

Assessment Plan for Biology BA program: 2018-2024 (three rounds of a 2 year assessment cycle)

Student Learning Objectives	Courses Resulting in Achievement of Objectives	Activities Resulting in Achievement of Objectives	Measures of Achievement of Objectives	Timetable
1) Students will demonstrate an understanding of core concepts and principles of biology	Concepts introduced in required courses BIO111/211/213/333 and reinforced in upper division BIO electives.	Class assignments, projects, exams and laboratory activities.	ETS Major Field Tests in Biology administered to all seniors in BA program every other spring	Spring 2019 Spring 2021 Spring 2023
2) Students will be able to demonstrate proficiency in scientific writing	Writing in the field will be assessed through writing assignments in BIO314W, BIO315W, BIO405W and BIO440W. Biology majors are required to complete at least two of the four upper division writing-infused courses.	Essays, short papers, lab reports, tests and exams.	Evaluation of writing assignments using a rubric	Spring 2020 Spring 2022 Spring 2024

Student Learning Objective 1: Students will demonstrate an understanding of core concepts and principles of biology.

The ETS field test will be administered to Biology majors who have completed 100 or more credits including at least 30 credits of Biology course work. Target sample size is 25 students. The test will be administered every other spring.

1. Mean total score of BSC biology students will be compared to national comparative data using the percentile scores achieved by each student

Exceeding Standard – mean score above the range of scores considered the national average

Meeting Standard – mean scores range considered the national average

Failing Standard – mean score below range considered the national average

2. Mean scaled score of BSC biology students in 4 sub-disciplines (1. Cell Biology, 2. Molecular Biology and Genetics, 3. Organismal Biology and 4. Population Biology, Evolution and Ecology) will be compared to national average in those areas

Exceeding Standard – mean score above the range of scores considered the national average

Meeting Standard – mean scores range considered the national average

Failing Standard – mean score below range considered the national average

Student Learning Objective 2: Students will be able to demonstrate proficiency in scientific writing

Assessment Activity: Laboratory reports, essays and reports in "W"-designated courses (BIO314, 315, 405, 440)

Assessment Rubric

1. Does Not Meet Standard

(If any of these errors are committed, the paper doesn't meet the standard)

- a. Commits one or more major errors of interpretation
- b. Omits one or more sections of a scientific paper, or one or more sections incorrectly written (e.g. *Results* or *Materials and Methods* without narrative)
- c. Data are not summarized in tables, figures or graphs
- d. Numerous errors in usage of scientific terminology, errors of fact or awkward writing which reflect a lack of understanding of the experiment and its results.

2. Approaching Standard

(All of these items must be achieved to be "approaching the standard")

- a. Includes all the sections of a scientific paper. Some of the sections may be lacking essential material or material may be included in inappropriate sections of the report
- b. Data are summarized in tables, figures or graphs. Tables and graphs may be poorly labeled, lack legends, or fail to employ scientific conventions.
- c. A few errors in scientific usage, errors of fact, or grammar but not so many as to obscure the description of the experiment.

3. Meeting Standard

(All of these items must be achieved to be "meeting the standard")

- a. Principle results of the investigation are correctly interpreted
- b. Includes all the relevant material organized into appropriate sections of a scientific paper. The level of detail may be inappropriate for a professional paper and the organization of the narratives within a section may be awkward.
- c. Data are summarized in tables, figures or graphs which are clearly labeled, employ scientific conventions and contain informative legends.
- d. Generally appropriate scientific usage employed, report is factually accurate and contains few grammatical errors and little awkward writing.

4. Exceeding Standard

(All of these items must be achieved to be "exceeding the standard")

- a. A very complete and professional scientific paper with material properly organized within appropriate sections, tables, and figures. Report is clearly written and follows scientific conventions.
- b. Student displays real insight into the natural processes being investigated, successfully evaluates the outcome of the experiment and offers original suggestions for improvement of the experiment or further investigations.