Fall 2009</th>
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<td>(Phytobiotechnology)</td>
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<td><strong>Instructor:</strong> Ingelia White</td>
<td><strong>Date Submitted to Department Chair:</strong> August 2010</td>
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#### Identify the Course Student Learning Outcomes assessed this semester.

1. Apply the principles of genetics
2. Discuss and perform experiments including plant/bacterial/human DNA/protein electrophoresis, Southern and Western blots, plant genetic engineering using biolistic bombardment and bacterial gene transformation
3. Apply bioinformatics and DNA sequencing
4. Discuss bioethical issues, risks and benefits of biotechnology
5. Produce lab reports using the standard scientific format

#### How do the above course SLOs align with the Associate of Arts or certificate program-level outcomes?

The above SLOs align with the AA-Liberal Arts and ASC in Bio-Resources and Technology (Plant Biotechnology) learning outcomes.

#### What skills or competencies are necessary for the student to perform the selected SLOs?

Students are able to perform aseptic transfer, carry out all phytobiotech lab protocols, observe results, collect data and interpret/discuss findings.

#### What instructional methods or materials are used to prepare the students?

**Instructional methods:**
- Lectures
- Class discussions
- Field trips
- Lab works
- Computer data base analysis

**Materials:**
- Text books
- Hand-outs

#### What assessment task(s) or tools are being used to assess the outcomes? What are the criteria for success?

**Assessment tools:**
- Embedded assessment evaluating students achievement as stated in the student learning outcomes
- Lecture and lab participations
- Exams
- Field trip reports
- Lab reports (scientific format)
- In vitro culture maintenance

**Criteria for success:**
- 83% of students received final grade point average higher than 90% of total possible points (750 points)
- The average embedded assessment of 2.41 (between achieved – exceeded “skills or competencies”).

#### What are the results of the assessment?

The average embedded assessment rating is 2.41 (see table). This number is greater than the expected benchmark of 2. The assessment helps to clarify specific skills and competencies that need to be fulfilled by the students. Students’ performance and their progress are monitored very closely.
How will you use the results? What changes do you propose to improve student learning? When?
Assessment results are shared and discussed with students to enable them to know what the status of their performance and to encourage them to achieve higher skills and competencies. Students are monitor individually to reach these goals. The table and graph below show a great improvement made toward the end of the semester.

Table: BOT 210, Fall 2009

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Will the changes require funding? How much will the changes cost?
NO.