

Programmatic Assessment

Term: Spring 2023

Department: Biology

Course: BIOL 481

PLO: #3 Develop analytical and hypothesis testing skills to address biological problems.

Course SLOs:

1. describe foundational theory and current research topics in tropical island ecology and evolution, with an emphasis on the methods and tools used to conduct the research
2. evaluate and discuss scientific research critically (both others and student's own work)
3. apply basic theory, methods, and preliminary data to the development of a rigorous scientific manuscript, and
4. present the results of your research project in oral format to an audience of peers
5. work as part of a team to accomplish shared goals on a fixed timeline

Artifact: Students will compose an "intertidal lab report" that includes the following sections: (1) Introduction of ½ to 1 page that includes 3-4 different sources that show what is already known about the topic; (2) methodology of 1 or more pages with the following subheadings—study area, study species, data collection, and data analysis; (3) results of 1 or more pages with a written section that describes the major hypotheses tested and the results obtained with tables and figures that help illustrate the results with an easy to understand presentation of the data; (4) discussion of at least a ½ page of the results; and (5) Literature Cited.

Methodology: Two readers from the department served as evaluators and read five ($n = 5$) papers using the rubric below.

Rubric Used:

PLO 3	SKILL: Develop analytical and hypothesis testing skills to address Biological problems
4 = Highly developed	Report exhibits exceptional insight into the data collection and develops and tests a sophisticated and original hypothesis.
3 = Minimum competency	Report exhibits adequate insight into the data collection and develops and tests an appropriate hypothesis.
2 = Emerging competency	Report exhibits reflects some problems with data collection. Poor developing and testing of hypothesis.
1 = Needs improvement	Highly problematic data collection or lack of adequate data collection. Is unable to formulate a hypothesis and is thus unable to test hypothesis.

Report	Reader 1	Reader 2	Average
Report 1	3	3	3
Report 2	3	3	3
Report 3	3	4	3.5
Report 4	2	3	2.5
Report 5	3	3	3
			AVG 3.0 Reader 1: Reader 2: Reader agreement 60%

Observations and recommendations:

Department readers felt that all students, with a single exception from one reader) demonstrated at least adequate insight into data collection and hypothesis testing. In all cases, appropriate statistical tests were used to evaluate data, and results were correctly interpreted in the discussion section. All papers used adequate figures to illustrate results. Literature Cited sections were correctly done following format of the journal Ecology.