My Educational Philosophy

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28 January 2006

My educational philosophy is based on the conviction that any mathematics student must be able to do mathematics, not simply ”understand the concepts”. To do mathematics a student must be able to do the following:

• Use the mathematics textbook as a guide to doing mathematics. This means
  – Read the textbook
  – Understand the examples
  – Work exercises similar to the examples
  – Work exercises more complex than the examples

• Schedule sufficient time outside of class to solve problems and review/reflect on the solutions

• Schedule sufficient time to preview new material in preparation for the next class

• Ask questions in class when the instructor ”opens the door” for participation

As a college instructor, my primary responsibility is to help students learn how to learn. Specifically, they must learn how to learn mathematics. My job is not to prepare them to successfully complete a series of tests that results in a letter grade for the course.
Through well-designed assessments, I am able to help them discover their strengths and weaknesses. This knowledge will serve them in a number of ways. The students will identify areas they need to work on with greater effort. They sometimes realize they were not prepared for the course they are currently trying to complete and may drop back to a prerequisite course they should have mastered first. Or, they find they have too many conflicting time commitments and there is not enough time available for the mathematics.

Note that assessments are not designed to simply generate grades in my system. They are educational tools designed to enhance the learning process. As a result, they are very challenging. A test or quiz will contain problems based on many elementary concepts, but it will also contain a number of problems that "tie the concepts together". This means students are challenged to integrate concepts in real time. This is a reasonable expectation for the real-world challenges they will face when they either move on to a four-year school or enter the workforce with a two-year degree.

A college student is expected to learn a large amount of material outside of class. This means that not all material is discussed in class. In particular, for developmental mathematics courses, not all problem types are explained during the in-class presentation. Given the short time-span of the class, the amount of material contained in the department-approved syllabus, and the diverse student backgrounds, the instructor must use a variety of delivery methods that focus on the most challenging topics.

A major obstacle to preparing students for college-level work is the students' attitude that they are only expected to master in-class material. In addition, students also believe that they are enrolled simply to get a letter grade, not to learn. As a result they expect to simply be "prepped" for tests. Students often say: "I need to pass this course to get into my program". This approach completely undermines the educational process.

Mathematics is a cumulative knowledge and skills academic discipline. Each course assumes mastery of a preceding sequence of courses. If students do not approach mathematics with this awareness, they will never succeed in mastering the material. They may get lucky and run into an instructor or two who takes the test-prep approach. They may even avoid a true test of
their mathematics knowledge until they either enter the four year school or the workforce. But at some point they will be tested. If I do my job, they will pass those real tests.