

## Testing strategies that help students learn

Tests are a vital part of the teaching and learning process. Your testing strategy affects how well students will learn and retain the material. Although two midterms and a final are common strategies, research suggests that they may not be the best ones for students. Below are some alternative testing strategies which can be combined if necessary.

- **Frequent testing or quizzing**

Research evidence suggests that frequent testing with questions and tasks that stimulate "effortful recall" improves long term memory. Frequent testing also reduces stress on students because they have less information to learn at one time and each test is worth a smaller portion of the overall grade. Reducing stress is important because high stress interferes with learning.

- **Mastery Learning**

This is a strategy in which students repeat unit tests until they are able to achieve a set mastery score. Between tests students review their test performance with instructors, teaching assistants or advanced undergraduate students. Prescriptions can be provided to help students prepare for another attempt at the unit test if they have not yet achieved mastery.

- **In-class quizzes**

Unannounced or scheduled in-class quizzes can improve attendance and student learning because they motivate students to keep up with the material on an ongoing basis. Increasingly, instructors use student response systems (e.g., clickers) to administer in-class quizzes.

- **Pretest and post test**

A test given in the first week of class and then again toward the end of a semester can provide information about the impact of the course on student learning. You can design a pre-test for your own course. However, concept inventories have already been developed for the math, science and engineering disciplines. Others are being developed for statistics and biological sciences.

- **Collaborative testing**

In group testing, students first take the test individually. Then they work in groups to discuss their answers and submit either a group response or a second individual response. The score is the combination of both scores, with individual scores typically weighted more than the group scores. Proponents of collaborative testing suggest that it more accurately reflects real world settings. In addition, it can increase motivation for students in many ways including promoting better studying because students want to be able to contribute to the group.