

Data Informed Decisions 2020
Program Assessment and Reform
Department of Biology

Members of the Curriculum Committee reviewed the assessments with the Director of Undergraduate Education and the Department Head. The assessment data were presented to and discussed with the Biology Faculty at the annual department retreat. The following conclusions and action plans were agreed upon for implementation.

Objective 1. Graduates will be able to demonstrate analytical and experimental scientific skills.

a) Graduates will be able to practice the process of science.

Overall, the average introductory-level student is at or below mastery (2/3 score) across the scientific process subobjectives, whereas the average intermediate or upper-level student is at or above mastery. Overall, student performance on presenting and interpreting results (1a.4 and 1a.5) was lower than on other subobjectives. Based on these results, graduate teaching assistants will receive additional training on these concepts and additional time will be allocated for students to practice these skills in the laboratory setting.

Objective 2. Graduates will be able to recognize and articulate fundamental concepts and principles of biology.

We are very pleased with the progress our students showed in recognizing and articulating the core concepts in biology. Students began taking the Gen-Bio Maps in the month prior to graduation in Spring 2021 to provide a final or advanced data point for each cohort.

The Department is currently involved in reforming our curriculum. We have used the Gen-Bio MAPS data in revising the Biology emphases. We have updated the curriculum to include computational approaches in biology, and integrated material in organismal biology and physiology and in molecular, cellular and developmental biology. We have retained our focus on the core concepts in biology as our assessment data indicates that our students show substantial progress in our curriculum in recognizing and articulating the core concepts in biology.

The Department of Biology expanded the use of Gen-Bio MAPS to the regional campuses in Spring 2021.

Objective 3. Graduates will acquire the practices of professional scientists.

b) Communicate biological concepts and interpretations to scientists in other disciplines and the general public.

Overall, the average introductory-level student is at or below mastery (2/3 score) across the scientific communication subobjectives, whereas the average intermediate or upper-level student is at or above mastery. We are pleased with the progress our student are showing in writing quality as they progress through the curriculum. Based on these results, we better facilitated the training of the tutors at the Science Writing Center in Spring 2021. BIOL 1625 students used the

tutors at the Science Writing Center as a supplemental resource.

As more students take the required intermediate lab courses, we will be able to further assess oral communication skills.