

Online Assessment Tracking Database

Sam Houston State University (SHSU)
2014 - 2015

Biology BA/BS

Goal	Effectively Deliver A Core Curriculum 🔑 Students will be presented well designed classes to facilitate mastering of the materials identified as a core foundation in biology – Botany, Zoology and Cell Biology
Objective (L)	Mastery Of Core Curriculum 🔑 Students will demonstrate a mastery of the core fields in biology: Botany, Zoology, Cell Biology, Microbiology, Genetics, Ecology and Evolution.
Indicator	Assessment Exam For Core Classes 🔑 All graduating seniors will take an exiting Biology Assessment Exam (BAE), written by the Biology Faculty. We will analyze the BAE scores from the following areas: botany, zoology, cell biology, microbiology, genetics, evolution & ecology to evaluate whether students have a significant level of understanding of each of these fields.
Criterion	BAE Analysis For Core Classes 🔑 All Biology majors will be expected to score significantly better than a failing grade in all core areas: botany, zoology, cell biology, microbiology, genetics, evolution and ecology.
Finding	BAE Analysis For Core Classes 🔑🔑 Fifty (45%) graduating seniors took the Biology Assessment Exam. On average, students scored significantly greater than a failing grade (based a chi-square test against randomized answer choices) in all core areas. (Fig. 1). In general, questions with a high level of difficulty usually had a high frequency of incorrect answers. Questions of intermediate or low difficulty had a range of few wrong answer choices or a high number of incorrect answer choices (Fig. 2).
Action	Administer Exit Exam 🔑 All Graduating seniors will be contacted by email and asked to take a biology exit exam that will test their comprehension of material from the basic core classes in biological sciences
Objective (L)	Understanding The Scientific Method And Develop Critical Thinking 🔑 Students will demonstrate an understanding of the general nature of scientific knowledge and how scientific knowledge is gained (the scientific method). They also will be able to critically evaluate scientific data to draw informed conclusions.
Indicator	BAE Analysis 🔑 All graduating seniors will take the Biology Assessment Exam (BAE). We will use BAE exam scores from analytical

questions to evaluate a student's understanding of the scientific method and critical thinking.

Criterion

BAE Analysis 🔑

All Biology majors will be expected to score significantly better than failing on analytical questions related to the scientific method and critical thinking.

Finding

BAE Results For Scientific Method And Critical Thinking 🔑🔑

We examined the number of questions missed for questions that required critical thinking and graphical interpretation. Both are seated within principles of the scientific method. We found a difference between questions requiring graphical interpretation; and questions not requiring interpretation of graphical data. Specifically, students missed more questions that required interpretation of graphs. We found no difference between questions requiring analytical calculation and those not requiring calculations. See Fig. 3 for Specifics.

Action

Administer Exit Exam 🔑

All Graduating seniors will be contacted by email and asked to take a biology exit exam that will test their ability to use the scientific method and think critically.

Previous Cycle's "Plan for Continuous Improvement"

The Department of Biological Sciences now has 2 years of assessment exam data. Based on this we will begin comparing the two years. We also will continue to review questions in core areas, expand upon the critical thinking component to the exam, and continue to promote the test to maximize turnout.

Please detail the elements of your previous "Plan for Continuous Improvement" that were implemented. If elements were not implemented please explain why, along with any contextual challenges you may have faced that prevented their implementation.

Based on 3 years of assessment data, students tend to score similarly year after year. Therefore, we will discuss these results in the department to evaluate whether core objective are being taught in all core classes. We will investigate ways to increase retention of core material and promote critical thinking.

Plan for Continuous Improvement - Please detail your plan for improvement that you have developed based on what you learned from your 2014 - 2015 Cycle Findings.

The departmental will continue to evaluate:

1. expectations in each core area.
2. review questions within each core area
3. balance the number of factual knowledge questions and critical thinking questions.
4. create a broader range of question difficulties that will aid in analysis.
5. plan a mechanism to increase test turnout.