

## Teaching in the Lab Workshop Reflection

*Title of the workshop:* Teaching in the Lab

*Purpose statement:* How to budget your time wisely – have a lesson plan, establish ground rules, create a positive classroom climate, and foster group work and discussion.

*Lead presenter:* M. Ferzli and B. Overman

*Date:* February 15, 2010

*Location:* Clarke Hall

*Number of people attending the workshop:* 9

*Reflection* (e.g. what you've taken from the workshop, how you will incorporate what you've learned in your teaching, how you feel your teaching can be improved given information shared in the workshop, etc.):

While this workshop was more geared towards natural science labs, there were still connections with an Economics lab. Clearly there were things that would not translate to Economics (i.e. disposal of chemicals), but in general applications in a natural science lab could extend to Economics. The most important day of lab is the first. This sets the tone for the rest of the semester and it is imperative that you decide how you want the classroom environment to be. Deciding how strict one wants to be is a personal choice that depends on the instructor, but a general rule is to start off stricter than you intend to be. Students are more receptive to going from a strict environment to a relaxed environment than the other way around. To avoid conflicts later on, make sure you enforce yourself as the authority so students understand and respect the student-instructor relationship.

Each lab needs to start off with a lesson plan, have a stated goal in mind and let the students know this before you begin the material. One way to do this is with a simple outline on the board. An outline is a great idea because it not only states the goal, but also the process so the students know why a step is important. It is important to take a step back and look at the big picture as most students will lose focus if they do not know why they are focusing on a step. Failing to plan is planning to fail.

Once the framework for each lab has been set, the execution should be much easier. There are things that need to be kept in mind, such as maintaining a positive classroom environment. This will vary from instructor to instructor, but main theme for this is to be respectful of the students. Promoting positive reinforcement, constructive criticism, and understanding the students needs are all critical. This can be done by interaction between instructor and students. As an instructor, you should aim for having discussion within class so you can tell which points the students understand and which points are not as clear. An underused strategy for this is "wait-time", i.e. the time an instructor waits after asking a question. Sometimes students take a while to respond, so an instructor needs to be wary of this so as to give enough time for a response. At the same time, it is critical to ask a CLEAR question. Ambiguous or

poorly worded questions just lead to more confusion in lab. Asking clear questions becomes easier as an instructor is able to generate more discussion. Discussion may take a lot of effort to get started, but once started it becomes easier to continue and this should be a goal for the instructor.

Since attending this workshop, I have implemented skeleton notes for each of my labs. Skeleton notes will typically have each of the main topics of the lab listed in an outline format along with other sub-topics and space for a student to write their notes. Sometimes, the skeleton notes will describe a topic but intentionally leave blanks in the description for the student to fill in as they listen to the lecture. Dependent upon the amount of material that needs to be covered in lab, there will be more or less blanks. Classes that do not have much material to cover will have more blanks so the students devote their time to really mastering the topic. However, when classes need to cover a large amount of material there will be less blanks. Although the amount of blanks will be less, the blanks will be placed in ambiguous parts of definitions/descriptions so that a student will still have to pay attention.

I have found skeleton notes to be an effective strategy to keep students involved in the lab. Not all students learn at the same pace or understand a particular topic in the same amount of time. What skeleton notes have allowed me to do is teach at a pace that most students in the lab can understand at while allowing those who already understand the material (or struggle) to read ahead to try and master the next topic (or look back and make note of the areas that they struggled on). This helps devote my time in lab to instructing the most students possible.