My Introduction to the Major course is taken by students with a variety of backgrounds in Biology. Some have already taken AP courses, whereas others have little course preparation. This wide variation makes this class a challenge: too high and I lose the students at the bottom, or too low and the top students are bored. In addition, this is usually their first science class and I have found that many of them fail the exams by not studying well (or enough). Thus, I needed a way to 1) engage students entering at different levels and 2) teach them how to study effectively for science exams.

Adaptive learning determines what each student does not know and then reviews those specific questions or terms until the student learns it. Not only does it address the issue of studying, but it also allows the instructor to use it as either remedial practice or advanced material depending on the needs of each individual student. I decided to use the MindTap adaptive learning courseware by Cengage/Cerego in my Introduction to the Major course. The MindTap courseware has two components: the first is adaptive and uses flashcard term and picture identification using a time delay, and the second which tests the application of that information. This was piloted in one class of 200 students in Spring 2017. Although incorporation of MindTap resulted only in a trend towards higher exam scores, the feedback that I received about the homework was dramatically better than that from previous semesters. Students felt that they understood the material and were more engaged with the content. Over the next year, 400 more students and two more sections will provide more data about student engagement and performance gains with MindTap.