TEACHING STATEMENT

As scientists we seek to separate ideas that work from ideas that do not. The ideas can be about how our physical world functions or how our mind operates. The scientific method does not discriminate. It helps us, in the words of Richard Feynman, “not fool ourselves” and not fool others in believing an idea works when it doesn’t. Training students on how to use this method is one of my primary teaching objectives. Below I describe how I help students forge their own scientific skills.

PROBLEM-CENTERED APPROACH

The scientific method does not come with a clear road map for evaluating ideas. Rather the method is more a set of tools for blazing a trail through a forest of ideas. To help students develop their tool set, I take a problem-centered approach where I challenge students with complex, but manageable problems. For example, in my undergraduate research methods and measurement class, students are tasked with running their own small-scale research project. This means they must develop a research question and design an empirical study to examine the question. Then they run the study, analyze the data, and write-up the results. Thus, students learn how to formulate and analyze problems, identify a solution or even better several different possible solutions, and then go one step further and apply their solution.

STUDY PAST PROBLEMS

The knowledge scientists create is cumulative, evolving over time. Thus, to understand where we are and where we hope to go, it is important to understand where we have been. For this reason, my students and I study the problems others have faced and how they solved them. This means, for instance, that in my graduate course on the science of decision making instead of studying secondary review articles, we read, study, and deconstruct, primary research articles. Specifically, we examine articles in fields like judgment and decision making, experimental economics, behavioral game theory, and neuro-economics, that have driven the marketplace of ideas in our field. By focusing on these papers, students learn not only how to evaluate the ideas we think work but also ideas we now believe do not work.

STUDY SCIENCE IN ACTION

A final principle that drives my teaching is that we learn the process of science best by seeing it in action. For example, in my courses on computational modeling of behavior and cognition, I bring to the classroom a real project that I am working on. I show students the algorithms I have developed to handle some of the issues I have encountered and together we go over the problems I have run into. We meet, we discuss, and we work on solutions. Thus, students see when things are working and when they are not, in other words—the process that is science in action.

A POSITIVE IMPACT THROUGH TEACHING

In recognition of my work as a teacher, I was nominated by my students and named the Michigan State University College of Social Science Outstanding Teacher (2013). Even more rewarding for me are the less noticed outcomes. I take great pride in seeing the impact of my teaching on the papers, theses, and dissertations written by my students and those I’ve taught.