

# Molecular Biology (BS)

 Program-193

## Annual Assessment Plan

1

**2 Biology Literature - Biology Literature**

Demonstrate proficiency in searching and evaluating published molecular biology literature.

## Outcome(s)

- 1 Choose one or more accreditor outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

- 2 Choose one or more Institution outcome that aligns with your Program Learning Outcome.

Selected Outcomes:

- o ULO 4 - Specialized Skills and Scholarship

- 3 **Please Enter The Following Information Below:**

**Measures** - Need to name specific course/ required experience plus exact exam items, assignments, rubric lines, etc. used for the analysis of performance on the PLO.

**Targets** - Percentage of students expected to earn a particular score on the measure.

**Timeline** - The frequency with which the department will analyze and report student performance on the PLO.

Measures	Targets	Timeline
BIOL 393 01 Submit Final Version of Research Proposal	75% of students will score 70% or higher	Annually
BIOL 422 01 SUBMIT: Senior Research Manuscript	80% of students will score 70% or higher	Annually
BIOL 497 IS Senior Research Manuscript	80% of students will score 70% or higher	Annually
BIOL 498 IS Senior Research Manuscript	80% of students will score 70% or higher	Annually
BIOL 498 IT Senior Research Manuscript	80% of students will score 70% or higher	Annually

Measures	Targets	Timeline
BIOL 380 01 SUBMIT: Review FINAL	75% of students will score 70% or higher	Annually
BIOL 393 01 Submit Final Version of Research Proposal (including non-technical summary, timeline and budget)	75% of students will score 70% or higher	Annually
BIOL 393 02 Submit Final Version of Research Proposal (including non-technical summary, timeline and budget)	75% of students will score 70% or higher	Annually

4

**Results** - Please enter numeric results, indicating the number and percentage of student performance meeting the target. Record faculty discussion about the strengths and weaknesses in student performance. \*Please see the May Development section on the Assessment of Student Learning website for suggestions about how to process assessment results.

BIOL 380: Target met. 10/10 (100%) scored 70 percent or higher.  
 BIOL 393: Target met. 2/2 (100%) scored 70 percent or higher.

5

**Action Plans** - If student performance did not meet the target, identify specific improvement strategies to enact in the upcoming academic year. For example, add instruction on the topic, change an assignment, revise course requirements, revise objectives, identify additional support/resources for students.

To challenge ourselves, the department will discuss raising the proficiency bar from 70% to 75%.

6



**Closing the Loop** - If you entered action plans for the PLO last year, they will appear in the box below. Please explain what you did to accomplish the action plan this year, re-examine student performance, and determine the success of your action plan.

No action plans were instituted last year.

**3 Relate Science and Faith - Relate Science and Faith**

Articulate a rationally defensible integration of science and faith.

### Outcome(s)

- 1 Choose one or more accreditor outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

- 2 Choose one or more Institution outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

3 **Please Enter The Following Information Below:**

**Measures** - Need to name specific course/ required experience plus exact exam items, assignments, rubric lines, etc. used for the analysis of performance on the PLO.

**Targets** - Percentage of students expected to earn a particular score on the measure.

**Timeline** - The frequency with which the department will analyze and report student performance on the PLO.

Measures	Targets	Timeline
BIOL 301 LUN ELI Career Application	75% of students will score 70% or higher	Annually
BIOL 495 02 Faith Integration PAper	80% of students will score 70% or higher	Annually



- 4 **Results** - Please enter numeric results, indicating the number and percentage of student performance meeting the target. Record faculty discussion about the strengths and weaknesses in student performance. \*Please see the May Development section on the Assessment of Student Learning website for suggestions about how to process assessment results.

BIOL 301: Target met. 4/4 (100%) scored 70 percent or higher.  
BIOL 495: Target met. 2/2 (100%) scored 70 percent or higher.

- 5 **Action Plans** - If student performance did not meet the target, identify specific improvement strategies to enact in the upcoming academic year. For example, add instruction on the topic, change an assignment, revise course requirements, revise objectives, identify additional support/resources for students.

- 6 **Closing the Loop** - If you entered action plans for the PLO last year, they will appear in the box below. Please explain what you did to accomplish the action plan this year, re-examine student performance, and determine the success of your action plan.

No action plans were instituted last year.

4 **Applied Skills - Applied Skills**

Demonstrate competence in applied skills required for molecular biology-related careers and post-graduate studies.

## Outcome(s)

- 1 Choose one or more accreditor outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

- 2 Choose one or more Institution outcome that aligns with your Program Learning Outcome.

Selected Outcomes:

- o ULO 4 - Specialized Skills and Scholarship



3

**Please Enter The Following Information Below:**

**Measures** - Need to name specific course/ required experience plus exact exam items, assignments, rubric lines, etc. used for the analysis of performance on the PLO.

**Targets** - Percentage of students expected to earn a particular score on the measure.

**Timeline** - The frequency with which the department will analyze and report student performance on the PLO.

Measures	Targets	Timeline
BIOL 170L 04 SUBMIT: Lab 1 Report	75% of students will score 70% or higher	Annually
BIOL 170L 04 SUBMIT: Lab 2 Report	75% of students will score 70% or higher	Annually
BIOL 170L 05 SUBMIT: Lab 1 Report	75% of students will score 70% or higher	Annually
BIOL 170L 05 SUBMIT: Lab 2 Report	75% of students will score 70% or higher	Annually
BIOL 170L 06 SUBMIT: Lab 1 Report	75% of students will score 70% or higher	Annually
BIOL 170L 06 SUBMIT: Lab 2 Report	75% of students will score 70% or higher	Annually
BIOL 422 01 Lab Safety Video Training	80% of students will score 70% or higher	Annually
BIOL 422 01 Technical Ability	80% of students will score 70% or higher	Annually
BIOL 497 IS Lab Safety Video Training	80% of students will score 70% or higher	Annually
BIOL 497 IS Technical Ability	80% of students will score 70% or higher	Annually
BIOL 498 IS Lab Safety Video Training	80% of students will score 70% or higher	Annually



Measures	Targets	Timeline
BIOL 498 IS Technical Ability	80% of students will score 70% or higher	Annually
BIOL 498 IT Lab Safety Video Training	80% of students will score 70% or higher	Annually
BIOL 498 IT Technical Ability	80% of students will score 70% or higher	Annually
BIOL 380 01 SUBMIT: OR10A2 Group Lab Manuscript by May 6 @ 12 PM	80% of students will score 70% or higher	Annually
BIOL 460 01 Lab Grade	80% of students will score 70% or higher	Annually

- 4 **Results** - Please enter numeric results, indicating the number and percentage of student performance meeting the target. Record faculty discussion about the strengths and weaknesses in student performance. \*Please see the May Development section on the Assessment of Student Learning website for suggestions about how to process assessment results.

BIOL 380: Target met. 10/10 (100%) scored 70 percent or higher.

- 5 **Action Plans** - If student performance did not meet the target, identify specific improvement strategies to enact in the upcoming academic year. For example, add instruction on the topic, change an assignment, revise course requirements, revise objectives, identify additional support/resources for students.

To challenge ourselves, the department will discuss raising the proficiency bar from 70% to 75%.

- 6 **Closing the Loop** - If you entered action plans for the PLO last year, they will appear in the box below. Please explain what you did to accomplish the action plan this year, re-examine student performance, and determine the success of your action plan.

No action plans were instituted last year.

5 **Community-Vocational - Scientific Community-Vocation**

Engage with the professional scientific community appropriate for vocational pursuits in molecular biology.

**Outcome(s)**

- 1 Choose one or more accreditor outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

- 2 Choose one or more Institution outcome that aligns with your Program Learning Outcome.

Selected Outcomes:

- o ULO 5 - Self-Awareness

3 **Please Enter The Following Information Below:**

**Measures** - Need to name specific course/ required experience plus exact exam items, assignments, rubric lines, etc. used for the analysis of performance on the PLO.

**Targets** - Percentage of students expected to earn a particular score on the measure.

**Timeline** - The frequency with which the department will analyze and report student performance on the PLO.

Measures	Targets	Timeline
BIOL 393 01 Research Proposal Presentation	80% of students will score 70% or higher	Annually
BIOL 422 01 Oral and/or Poster Presentation	80% of students will score 70% or higher	Annually



Measures	Targets	Timeline
BIOL 497 IS Oral and/or Poster Presentation	80% of students will score 70% or higher	Annually
BIOL 498 IS Oral and/or Poster Presentation	80% of students will score 70% or higher	Annually
BIOL 498 IT Oral and/or Poster Presentation	80% of students will score 70% or higher	Annually
BIOL 172 01 Individual Grade, Ethnobotany Presentation	75% of students will score 70% or higher	Annually
BIOL 301 LUN Assignment 2 (Disease Rpt)	80% of students will score 70% or higher	Annually
BIOL 393 01 Research Proposal Presentation	80% of students will score 70% or higher	Annually
BIOL 393 02 Research	80% of students will score	Annually

4

**Results** - Please enter numeric results, indicating the number and percentage of student performance meeting the target. Record faculty discussion about the strengths and weaknesses in student performance. \*Please see the May Development section on the Assessment of Student Learning website for suggestions about how to process assessment results.

BIOL 172: Target met. 3/3 (100%) scored 70 percent or higher.  
 BIOL 301: Target met. 4/4 (100%) scored 70 percent or higher.  
 BIOL 393: Target met. 2/2 (100%) scored 70 percent or higher.

5

**Action Plans** - If student performance did not meet the target, identify specific improvement strategies to enact in the upcoming academic year. For example, add instruction on the topic, change an assignment, revise course requirements, revise objectives, identify additional support/resources for students.

To challenge ourselves, the department will discuss raising the proficiency bar from 70% to 75%.



- 6 **Closing the Loop** - If you entered action plans for the PLO last year, they will appear in the box below. Please explain what you did to accomplish the action plan this year, re-examine student performance, and determine the success of your action plan.

No action plans were instituted last year.

6 **Nature of Science - Nature of Science**

Describe the nature and process of science, and the fundamentals of molecular biology spanning molecular, cellular, and organismal subdisciplines.

### Outcome(s)

- 1 Choose one or more accreditor outcome that aligns with your Program Learning Outcome.

There is no selected outcome.

- 2 Choose one or more Institution outcome that aligns with your Program Learning Outcome.

Selected Outcomes:

- o ULO 2 - Breadth and Depth of Knowledge

- 3 **Please Enter The Following Information Below:**

**Measures** - Need to name specific course/ required experience plus exact exam items, assignments, rubric lines, etc. used for the analysis of performance on the PLO.

**Targets** - Percentage of students expected to earn a particular score on the measure.

**Timeline** - The frequency with which the department will analyze and report student performance on the PLO.

Measures	Targets	Timeline
BIOL 260 01 EXAM 1	75% of students will score 70% or higher	Annually
BIOL 260 01 EXAM 2	75% of students will score 70% or higher	Annually

Measures	Targets	Timeline
BIOL 260 01 EXAM 3 (Final)	75% of students will score 70% or higher	Annually
BIOL 265 01 Exam 1	75% of students will score 70% or higher	Annually
BIOL 265 01 Exam 2	75% of students will score 70% or higher	Annually
BIOL 265 01 Exam 3	75% of students will score 70% or higher	Annually
BIOL 265 01 Exam 4 (Final)	75% of students will score 70% or higher	Annually
BIOL 265 02 Exam 1	75% of students will score 70% or higher	Annually
BIOL 265 02 Exam 2	75% of students will score 70% or higher	Annually
BIOL 265 02 Exam 3	75% of students will score 70% or higher	Annually
BIOL 265 02 Exam 4 (Final)	75% of students will score 70% or higher	Annually
BIOL 393 01 Submit Section I Draft for Peer Review	75% of students will score 70% or higher	Annually
BIOL 393 01 Submit Section II Draft (In-class peer review)	75% of students will score 70% or higher	Annually
BIOL 460 01 Final: Unit 4 Portion	80% of students will score 70% or higher	Annually
BIOL 460 01 Unit 1 Exam: In-class	80% of students will score 70% or higher	Annually
BIOL 460 01 Unit 2 Exam: In-class	80% of students will score 70% or higher	Annually



Measures	Targets	Timeline
BIOL 460 01 Unit 3 Exam: In-class	80% of students will score 70% or higher	Annually
BIOL 172 01 Lab 10 Practical Quiz: Tree Identification by Bark	75% of students will score 70% or higher	Annually
BIOL 172 01 Lab 9 Practical Quiz - Tree Identification by Leaves	75% of students will score 70% or higher	Annually
BIOL 172 01 LECTURE EXAM #1 2021	75% of students will score 70% or higher	Annually
BIOL 172 01 LECTURE EXAM #2 2021	75% of students will score 70% or higher	Annually
BIOL 172 01 LECTURE EXAM #3 2021	75% of students will score 70% or higher	Annually
BIOL 172 01 LECTURE EXAM #4 2021	75% of students will score 70% or higher	Annually
BIOL 301 LUN Final Exam	75% of students will score 70% or higher	Annually
BIOL 301 LUN Midterm Exam	75% of students will score 70% or higher	Annually
BIOL 380 01 Exam 1	80% of students will score 70% or higher	Annually
BIOL 380 01 Exam 2	80% of students will score 70% or higher	Annually
BIOL 380 01 Exam 3	80% of students will score 70% or higher	Annually
BIOL 380 01 Final Exam	80% of students will score 70% or higher	Annually



Measures	Targets	Timeline
BIOL 393 01 Submit Final Version of Research Proposal (including non-technical summary, timeline and budget)	75% of students will score 70% or higher	Annually
BIOL 393 02 Submit Final Version of Research Proposal (including non-technical summary, timeline and budget)	75% of students will score 70% or higher	Annually
BIOL 460 01 Unit 1 Exam MC	80% of students will score 70% or higher	Annually
BIOL 460 01 Unit 1 Take Home Exam Part B (Spring 22)	80% of students will score 70% or higher	Annually
BIOL 460 01 Unit 2 Exam MC	80% of students will score 70% or higher	Annually
BIOL 460 01 Unit 2 Take Home Part B	80% of students will score 70% or higher	Annually
BIOL 460 01 Unit 3 Exam MC	80% of students will score 70% or higher	Annually
BIOL 460 01 Unit 3 Take	80% of students will score	Annually

- 4 **Results** - Please enter numeric results, indicating the number and percentage of student performance meeting the target. Record faculty discussion about the strengths and weaknesses in student performance. \*Please see the May Development section on the Assessment of Student Learning website for suggestions about how to process assessment results.

BIOL 172: Target met. 3/3 (100%) scored 70 percent or higher.  
 BIOL 301: Target met. 4/4 (100%) scored 70 percent or higher.  
 BIOL 380: Target not met. 6/10 (60%) scored 70 percent or higher.  
 BIOL 393: Target met. 2/2 (100%) scored 70 percent or higher.  
 BIOL 495: Target met. 2/2 (100%) scored 70 percent or higher.

- 5 **Action Plans** - If student performance did not meet the target, identify specific improvement strategies to enact in the upcoming academic year. For example, add instruction on the topic, change an assignment, revise course requirements, revise objectives, identify additional support/resources for students.

To challenge ourselves, the department will discuss raising the proficiency bar from 70% to 75%.

Genomics and Disease [BIOL 380] was a new course with some organizational and communication issues that will need to be resolved before it is taught again.

- 6 **Closing the Loop** - If you entered action plans for the PLO last year, they will appear in the box below. Please explain what you did to accomplish the action plan this year, re-examine student performance, and determine the success of your action plan.

No action plans were instituted last year.

- 2 Holistic program improvement goals: Programs are expected to have at least one action plan to improve student learning annually. If you have not yet identified an action plan associated with this year's assessment results, or if the department has identified additional issues that require action plans, describe the specific, measurable action plan and its relation to evidence of student performance.

## Assessment Rubric

- 1 **Process**

	1	2	3	4



	1	2	3	4
<b>Is the plan being implemented faithfully and revised as needed?</b>	<input type="radio"/> Assessment plan is not implemented.	<input type="radio"/> Most aspects of plan are being implemented or all aspects are implemented to some degree.	<input checked="" type="radio"/> Assessment plan is fully implemented.	<input type="radio"/> Plan is faithfully executed and modified/evaluated as needed.

2 Explanations:

3 **Engagement**

	1	2	3	4
<b>Are all relevant parties are meaningfully involved in the creation/revision, implementation, analysis, interpretation and learning improvement process?</b>	<input type="radio"/> Limited involvement beyond chair/director	<input type="radio"/> All educators contributing to the curriculum are aware of process and results	<input checked="" type="radio"/> All educators contributing to the curriculum participate in conversations regarding the use of assessment data to improve student learning	<input type="radio"/> All relevant stakeholders (students, employers, alumni) are meaningfully involved in the creation/revision, implementation, analysis, interpretation, and/or improvement processes associated with this assessment plan.

4 Explanations:

5

### Program Learning Objectives

	1	2	3	4
<p><b>Are the program learning objectives clear, measurable, aligned with ULOs/GLOs, and representative of the range of learning for that major/program?</b></p>	<p style="text-align: center;"></p> <p>PLOs are problematic (vague, abstract, not aligned with ULOs/GLOs) or missing.</p>	<p style="text-align: center;"></p> <p>PLOs are clear, mostly measurable, partially aligned with ULOs/GLOs.</p>	<p style="text-align: center;"></p> <p>PLOs are clear, measurable, aligned with ULOs/GLOs, and represent a summary of the knowledge, skills, beliefs, and values that a graduate of this major/program should attain by completing the required curriculum, accounting for variations in learning outcomes due to tracks/concentrations</p>	<p style="text-align: center;"></p> <p>PLOs are clear, measurable, aligned with ULOs/GLOs, and representative of the range of learning students achieve through completion of the program. The learning objectives provide a comprehensive view of the knowledge, skills, beliefs, and values that are important for a graduate of this major/program and account for variations in learning outcomes due to tracks/concentrations.</p>

6





Explanations:

7

### Measures

	1	2	3	4




	1	2	3	4
<p><b>Are the instruments used to assess learning relevant to the objective? Do measures yield information/data you can use to drive improvement?</b></p>	<p style="text-align: center;"></p> <p>Not all objectives have a measure identified. OR Measures do not directly connect to the objectives.</p>	<p style="text-align: center;"></p> <p>All objectives have at least one direct measure. Measures connect to learning objectives superficially or tangentially and/or include learning other than stated objectives. Relies almost exclusively on the same form of assessment (survey, exam, project). Relies almost exclusively on data from a single source (course, program, activity).</p>	<p style="text-align: center;"></p> <p>All objectives have at least one direct measure. Some objectives have multiple measures. Measures clearly connect to learning objectives. And two of the following four criteria: Objective measures more than one point in time (formative). Indirect measure are used strategically. Plan Incorporates different forms of assessment (survey, exam, project). Plan incorporates from a variety of sources (course, program, activity).</p>	<p style="text-align: center;"></p> <p>Measures meet all of the following criteria: All objectives have at least one direct measure. Some objectives have multiple measures. Measures clearly connect to learning objectives. Objectives measured more than one point in time (formative). Indirect measures are used strategically. Plan incorporates different forms of assessment (survey, exam, project). Plan incorporates data from a variety of sources (course, program, activity).</p>

8 Explanations:





9 **Targets**

	1	2	3	4

	1	2	3	4
<p><b>Are the targets based on professional standards and/or analysis of past student work? Are targets challenging and achievable?</b></p>	<p></p> <p>Some targets are missing.</p>	<p></p> <p>Targets are arbitrarily chosen or reflect minimal expectations.</p>	<p></p> <p>Targets are challenging and achievable based on prior student performance, and reflect an appropriate level of performance.</p>	<p></p> <p>Targets are challenging and achievable. Targets are based on professional standards and/or prior student performance. Targets are set at a level to inspire program improvement.</p>





10 Explanations:

11 **Timeline**

	1	2	3	4
<p><b>Is the timeline for data collection manageable with sufficient data points to effectively inform decision making and program review?</b></p>	<p></p> <p>Not identified clearly for all measures.</p>	<p></p> <p>Clearly states semester/year for each objective/measure. Data analysis delayed from data collection. Time between collection points may not facilitate informed decision making.</p>	<p></p> <p>Clearly stated and manageable schedule. At least two data points for each objective per review cycle.</p>	<p></p> <p>Timeline for data collection is manageable and allows for continuous improvement with timely and meaningful decision making even before program review.</p>

12 Explanations:

**Action Plan**

	1	2	3	4
<p><b>Is the department effectively examining and using assessment data to revise curriculum and pedagogy to support student learning?</b></p>	<p style="text-align: center;"></p> <p>Assessment data not collected/analyzed/used for decisions and/or results not documented in AEFIS.</p>	<p style="text-align: center;"></p> <p>Data collected, documented and discussed by department. Department reviewed confidence in measures and data as sufficient indicators of student performance. If data indicated changes were needed, action plans were developed in consultation with dean (e.g. improving outcomes, measures, targets, curriculum or pedagogy).</p>	<p style="text-align: center;"></p> <p>Data collected, documented and discussed by department. Department and dean confirmed confidence in measures and data as sufficient indicators of student performance. Action plans (e.g. improving outcomes, measures, targets, curriculum or pedagogy) developed in consultation with dean. If prior year data warranted action plans, the department implemented the changes.</p>	<p style="text-align: center;"></p> <p>Department collected and discussed follow-up data after the implementation of action plans in order to determine whether changes resulted in improvement or whether additional action is necessary. Data confirms effective curriculum and pedagogy for learning outcomes. Score of 4 should be assigned only if objectives, measures, targets and timeline all score a 4.</p>

14 Explanations:

15 **Dissemination**

	1	2	3	4

	1	2	3	4
<p><b>Is the department communicating learning objectives, results and improvements related to student learning to a wide audience?</b></p>	<p><input type="radio"/></p> <p>No record of assessment results and changes made as a result of assessment findings.</p>	<p><input checked="" type="radio"/></p> <p>The department/program retains records of assessment results and positive changes made as a result of assessment findings, and results are entered in assessment software system.</p>	<p><input type="radio"/></p> <p>The department/program retains records of assessment results and changes made as a result of assessment findings, results are entered in assessment software system, and assessment results and improvements are publicly posted.</p>	<p><input type="radio"/></p> <p>The department/program retains records of assessment results and changes made as a result of assessment findings, and results are entered in assessment software system. Assessment results and improvements are publicly posted and shared proactively with faculty, prospective students, employers and alumni in ways that facilitate their discussion.</p>

16 Explanations:

### Additional Feedback

1 Please enter any additional feedback for changes that should be made:

CLOSE AND EXIT