The purpose of assessment is to promote high quality student learning through a process of continual attention to evidence for student learning outcomes. Program assessment is reported internally within biennial assessment reports and academic program review self-studies. Program assessment is also a necessary component of external program and university-wide accreditation.

### Department/Program

**Biology Undergraduate Degree (includes General, Aquatic Science, Biomedical Sciences, Cell & Molecular, Environmental Science Concentrations, and secondary education majors)** (different degree headings but common plan due to > 75% common student learning outcomes)

**Assessment Coordinator for this dept/program**

David Howard

**Department Chair**

David Howard

**Date updated/submitted**

XXX

**A department may have more than one program assessment plan depending on the department’s program array. Majors under the same degree heading (e.g. Biology: CMB and Biology: Aquatic Science) will likely have a common assessment plan; however, there may be exceptions. For example two majors may have a common degree heading but have <75% common student learning outcomes and thus could have individual assessment plans. Additionally two different degrees within one department may contain >75% common student learning outcomes and thus could have a common assessment plan. Undergraduate and graduate programs are expected to have individual assessment plans. (Please provide a brief justification for exceptions.)**

### 1) STUDENT LEARNING OUTCOMES

**Student learning outcomes** are clear, concise statements that identify the knowledge, skills, or attitudes that students will be able to demonstrate, represent, or produce in a particular time (i.e. by the end of the program...). They must be specific, measurable, attainable, and results focused.

Our program’s student learning outcomes are as follows. **[3-8 recommended]**

Students will:

1. effectively communicate scientific knowledge in written form using the language, concepts and models of biology.
2. effectively communicate scientific knowledge in oral form using the language, concepts and models of biology.
3. have a thorough knowledge and comprehension of evolution as an organizing principle of biology
4. have a thorough knowledge and comprehension of information flow, exchange, and storage.
5. have a thorough knowledge and comprehension of the functional units of living systems and how these interact from the ecosystem to cellular levels
6. use a wide variety of laboratory techniques and instruments with competence.
7. design and set up experiments, collect and analyze data, identify sources of error, and interpret results.
8. use and critically examine the literature of biology.
9) **CURRICULUM MAP.** Construct a “curriculum map” (see below) to indicate in which courses/experiences the student learning outcomes are covered (indicate with an “X”) and in which courses/experiences assessment data for the various learning outcomes will be collected (indicate with an “A”).

Additionally, *but not required*, the curriculum map may illustrate at what level students are exposed to the learning outcomes using the following criteria. Most programs choosing this option will introduce students to an outcome early in the program (indicated by an “I” on the curriculum map). The outcomes are then reinforced and students practice throughout the program (“R”). Near the end of the program, students can demonstrate mastery (“M”) of the student learning outcome.

### Curriculum Map

<table>
<thead>
<tr>
<th>Courses/Requirements</th>
<th>SLO 1 Written Communication</th>
<th>SLO 2 Oral Communication</th>
<th>SLO 3 Evolution</th>
<th>SLO 4 Information flow</th>
<th>SLO 5 Functional units</th>
<th>SLO 6 Lab techniques</th>
<th>SLO 7 Experimental/quantitative skills</th>
<th>SLO 8 Literature</th>
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</thead>
<tbody>
<tr>
<td>BIO 105</td>
<td>X</td>
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<td>BIO 491</td>
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</table>

(* Required activities or experiences not associated with a particular course. Examples: national licensure exam; presentation at department symposium; service learning; comprehensive exam; dissertation; exit interview)

**Key:**

**Required**

- A = evidence collected for assessment
- X = student learning outcomes are covered

**Optional**

- I = introduced
- R = reinforced/practiced
- M = mastery at the senior or graduate level

College of Science and Health Assessment
10) **LONG-RANGE TIMELINE.** A program should assess at least one outcome per year and plan to have all outcomes assessed during one academic program review cycle (a program review cycle is once every seven years unless review follows external accreditation cycle). To document past and current activities within a program review cycle, departments/programs need to complete the table below indicating assessment activities that have or are presently being carried out during the current review cycle (indicate with a “G” the year the assessment data was/will be gathered and with an “E” the year the assessment data was/will be evaluated). If historical data is not available, this information needs to be collected for future biennial assessment submissions. (Please highlight in the table the academic year in which your next program review is due in **bold**.)

Though not required, departments/programs may also choose to use this table to document planned future assessment activities.

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<tbody>
<tr>
<td>SLO 1 (written)</td>
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<td>SLO 2 (oral)</td>
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<td>SLO 3 (evolution)</td>
<td>G, E</td>
<td>G, E</td>
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<td>SLO 5 (functional units)</td>
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<td>SLO 6 (lab techniques)</td>
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<td>SLO 7 (experimental/quantitative skills)</td>
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**Overall Assessment Plan Recommendations -**
- Once established, student learning outcomes will not frequently change.
- When writing the student learning outcomes, rely on verbs to describe what the students should be able to do, not what the faculty members will cover.
- Timeline: A good strategy is to first assess an outcome for which the department has evidence already available (e.g., choose to assess students' writing ability first because students already write reports in a required course and a rubric to evaluate writing already exists).
- Programs may consider dividing the workload: have different teams (2-4 faculty members per team) responsible for taking the lead in each assessment activity.
Completing the various components of this Program Assessment Plan would be best accomplished through department conversations.