Biology BA/BS

Demonstrate Mastery of Core Concepts in the Field of Biology

Goal Description:

Students completing the core courses required for a BS will demonstrate knowledge of core concepts of cell biology, biodiversity, genetics and evolution.

Providing Department: Biology BA/BS

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Mastery Of Core Curriculum

Learning Objective Description:

Students completing the core courses required for a BS will demonstrate knowledge of core concepts of cell biology, biodiversity, genetics and evolution.

RELATED ITEM LEVEL 2

Mastery of Core Curriculum

Indicator Description:

All students, regardless of concentration area, take the same core courses (BIOL 1406, BIOL 1407, BIOL 3450, and BIOL 4361). Faculty teaching each of these courses will agree on a set of embedded questions to include on the final exam. Students will correctly answer these embedded questions.

Criterion Description:

Students will score 70% on the embedded questions.

Findings Description:

Since BIOL 1406 and 1407 were new courses, we only have one semesters worth of data and fell well below the 70% goal (58.5%). Students scored at or above 70% for the in BIOL 3450 and 4361.

RELATED ITEM LEVEL 3

Mastery of Core Curriculum

Action Description:

Determine the best ways for students in BIOL 1406 and 1407 to master the core competencies. This proved difficult this past year as we had a high DFWQ rate in BIOL 1406 and 1407. In addition, faculty reported that there was very low student engagement during the semester.

Demonstrate an Understanding of Scientific Reasoning and Critical Thinking

Goal Description:

Students completing an undergraduate degree in the Biological Sciences will demonstrate an understanding of scientific reasoning and the ability to think critically.

Providing Department: Biology BA/BS

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Scientific Reasoning and Critical Thinking

Learning Objective Description:

Students completing an undergraduate degree in the Biological Sciences will demonstrate an understanding of scientific reasoning and the ability to think critically.

RELATED ITEM LEVEL 2

Scientific Reasoning and Critical Thinking

Indicator Description:

All students are required to take BIOL 2110 (Becoming a Professional Biologist) and BIOL 4110 (Undergraduate Seminar). Among other things, in BIOL 2110 acquire professional skills such as conducting literature searches and learning to read scientific literature, while BIOL 4110 reinforces important biological concepts through the critical reading of primary literature concerning the instructor's topic of choice. In both courses, students will take the common COSET Critical Thinking/Writing exam (BIOL 2110 students will serve as the pre-test population and BIOL 4110 students will serve as the post-test population).

Criterion Description:

Student scores will improve by 50% from the pre-test to the post-test.

Findings Description:

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The COSET critical thinking/writing exam was not administered this past academic year as it has been phased out. We are in the process of determining if we need to continue with something else.

RELATED ITEM LEVEL 3

Scientific Reasoning and Critical Thinking Action Description:

Since the COSET critical thinking exam has been phased out, we are in the process of determining how we want to proceed (give our own exam, the format of the exam, when and how to administer it, etc.).

Student Engagement in Undergraduate Research Goal Description:

Students will engage in the process of scientific discovery by participating in faculty mentored research.

Providing Department: Biology BA/BS

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Student Engagement in Undergraduate Research

Learning Objective Description:

Students will engage in the process of scientific discovery by participating in faculty mentored research.

RELATED ITEM LEVEL 2

Undergraduate Research

Indicator Description:

Students will enroll in BIOL 4095: Undergraduate Research Topics and participate directly in faculty mentored biological research, with the goal of producing publishable research and/or quality research that can be presented at scientific conferences.

Criterion Description:

50% of each graduating class will enroll in BIOL 4095. Using the departmental Faculty Evaluation Instrument, that in part documents faculty engagement with undergraduate researchers, the department chair will track the number of peer-reviewed publications and presentations at scientific conference on which our undergraduate students appear on the author line.

Findings Description:

We 38 students in BIOL 4095 duirng the 2021-2022 academic year. This is well below the 50% for each graduating class.

RELATED ITEM LEVEL 3

Undergraduate Research

Action Description:

Continue to support undergraduate research in the department. May need to look to see how to encourage students to get involved in research.

Update to Previous Cycle's Plan for Continuous Improvement Item

Previous Cycle's Plan For Continuous Improvement (Do Not Modify):

Closing Summary

We will continue to process of implementing four distinct concentrations for the BS/BA degree. These concentrations will help us track student participation in research by identifying student research interests and placing students in appropriate research labs.

We will continue to administer the Critical Thinking exam and analyze the results to assess student critical thinking skills.

Update of Progress to the Previous Cycle's PCI:

The concentrations have been implemented and will be available for students starting in the fall 2022. We will then be able to track student interest and research participation.

The critical thinking exam was phased out by COSET this past year. We will need to determine what to do moving forward.

New Plan for Continuous Improvement Item

Closing Summary:

We did not hit all of the benchmarks for this degree. We will discuss how we can improve moving forward by identifying areas where improvement is needed and devise strategies to hit each benchmark.