

Teaching Statement

Elena Machkasova
Department of Computer Science
Wellesley College

My teaching experience includes teaching discussion sections and summer courses during my graduate studies at Boston University, and, for the last year and a half, a full-time teaching job as an Instructor in Science Laboratory at Wellesley College. This job involves preparing and teaching laboratory sections, small-group classes where students work on hands-on exercises which supplement and extend lectures. In addition to teaching labs, in Spring 2002 I developed and taught a new course at Wellesley: “Introduction to E-commerce”. The course includes material on Java web technologies (Java servlets and applets), relational databases, JDBC, and SQL, and elements of web security. The class was centered around a hands-on project: the students built a simulation of a database-backed commercial web site.

I believe that students learn better if they are looking for an answer to a concrete question. Rather than presenting a course as a list of topics, it is important to show how all of these topics are related to a practical goal. For instance, the “Introduction to E-commerce” is centered around a project in which students build a model of a commercial web site. The goal (building a web site) makes students more attentive to the lecture material. They start asking questions: what algorithm do I use to do this? what kind of a software do I need to implement this? will it work in any browser? This prepares a good ground for successful lectures: students come to lectures looking for solutions to concrete problems they have encountered. They are more likely to pay careful attention to the details of the material presented in class. Even if a course does not include programming, it can still have concrete goals for students. For instance in a compiler course, it may be a comparison of different program optimization techniques based on reading papers.

In addition to motivating students to approach the subject with specific goals, I like to introduce a creative element in their assignments: in the E-commerce class, for example, the students created their own “online business”. All projects have a very individual character, some with a humorous twist. This allows students to show their personality and interests, prompts them to get more involved in the learning process, and makes the course more enjoyable.

As much as possible, I make my lectures interactive. I find that starting a lecture with questions to students makes them more comfortable to ask me questions during the rest of the lecture. I prefer to use online program demonstrations in class rather than to write examples on the whiteboard. Such examples are more flexible, I can show several features by changing the example slightly. Preparing such examples also helps me think about the program from the point of view of the students: is it too complex? does it illustrate the point?

Students learn at different paces and have different backgrounds in the subject. A lecture cannot possibly fit everyone's learning style. That's why I make lecture notes and in-class examples available online. I also found that a mailing list for a class is an extremely valuable learning tool! By answering students' questions I can effectively explain a point that may have not been completely clear from the lecture. Questions give me a feedback about the students' understanding of the material, which is very helpful for preparing the next class. I am also very happy to see that often students answer each other's questions: the more discussion about the class subject goes on between the students, the better understanding of the material they have.

I believe it is extremely important to give students timely and constructive feedback about their work. When students are working on a project, it is essential that they get a feedback on one phase of their work before they start the next one. I always try to give students suggestions on how to improve their work, in addition to just a grade. In large classes, where it often takes at least a week to grade a problem set, I found it very helpful to give short (5 minute) quizzes with an immediate discussion of the solution after the quizzes are collected. Regardless of the form, such a feedback is very important for the students and the instructor.

Finally, I would like to say that every class that I have taught has been a learning experience for me. No two classes are the same (even teaching the same laboratory section three times in the same day turns out differently each time). From every class, every lecture, I learn something new, such as a good analogy or a diagram that worked for this topic. I hope to continue improving myself as a teacher to make classes a better, and more enjoyable, learning experience for my students.