

Activities That Support Student Success in Traditional and Online Introductory Geoscience Courses at Wake Tech

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I teach two introductory geoscience courses at Wake Tech, GEL 120: Physical Geology and GEL 230: Environmental Geology. I teach both courses in traditional, seated environments as well as online. All of our introductory geoscience courses (including the online sections) require both lecture and laboratory sessions and are 4 credit hour courses.

I utilize a lot of active learning and “just in time” teaching techniques in all of my classes. For example, I require that my seated GEL 120 students read sections of their textbook before covering the material in lecture so they can become familiar with the new terminology. To make sure they complete the reading, the students must take an online vocabulary quiz that is due right before class. Once in lecture, I can then focus on teaching the more difficult concepts and not spend time defining every new word. Our classroom time is much more effective when they have been exposed to the topics and vocabulary first.

Wake Tech has been on the cutting edge of online education for a long time, and I have been teaching GEL 120 online for 8 years. These are not hybrid courses, the online students borrow a set of laboratory supplies for the semester in order to complete assignments on their own. One challenge to teaching online is that many students have a misconception that online classes will be “easy,” however, our online sections are just as rigorous as our seated sections. This tends to increase the attrition rates in the online sections.

One method I utilize to increase the success of students in my online classes is a highly interactive discussion board assignment. Most students are very hesitant to ask the instructor for help, but they are comfortable asking each other questions. So students in my online sections are required (enforced via grades and attendance) to help each other work through the assignments each week, much like lab partners or small groups would work together in a seated class. The only assignments on which they may not collaborate are the tests. I monitor the discussions to check for incorrect answers, or to point them in the right direction if they cannot figure something out themselves. I found that most students started earning higher grades on assignments and tests after I implemented this assignment, and they become more comfortable asking me for help when needed.

Finally, Wake Tech is in the second year of a collaboration with North Carolina State University (NC State) to increase the number and diversity of students pursuing a geoscience degree through a National Science Foundation Diversity in the Geosciences grant. While the main focus of the grant is to recruit geoscience majors, we are utilizing methods to increase interest and understanding of geoscience for all students. For example, we make connections between geoscience and activities that our students do every day, so they can see the relevance of what they are learning. Giving students a reason to want to learn, other than just getting a credit for their transcript, will also help them be better citizens later in life.