The Biology department has defined three discipline-specific Educational Goals for Biology majors in our QEP: 1) students will be able to apply and integrate biological knowledge across the diverse areas of biology and related disciplines, 2) students will develop sets of quantitative skills, communication skills, and technical skills that will enable them to be successful contributors to the sciences and to society, and 3) students can conduct scientific investigations. Goal 1 addresses WCU's QEP learning outcome, "integrate information from a variety of contexts," and Goal 2 addresses the QEP outcome, "communicate effectively and responsibly."

Our assessment protocols addressing specific criteria under each Educational Goal are implemented in four focal courses in the curriculum: Introduction to Ecology and Evolution (BIOL 241), the final course in the core introductory sequence, which most students take in the sophomore year; Cell and Molecular Biology (BIOL 333) and Methods in Ecology and Evolution (BIOL 375), of which all majors are required to take one, typically as juniors; and Research in Biology (BIOL 480), which serves as the senior capstone experience for most of our students.

In our first integrated attempt to assess the learning outcomes of our students using the framework proposed in our QEP we saw an increase in the proportion of students who were capable of applying and integrating their knowledge of biology (Goal 1) from their sophomore year through their senior year, but we found more variable responses for the components of Goals 2 and 3 (Figure 1).

The observed variability among courses suggests that either the students assessed did not show a clear progression of abilities during their tenure in the program, or more likely, that we need to revisit our approach to assessing these learning outcomes. As evidence of the latter explanation, note that under Goal 2, 100% of students in BIOL 333 were found to meet or exceed expectations for technical skills, yet under Goal 3, only 66% of those same students met or exceeded expectations for equipment and instrumentation use.

We also found that some assessment methods that we had proposed in our plan were either infeasible or did not produce reliable data. We had intended to use the students’ electronic educational briefcase as part of the assessment, but due to our misunderstanding of the nature of the briefcase and technical difficulties experienced by the University in deploying the technology, we were unable to do so.

This assessment does not include any information about our fourth Educational Goal: Students will have skills to develop their career path. We found that students did not respond or did not respond in a responsible manner to self-assessment survey instruments during advising or with our senior capstone class that we had proposed as assessment tools for this goal, so the use of those instruments was discontinued and not used in this assessment.

In the QEP assessment plan, we proposed using results from standardized exams such as the GRE or MCAT to assess learning outcomes associated with all four educational goals. But this overly ambitious plan was economically infeasible.

Over the coming year, we will attempt to modify our assessment tools using what we’ve learned thus far to get a more clear assessment of our Educational Goals. We will also endeavor to increase faculty participation in QEP assessment so as to decrease the workload on individual participants, particularly those instructors in our QEP focus courses, while getting a broader perspective on student performance.