

My philosophy on teaching and research is quite simple. Teach what I know, investigate what I do not know. I am not a natural born teacher but it is important to me that everyone has the opportunity, if they choose to take it and work for it, to be educated. As a master student my first teaching experience was challenging. Since then I have applied myself to become a more effective and efficient teacher. I have given considerable thought to who I am as a teacher. I am a Scientist Teacher and I apply the scientific method to guide my teaching Figure 1.

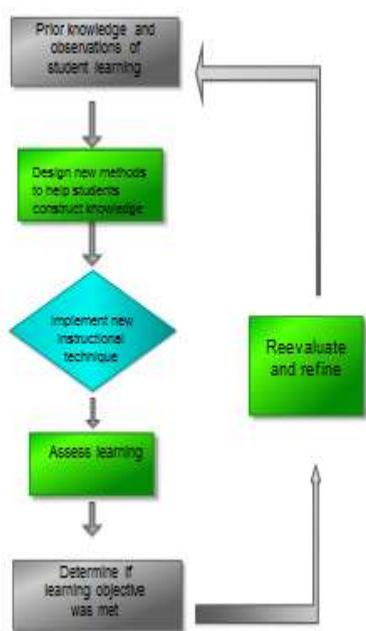


Figure 1: Modified scientific method to guide teaching

Broadly my goals as a teacher are to 1) inspire students with the endless wonder of the biological world, so they can appreciate and value the material covered in my courses, 2) improve their ability to critically think, so they can be lifelong independent learners and make informed decisions, and 3) transfer knowledge about biological concepts and how they apply to the world around us.

My primary teaching strategy is to expose students to the big picture, tell them not to panic, then coach learning by breaking the large concepts into smaller more understandable pieces, then reconstruct the big picture from

the smaller pieces, and finally ask students to explain how the pieces work together.

The first of my teaching goals, to inspire students, is the easiest to accomplish. I use examples in class of interesting natural phenomena, I share cool stories from my own research and experience, I show regional and local effects of large scale phenomena and I show students how events and phenomena elsewhere affects them.

My second goal is more of a challenge. In my experience most students do not know how to critically think or do not recognize when they are being asked to critically think. To help my students improve their ability to critically think, I show them how I think critically. I put a scenario on the board where a conclusion was drawn, ask them to critically think about the scenario and write their thoughts down for in-class points, finally I ask them what they thought. I praise good critical thinking and explain why poor critical thinking was incomplete and coach how to think more critically. I also tell them what I thought about the scenario. If I was given the opportunity to design a new course, no matter what level, I would do a critical thinking module the first week, and then reinforce it throughout the semester by practicing critical thinking in different ways.

My third goal, to transfer knowledge about biological concepts, and how they apply to the world around us, is the meat of what I do as a teacher. To transfer knowledge I like to use a variety of learning activities, depending on the material. I find traditional lectures work well for initially presenting big ideas and for material that needs to be strictly memorized. For material that needs to be applied an analyzed group work is a good method. With group work students learn to communicate science to others, which helps them organize knowledge internally.

I like to offer a lot of low risk in-class assignments to reward preparedness. I like to write short cumulative finals that address the higher levels of Bloom's taxonomy, application, analysis, synthesis, and evaluation and reinforce the take home messages from the course. I do this because students think the material we test on are the important things. We should be testing on the important things.

I take teaching seriously, when my students finish my course I want them to be able to critically think about how biological concepts apply to the natural world and to themselves and to be inspired and appreciate the endless wonder of the natural world.