TEACHING PHILOSOPHY STATEMENT

KATHLEEN GRACE KENNEDY

I found her enthusiasm and willingness to listen and engage her students as tremendous strengths. Excellent communicator of mathematics and a very good teacher.

— Student evaluation from my course “Math for Elementary Teaching”

As a teacher, my goal is to make my students independent learners so that when they encounter a new problem, they have the ability to reason through it and the confidence to engage. To reason mathematically, students must first develop the confidence to approach new material they don’t understand. I believe maintaining a strong component of active learning by having students do mathematics in class is essential to building this confidence. Learning how to reason mathematically can be frustrating, so enthusiasm and a positive attitude are important to maintaining an atmosphere that supports this end goal. These principles form the foundation of my approach to teaching.

Enthusiasm is one of the most important tools I bring to the classroom. It puts students at ease and sets the expectation that class is going to be a positive experience. It combats boredom and math anxiety. Well-placed enthusiasm can highlight the mathematical thinking process and underscore the importance of a conclusion reached through mathematical reasoning. If a little can rub off on the students, enthusiasm can turn them into mathematicians.

Grace has a great way of making confusing mathematical concepts clear through anecdotes and analogies. I find that this skill is not often found in the same person.

— Student Evaluation
Summer 2012

Mathematical thinking is about engagement with the unknown, and that makes mathematics exciting. As students go from the algorithmic thinking of high school to the mathematical reasoning of college, they need someone showing them how to have fun. Enthusiasm plays an important role in smoothing this transition. I tell stories, smile, and I pay attention to my intonation and body language. Linear algebra students laugh when I tell them about how I got called to the board when I was trying to drop the class. Many students are surprised to learn that differential equations was the first math class I found difficult, and that it was also the class that first made me seriously consider becoming a mathematician.

I believe active learning is the best way to learn mathematics. Students in my sections and lectures often do group activities, which builds confidence and generates engagement. Discussing mathematics with peers while learning it for the first time brings to the forefront that math is something you do, not something you know. Not only
do students get practice articulating and listening to mathematics, but they also see that it is natural to be confused before being knowledgeable. Having worked through problems themselves rather than watching me do it allows them to own their knowledge. Plus it is more fun and engaging.

A common misconception that undergraduates have in their transition to understanding mathematical reasoning is that if they don’t know how to work a problem, then they can’t solve it. What defines a successful student often isn’t what they know, but their willingness to think through something they don’t understand. I call this a question of confidence, and another central theme that I concentrate on in my teaching is how to support and build the confidence to engage with unfamiliar problems.

Questions from students are good opportunities to model how to approach a problem we don’t know how to do. Turning the question back to the class makes problem solving a group effort and allows students to hear others’ first impressions of the problem. It is rare that a self-described “lost” student really doesn’t know anything about the topic we are trying to learn or the homework problem he or she is trying to solve. So answering questions with new questions takes the student back to what he or she does know. Students become more comfortable and less likely to shut down, and we can build on that knowledge. Once students arrive at an understanding, it came from them and the knowledge has more staying power. Asking students to think about what they do know models an important strategy in engaging with unfamiliar material.

Each quarter, I work to strike a good balance of activity and exposition so that students experience the timely success and gentle confusion needed to construct their own knowledge. I learn more about classroom management and student learning with each class through self and student evaluations. These evaluations indicate that my teaching is getting better all the time. Each student is a new opportunity for me to listen and learn about how people process math. Teaching is an exciting journey with constant challenges and opportunities to strive for excellence, and I can’t wait to begin.

The class was great.
Difficult, but it had something for all types of learning. Everyone had something they were good at.
— Student Evaluation
Summer 2012

The [first exercise]... built my confidence that I should trust my own number sense... [High school math] was always a race and I was the loser... [T]his paper sum[s] up just how empowering our first exercise was for me... [T]his time around I trust that I am asking... good questions.
Besides math is just fun.
— Student Portfolio from “Mathematics for Elementary Teaching”