Being a Teaching Assistant in a Science Lab

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Goal and Objectives

GOAL
• Discuss tips on how to be a successful TA in a science lab

OBJECTIVES
• Discuss roles and responsibilities
• Discuss some common concerns of teaching a science lab
• Discuss how to prepare for the first day as a TA in a science Lab – see checklist
• Discuss how to engage and motivate students
• Discuss how to make lesson plans
Roles and Responsibilities

• Teach lab or lecture sessions
• Assist other professors with their classes
  • Prepare instructional materials, syllabus verification
  • Prepare laboratory materials, experimental set up
  • Function as Recitation or Lecture Aide
• Conduct grading and proctoring
• Assist students during office hours
  • You are required to have 1 hour of office hours for each section you teach
• Duties vary
Some Common Concerns of Science Lab

- Preparing for Lab
- Time Management
- Lab Safety
- Evaluation
  - grading scheme
  - timely manner
  - cogent feedback.
- Relate the lab to lectures and real world
Tips for First Day

• Arrive early
• Have Organized Class Plan
• Be confident and strict
• Introduce yourself and greet the students
• State your expectations
• Write outline on board / slide, if appropriate
• Make eye contact
• Engage students
• Get to know the students
• It’s ok to not know the answer to a question
• See Checklist
Time Management Tips: Balancing Classes, Teaching, Research/Work

• Use a planner and map out your day; productivity apps
• Grading should have a one week turnaround
  • If you have a lot of grading, break it up and do a little each day and even during your office hours
• If possible, do some of your reading/class work in the morning before class and try to review notes after class
  • Study in increments and start at least a week before exam
• Plan your class at least a couple of days before
  • Know the class material! If possible, sit in on an experienced TA’s lab before you teach
• Set aside some time for yourself even if it’s just a few minutes to relax and collect yourself
Lab Safety

• Know where first aid kit and safety data sheets are located
• Monitor students as they are arriving to lab that they are in proper lab attire
• Be observant that students are properly handling lab equipment, chemicals, etc.
• Know how to properly clean and dispose of broken glass, spilled chemicals
• Be observant of tripping hazards or spills before lab
• Make a list before class of all the potential hazards during the lab and be observant of those.
TA Concerns

• What concerns do you have about teaching in a science lab?
Resources

• Supervisors
• Lab Manual
• Peers
• Center for Teaching and Learning
• Teaching fellows
Lesson Planning 101

Four things to plan:

• Objectives & Key points
• Presentation
• Exploration or lab activity
• Explanation of material
• Assessment/grading
Lesson Planning 101

• Start with learning objectives
  • Students will be able to . . .
  • Think about how they will be assessed!

• Translate these objectives into key points
Example: Four Forces of Evolution

- **Objective:** Students will be able to classify given scenarios according to the four forces of evolution:
  - Natural selection, genetic drift, mutation, gene flow

- **Key points** address main points you must communicate to students for them to complete the objective(s).
First Part of Class: Presentation

- **Brief** presentation (5-10 minutes only), aligned with key points

- Use readings or lecture material to generate low-stakes questions to engage your students.

- **Example:**
Strategies for engagement

• Peer instruction: think-pair-share

• Round-robin sharing activity

• (Other ideas)
Main Part of Class: Exploration

• Students will be exploring the experiment/activity, but what will you be doing?

• Instead, plan to ask them questions that reinforce your key points!
• Monitor class to ensure students’ safety
Example: Dissection Lab

- **Objective:** Describe the structure and function of anatomical structures in the upper extremity.
- **Key points** relate to origins, insertions of muscles, so ask your students about these during the lab!
Third Part of Class: Explanation

- Give the students opportunities to tell you about what their findings were—and what those findings mean.

**Example**: Electromagnetism Lab

- What happened when the compass got near the live wire?
- What do these observations mean about electricity?
Last Part of Class: Assignment

- When should the students turn in their post-lab assignment? **Make this deadline very clear!**
- Return student work **within one week** of the lab during which they started it.
Grading

• **Manage your time:** Plan to grade a certain number of assignments per day

  ![Image of a frustrated person with a large stack of papers]

• Avoid sarcasm and harsh language in feedback.
Questions???

• Feedback
• Is there anything we haven’t touched on?

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THANK YOU