# Assessment of Course Student Learning Outcomes

<table>
<thead>
<tr>
<th>COURSE ALPHA/NUMBER: BOT 205 (CRN 63285)</th>
<th>Semester/Year: Spring 2010</th>
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<tbody>
<tr>
<td>Ethnopharmacognosy</td>
<td>Date Submitted to Department Chair: August 2010</td>
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## Identify the Course Student Learning Outcomes assessed this semester.
1. Discuss theories and principles in the study of medicinal and nutritious plants
2. Discuss ethics, intellectual property rights and conservation of traditional knowledge
3. Perform laboratory activities: plant extraction, distillation, bioassay tests, analysis of chemical constituents for possible uses in nutraceutical products
4. 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 Plant Biotechnology learning outcomes.

## What skills or competencies are necessary for the student to perform the selected SLOs?
1. Ability to identify medicinal and nutritional plants in the field
2. Documenting and collecting specimens for chemical analysis
3. Cultivating and maintaining the growth of plants
4. Applying knowledge of traditional medicine and property right
5. Ability to perform plant extraction, distillation, bioassay testing, chemical analysis, and making bioproducts
6. Writing lab reports in scientific formats

## What instructional methods or material are used to prepare the students?
**Instructional methods:**
- Lectures
- Class discussions
- Field trips
- Lab practicum
- Research/class presentations
- Herbarium preparations

**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/field participation (50 points)
- Lab reports (200 points)
- Research project (class presentation) (50 points)
- Exams (400 points)

**Criteria for success:**
- 100% of students received final grade point average higher than 90% of total possible points (700 points)
- Average SLO score at the end of the semester is 2.28 (skills were achieved)

## What are the results of the assessment?
The average SLO score is 2.28. 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 chart below show a great improvement made toward the end of the semester.

<table>
<thead>
<tr>
<th>SLO</th>
<th>Skills &amp; Competencies</th>
<th>Beginning</th>
<th>Ending</th>
</tr>
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<tbody>
<tr>
<td>1. Study of Medicinal &amp; Nutritious Plants</td>
<td>a) Field Methods for Identifying Medicinal and Nutritional Plants</td>
<td>0.5</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>b) Documenting &amp; Collecting Specimens</td>
<td>0.3</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>c) Cultivating &amp; Maintaining the Growth of Plants</td>
<td>0.7</td>
<td>2.2</td>
</tr>
<tr>
<td>2. Discuss ethics, intellectual property rights, &amp; conservation of traditional knowledge</td>
<td>a) Applying knowledge into practice</td>
<td>0.6</td>
<td>2.4</td>
</tr>
<tr>
<td>3. Perform lab activities &amp; bioproduct manufacturing</td>
<td>a) Extracting plant chemicals</td>
<td>0.2</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>b) Distilling essential oils</td>
<td>0.2</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td>c) Bioassay testing</td>
<td>0.1</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td>e) Processing herbal teas, medicinal soaps nutritional drinks, etc.</td>
<td>0.2</td>
<td>2.5</td>
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<td>4. Produce Scientific Lab Reports</td>
<td>a) Writing the following format: Intro, Methods, Results, Conclusion/Discussion</td>
<td>0.8</td>
<td>2.4</td>
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<tr>
<td>Total average</td>
<td></td>
<td>0.4</td>
<td>2.2</td>
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Will the changes require funding? How much will the changes cost?
No