

PLO# 1: Core Knowledge (Assessed 2014)

Students will score competitively on a national comprehensive standardized exam in Biology

Assessment method

Thirty-two students in the department's capstone courses, Bioethics Seminar (BIO 196), both Fall and Spring, and Biology and Faith (BIO 197) took the Biology Major Field Test, developed by the Educational Testing Service in the 2013-2014 academic year. Our students' scores were compared to the ETS database containing scores from students who took the exam between 2010 and 2014. We were able to compare our students' performances on the exam as a whole, on sections of the exam dealing with different subareas within biology, and on specific content areas that ETS refers to as "assessment indicators." We compared our students to the entire database, to students from schools in the US News and World Report "National Liberal Arts Colleges" category, and to a subset of institutions from the latter group that administer the test under conditions much like our own, using the test only for program assessment. Finally, we were also able to compare the performances of students from the different tracks within the major.

Benchmarks

Compared to the National Liberal Arts Colleges using the test only for program assessment:

- BS General Track students' mean score will be at the 50th percentile for the whole exam
- BA students' mean score will be at the 40th percentile for the whole exam
- The mean scores for our specialized tracks (Cellular and Molecular Biology and Environmental/Natural History) on the relevant subsections of the exam will be at the 60th percentile

Major Findings

Our students' performance on the Major Field Test in Biology was comparable to that of students attending other selective liberal arts colleges.

- Our "average student's" total exam score ranked at the 58th percentile of all students taking the exam (45,260 students from 507 institutions), and this placed us at the 69th percentile when comparing our mean total exam score to those of the other institutions in the database.
- Compared to the National Liberal Arts Colleges using the test only for program assessment, our BS General Track students' mean score was in the 54th percentile while our BA students' mean score was in the 40th percentile (both meeting our benchmarks).

Our students did relatively well with questions dealing with animal biology and biochemistry and relatively poorly on questions dealing with plant biology and ecology.

- In relation to other National Liberal Arts Colleges using the test only for program assessment, our mean score for Animal Biology was at the 79th percentile and that for Biochemistry and Cell Energetics was at the 66th percentile.
- Conversely, our mean for Plant Biology was at the 16th percentile and the mean for Ecology ranked at the 29th percentile

Students in specialized tracks within the major have area scores that reflect the emphases of their studies.

- The Cellular/Molecular students had mean subscores in Cell Biology, Molecular Biology and Genetics, and Organismal Biology that were well above the 50th percentile (among National Liberal Arts Colleges using the test only for program assessment), but their mean subscore for Population Biology, Evolution, and Ecology was at the 41st percentile (meeting our benchmark).
- Conversely, the Environmental/Natural History students had their highest score (55th percentile) for Population Biology, Evolution, and Ecology, but scored well below the 50th percentile in the other three areas (falling short of our benchmark).

Closing the loop

We are planning to undertake a review of our introductory core of courses for our majors in May 2015 with an eye toward possibly restructuring the way in which we introduce students to the study of Biology. This will draw in part on what we learned from our students' performance on the Major Field Test.