

Assessment: Assessment Plan

Degree Program - AS - Biology (BS)

CIP Code: 26.0101.00

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Program Purpose Statement: Students majoring in biology for the B.S. degree must complete a minimum of 39 semester hours.

Modality: Face-to-Face, Electronic-to-Group, Off Campus Face-to-Face

Student Learning Outcome: Scientific Reasoning in Biology

Students will be able to reason scientifically and properly identify situations when such reasoning should be applied to the evaluation of data, hypotheses, and theories in Biology.

Outcome Status: Active

Outcome Type: Student Learning

Start Date: 06/15/2015

Assessment Methods

Method 1 - have at least 25 embedded questions at the beginning of Biology I (BIOL 1403 pre-test) and at the end of Biology II (BIOL1404 post-test) to assess how much the students have learned to think critically over the year in Biology I and II. The same, or similar, questions will be embedded in exams in upper division classes of Genetics (BIOL 3416), Cell Biology (BIOL 3320), and Organic Evolution (BIOL 4305).

(Active)

Criterion: Method 1 - Students are able to answer at least 70% of embedded questions correctly on the second exam for BIOL 1403 and BIOL 1404. For upper division classes the criterion will be 80% on the same or similar questions.

Method 2 - Conduct anonymous exit interviews/surveys that cannot be tracked during the sophomore and senior years to a representative sample (at least 30 students) and determine what students they think they have learned and how they have grown academically during their undergraduate experience. Sophomore surveys should help with the issue of retention. (Active)

Criterion: Method 2 - Students report how much they have learned and grown academically in their undergraduate experience, using a rubric of: None, Some, Average, Above Average, Excellent. The department goal is that 70% of the student ratings are Above Average or Higher.

Student Learning Outcome: Modern Biological Theories

To be able to explain the underlying evidence for, identify the strengths and limitations of, and reason with, all of the major theories of modern biology, including the cell theory, the theories of inheritance and molecular genetics, and the theory of evolution.

Outcome Status: Active

Outcome Type: Student Learning

Start Date: 09/12/2018

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Assessment Methods

Method 1 - have at least 25 embedded questions at the beginning of Biology I (BIOL 1403 pre-test) and at the end of Biology II (BIOL1404 post-test) to assess how much the students have learned to critically think over the year in Biology I and II. The same, or similar, questions will be embedded in exams in upper division classes of Genetics (BIOL 3416), Cell Biology (BIOL 3320), and Organic Evolution (BIOL 3305).

Method 2 - evaluate students BIOL 3320 (Cell Biology) and Biology 3305 (Organic Evolution) by identifying how they cooperate in group situations, learning to construct and develop ideas in to platforms such as scientific posters in which each student takes part in both the construction and presentation of data. (Active)

Criterion: Method 1 - to have an average of at least 70% of the embedded questions answered correctly on the second exam in Biology I and II. In the upper division courses a score of 80% or higher is expected.

Method 2 - evaluate students BIOL 3320 (Cell Biology) and Biology 4305 (Organic Evolution) by identifying how they cooperate in group situations, learning to construct and develop ideas in to platforms such as scientific posters in which each student takes part in both the construction and presentation of data (Active)

Criterion: Method 2 - We expect equal participation in production of professional posters and interpretation of data. Each student is expected to comprehend the group's experimental methods and results. This will be reported to the instructor, who will also have independently evaluated the poster, presentation and students' relative contributions.

Student Learning Outcome: Biological skills and experimental design

To recognize that living systems are inherently variable and to be able to understand and then conduct experiments appropriately, reflecting the students' abilities to apply statistical and research skills in a biological context

Outcome Status: Active

Outcome Type: Student Learning

Start Date: 06/15/2015

Assessment Methods

Method 1- determine the ability of students in BIOL 3120 (Cell Biology Laboratory) to understand and follow protocols and write up results from a series of experiments

(Active)

Criterion: Method 1 - students will be expected to earn at least a 70% on each of the write-ups that are turned in and evaluated by the instructor

Method 2 - Students in Cell Biology Lab will present an oral analysis of web site exploration projects that are relevant to the class (Active)

Criterion: Method 2 - as evaluated by the instructor the presentation should be both clear and thorough

Method 3 - Students in BIOL 4101 (Biology Seminar) will summarize in written form the various departmental seminar speakers' topics to reflect on their understanding. This will be submitted to the instructor and returned. This will indicate development of communication skills as experience in writing is gained. (Active)

Criterion: Method 3 - at least 70% of the students should be making detectable progress in writing skills throughout the courses and should improve their ability to articulate their understanding of the seminar speakers' experiments.

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Student Learning Outcome: Graduate preparation for advanced degrees or the work place

To have developed a cumulative and integrated knowledge of one or more biological disciplines at a level sufficient for admission to graduate and/or professional schools, or successfully getting a position in the public domain.

Outcome Status: Active

Outcome Type: Student Learning

Start Date: 06/15/2015

Assessment Methods

Method 1 - Students in BIOL 4101 (Biology Seminar) will summarize in written form the various departmental seminar speakers' topics to reflect on their understanding. This will be submitted to the instructor and returned. This will indicate development of communication skills as experience in writing is gained. Students in BIOL 4110 (So you want to be a biologist, now what?) will be asked to interview faculty members of other professionals to gain firsthand knowledge of what it takes to be an academician. These will be presented to the class.

(Active)

Criterion: Method 1 -at least 70% of the students should be making detectable progress in writing skills throughout the courses and should improve their ability to articulate various aspects of Biology.

Method 2 - at 3 and 6 years sampling of alumni (who have taken both BIOL 4110 and BIOL 4101 will be surveyed to identify what percentage of students have matriculated to the career they thought would be appropriate based on their experiences as majors in DBS. Alumni will reflect on how their preparation impacted their academic development and/or ability to acquire jobs. (Active)

Criterion: Method 2 - that at least 70% of students surveyed should indicate that their experiences in Biological Sciences contributed to their development and ability to matriculate to graduate or professional schools and/or acquire the job of their choice in biology,