Richard McKenna Teaching Statement

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As a Computer Science instructor, I run my classes the way I wanted them run when I was a student. This means the policies should be clear, the material should be made interesting, the work should be worthwhile, and the grading should be fair. To accomplish this, I make a conscious effort to incorporate the following components into every class I teach:

- Continuous Improvement
- Engaging Lectures
- Interesting Assignments
- Clear Course Policies on Plagiarism
- Clear and Fair Course Policies on Grading

Below I have described these components in greater detail.

- **Continuous Improvement** – Every semester I teach a course, I try to improve it. Teaching the same course for multiple semesters is an opportunity to make gradual progress, and so at the end of each semester I try to think of ways to update the course, including lectures and homework assignments. In so doing, I try to keep the following in mind:
    - *Keep it current* – Computing technologies are in constant flux. Every day there are new techniques, tools, and programming libraries made available that may help me to do a better job of instruction. I feel it is my obligation to stay informed of recent developments in whatever field I am teaching.
    - *Try new approaches to learning* – Straight lectures can be an effective teaching tool, but there are many other approaches that technology is enabling. Films, tutorials, games, and interactive multimedia demonstrations may also be used effectively to teach subject matter.
    - *Use criticism to improve the course* – I like to read all course and teacher evaluations the students submit such that I may get ideas on how to improve the course. Even those criticisms that I feel are unfair may give me some good ideas.

- **Engaging lectures** – Students should feel that attending course lectures is a worthwhile use of their time. They should feel they are part of the discussion rather than simply being lectured to, but there is more to it than that. To ensure lectures aren't stale drains on student time, but rather an active and important part of the learning process, I do the following:
    - *Control the classroom* – Classrooms where the lecturer has lost the students are demoralizing. Students feel less serious about learning the material and giving their best effort in homework and exams. My goal is for my classroom to be an open and fun environment, but to accomplish that there have to be rules to help it also be a productive one. No sleeping is permitted. The same goes for other activities that may distract students, like surfing the Web or doing work on laptops that is not part of a class exercise. Students breaking such rules are asked to answer questions on the lecture material in order to incorporate them into the class discussion.

- *Encourage fearless inquisitiveness* – One of the greatest challenges to teaching is dealing with students' fear of failure. Asking and/or answering questions in lecture can be stressful to shy students who fear looking uninformed or even foolish in front of their peers. In lecture I encourage failure. In fact, as a learning tool, answering a question incorrectly and then working our way to a correct solution works better than simply producing the correct solution from the start. Many times it is the best students who are most willing to participate in question asking and answering, but I try not to limit class discussions to the best students producing correct answers. Instead, I encourage students to go out on a limb and risk answering questions incorrectly, so that we may share the experience of problem resolution, which helps students in learning and remembering important course concepts. In lecture I randomly call on students by name to get everyone involved, and I specifically ask them for wrong answers, to disarm them a bit, and to release them from the pressure of having to produce a correct solution in front of the class.
- *Entertain the class* – Lectures must first be well organized and informative, but it also helps if they are entertaining. Enthusiasm for the subject and providing context and examples the students can relate to go a long way to keeping the students' attention. So do a good joke, or even turning the class into a game show now and then, where students answer questions on the material for prizes. Getting the students thinking in terms of solving problems, developing their own solutions, rather than just presenting material in lecture gets them thinking in a dynamic way about the subject matter.

- **Interesting assignments** – We make you make stuff. That's one way I like to think about our Computer Science Department. Software Engineering is as much about the mechanism of program development and the feedback loops associated with it as it is the algorithms and abstract concepts needed for making programs. When making an assignment, my approach is to first think of an exercise that interests me. It keeps me interested by continuing my learning development, and it results in assignments that most students can relate to. I also try to make sure that there is a payoff for the topics we've discussed. The assignments must be a useful application of the concepts we've studied in the classroom. It also helps if the result is something the students would like to show off to family and friends. Something they, and their peers, can relate to and even enjoy. Finally, I make new assignments each semester, never rehashing old ones, and so every semester I have a fresh look at material I may have covered many times before, but that may be applied in ways that are new and interesting to me.

- **Clear course policies on plagiarism –** When I was a student, one of the things I found most frustrating and demoralizing was cheating perpetrated by other students. It is impossible to prevent cheating in every form, but as an instructor one should work to minimize cheating in ones class. As part of this I make course policies very clear, that plagiarism will not be tolerated and that assignments will be verified. In addition, I try my best to create proper circumstances where temptation to cheat is removed. Making sure students are seated far apart during exams is one way. Never repeating past programming assignments is another.

- **Clear and fair course policies on grading** – Grades can be a source of conflict between teachers and students, to minimize this, I do the following:
  - *Clearly state graded course components* – From day one, all work requirements should be made clear for the students. This includes how final course grades are calculated, with appropriate grade components weighting.

- *Be open to any re-grading issues* – Students deserve each point they earn, so I never discourage them from correcting possible grading mistakes.
- *Provide prompt grading and feedback* – Feedback is a very important part of the learning process. It is important that students get prompt feedback on course projects to let them know that their work is good or poor. This is especially true in the early project development stages, when corrections can still be made. As part of this I have incorporated grading by appointment in some of my courses, where instead of having the Teaching Assistants grade assignments at home out of site, it is done in the company of the student. This has worked great, allowing students to learn their HW grades on the day they submit their work, and it has helped minimize student confusion and thus grading complaints.

Finally, I would like to emphasize that in order to get the most out of a semester, one must genuinely enjoy being an educator. It is a year round, around the clock job. When I'm not on campus, I may be grading at home late into the evening or developing a complex programming assignment for weeks on end, weekends included. It takes a passion for the material and a commitment to the students to construct a good course. I feel lucky to do this for a living. Every day I get to interact with brilliant students. I learn as much from them as I can. In fact, many of my best assignment ideas have come from student suggestions regarding assignment topics and technologies. It has been invaluable to me to be open to new learning experiences. I have really enjoyed my time teaching at Stony Brook, and look forward to continued success.

Richard McKenna, 2018
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