

I. Description of Specific Duties

Most teaching assistants (TAs) will be assigned to a teaching team responsible for one of the introductory physics courses. Your most likely assignment is the first term of the calculus-based course since that serves the most undergraduates. A teaching team typically consists of one faculty member and four to five TAs. This team is responsible for all aspects of the course for about 140 undergraduates.

If you have a 25% appointment, you will be teaching one discussion session and one lab, with the same students (less than 20) in your discussion session and your lab. If you have a 50% appointment, you will be teaching two discussion sessions and two labs, with two sets of students. Discussion sessions meet for 50 minutes on Thursdays, and labs meet throughout the week for 2 hours at a time.

Team Organization Meetings

Each week, the TAs and professor will meet as a team to discuss their course. This is the opportunity to discuss the mechanics of the course (e.g., who will grade what, who will proctor, etc.). However, the most important reason for the meetings is the communication between the different members of the teaching team. Important issues for this feedback are:

- The professor describing what is going on in lecture and why.
- Discussion about what to emphasize in the next discussion and lab sessions.
- Trading information and analyzing what students understand and do not understand. Since there can be a large diversity between the different discussion and lab sections, each TA should discuss and compare their section with other sections. This information is an invaluable input for the professor(s), who do not have the close contact with students that you do.

It is important that you take an active role in these team meetings.

TA Seminar

All new TAs are required to take a course "Teaching Introductory College Physics (CI5540)" in the both Fall and Spring semesters. In the course, instructors will help you to become more comfortable with the decisions you need to make before and during your teaching. The fall semester course has one credit; the spring semester course has two credits because it includes the scores of TA summer orientation.

Preparation for Laboratory

You will only have a new laboratory to teach every 2 - 3e weeks. You should become very familiar with the equipment, and consult the Instructor's Lab Manual and experienced TAs to find what might go wrong with it or what kinds of mistakes students might make. If you can, it is a good idea to observe someone else's lab session before you teach yours. With your team, select which lab problems have priority.

- Your team should decide during each weekly team meeting which lab problems your students will do that week.

TA Responsibilities

- You need to solve all the methods questions for the problems that your team assigned to your students. In the team meetings (and some All-TA meetings), you will discuss difficulties that students have had with the physics principles they need to do solve the lab problem.
- Students will solve computer laboratory preparation quizzes before each new lab. You will be shown how to use a program to check whether your students have completed their assigned programs before they get to lab (see page //). You should go through these questions before your students do, because some of your students might ask questions about them.
- Have a goal for each lab, something you want your students to learn. This should be decided in your team meetings after discussion with the professor and other TAs.

Teaching Laboratory Sections

Make sure you get to your laboratory room at least 5 minutes before class starts, and do not let the students enter until you are ready. Use this time alone to check the apparatus to make sure that it is all there, it is neatly arranged, and it is in working order. If you are teaching a computer lab, you should check to make sure the computers are working properly. Any other quiet time can be used to make final preparations. Make sure the door is locked and the lab is in order before you leave.

Preparation for Discussion Sections

- Solve the group problem students will solve in discussion section. Discuss with your team what aspect of the problem you expect will be difficult for the students.
- Look at the syllabus and homework problems assigned for the week. Be prepared to tell your students which homework problems are similar to the group problem.
- In some sections, you may be asked to work with other TAs to design or write a group problem. You will present the first draft of your problem to your team for critique, and may be asked to write a second draft. This will occur once or twice a semester.
- In some sections, you may be asked to choose the material for the discussion sections for some of the weeks. You may want to pool your skills and ideas with other members of your team, either during your team meeting or outside of it.

Teaching Discussion Sections

Try to get to your assigned classroom several minutes early. If possible, you should be there before most of your students. You may need to tidy the classroom, clean the blackboard, rearrange the chairs (see Fig.1 and 2 on Page //), and/or write on the blackboard (i.e., the agenda for class, groups students should work with, or other announcements). Well before the first class, check out the room to see if it is appropriate for a discussion section. If it is not appropriate, tell the undergrad office and we will try to get it changed.

Office Hours

Office hours will be held in Physics 230. This is your chance to interact one-on-one with your students, and it is your students' chance to get some personal tutoring. You will have one office hour a week for each of your sections.

Meeting with Your Mentor TA

You will each have a half hour appointment with your mentor TA once or twice in the semester. These meetings are to provide you with coaching to become better teachers. You might ask about problem students, difficulties grading, classroom management, course organization, and other questions you may have; you will also discuss other things that the mentor may have noticed in your section. Feel free to bring up anything else that relates to being a TA.

Attending the All-TA Meeting

//Every other week the mentor TAs will convene a lunchtime All-TA Meeting for the TAs of the introductory physics courses. These meetings will include an informal time to talk about teaching plus some time for a more formal discussion on how to handle difficult situations such as cheating and how to explain physics that has been difficult for students in the past. Since this meeting is optional, lunch will be provided by the Physics Department.

Grading Labs

You will be grading written lab reports every two or three weeks. As with all grading, prompt feedback to the students is essential. Discuss the grading policy (e.g. how many points each lab report has, the criteria to decide points) in the first team meeting because every TA in your group must have the same policy.

Grading Homework

Different teams will make different decisions about how homework will be collected and graded. Whatever scheme you decide to use cannot take much of your time. Be sure to grade and return homework as soon as possible, so that students can use the feedback to get help.

Grading Tests

- At this time, the estimate for how much time it takes to grade one of the most difficult problems is as follows:

$$(0.5 \text{ hr classifying}) + \left(\frac{140 \text{ probs}}{\text{quiz}}\right)\left(\frac{3 \text{ min}}{\text{prob}}\right)\left(\frac{1 \text{ hr}}{60 \text{ min}}\right) + (0.5 \text{ hr recording}) = 8 \text{ hrs}$$

On average, each TA will grade 3 such questions each term, plus one group problem (about 50 problems). This should average to less than 3 hours/week. In your team meetings you will arrange which TAs will grade which problems.

TA Responsibilities

- After you spend the time classifying a subset of tests, it is estimated that a quiz problem will take, on the average, 3 minutes to grade. Obviously some student solutions will be extremely convoluted and some will be blank (see the details of grading on page 118).
- After you have completed the grading, you will enter the grades into the computer (see Ch. V, Entering Course Grades in this Handbook).
- Grading should be completed and scores should be entered into the computer as soon as possible. It is important the students receive prompt feedback on all graded assignments.

Proctoring

You will all be asked to proctor the tests for your course. While proctoring, you are responsible for answering student questions and deterring cheating. The schedule for proctoring will be discussed in your team meetings.

Miscellaneous

If you get a chance, it is highly recommended that you go to lectures. It is a good opportunity to see exactly what is happening, and it also shows the students that you think lectures are important.

Final Exams and Lab Grades

Each TA will probably grade one or two final exam problems that will take about 8 hours each. This grading will occur, in most cases, after your last final exam so make sure that you plan enough time at the end of the term. In addition, you must be sure to have integrated your lab and homework grading into the course grading spreadsheet before the semester ends.

Average Time/Week During the 14-week Semester

Often, TAs want to know about how much time they should be spending on different duties. Your average weekly load during the 14 weeks of class for a 50% appointment should be approximately that listed below.

Contact with Students:

| | |
|-----------------------|----------------|
| 2 Discussion Sections | 2.0 hrs |
| 2 Laboratory Sections | 4.0 hrs |
| Office Hours | <u>2.0 hrs</u> |
| | 8.0 hrs |

Preparation:

| | | |
|--------------|----------------|-------------------------------|
| Laboratory | 1.0 hrs | |
| Discussion | 1.0 hrs | Teams will decide how to |
| Team Meeting | 1.0 hrs | structure this between team |
| TA Seminar | <u>1.0 hrs</u> | meetings and individual prep. |
| | 4.0 hrs | |

Grading and Entering Grades:

| | | |
|--------------------|----------------|-----------|
| Labs | 2.0 hrs | (average) |
| Tests and Homework | <u>3.0 hrs</u> | (average) |
| | 5.0 hrs | |

Feedback and Support:

| | | |
|---------------------|----------------|------------|
| Meet with Mentor TA | 0.5 hrs | |
| All - TA meeting | <u>0.5 hrs</u> | (optional) |
| | 0.5 hrs | |

Proctoring Tests:

1.0 hrs

Miscellaneous:

1.5 hrs

(dealing with the front office, helping students outside of office hours, etc.)

TOTAL

20.0 hrs/week*

* The University does not recognize the time between terms as holidays. Although the Physics Department typically does not assign TA duties after final exam grades are recorded, this time must be counted to compute your actual average hours worked per week.

II. Using Your Mentor TAs

Your mentor TAs each work 10 to 20 hours a week to help you improve the skills you need to become a better TA which will ultimately improve the undergraduate education in the physics department.

Specifically, the duties of the mentor TAs are to:

- be active instructors in the TA orientation in August.
- organize and moderate the all-TA meetings in which we discuss:
 - teaching concepts relevant to the week's materials
 - problems with the previous lab
 - difficult students
 - your issues and ideas about teaching
- co-teach the TA Seminar in the Fall and Spring in which we discuss topics similar to those in the all-TA meeting, and other topics including:
 - lab preparation
 - assigned readings
 - grading exams and homework
 - alternative conceptions your students may have
 - problem-solving strategies
- visit several of your labs and discussion sessions to:
 - observe your teaching techniques,
 - help you with intervening in groups,
 - give you feedback and answer questions about your teaching.
- report any unrescinded inappropriate behavior (i.e. behavior that is harmful to students) to the director of undergraduate studies.
- make recommendations for the TA award given at the end of the year.

If you ask them to, the mentor TAs will also:

- be resources for you in the physics department.
- serve as an anonymous conduit of your concerns to an individual professor or the department.
- help you find information in the education literature.
- help you write your lesson plans.
- help you find and practice with the laboratory equipment.
- advise you on grading, writing cooperative group problems, interacting with professors, and forming new groups.
- write teaching letters of recommendation.
- be willing to discuss the graduate school experience (both good and bad.)

Remember, like any instructional relationship, the mentor TA can provide you with ideas and suggestions, but the only impetus to improve your teaching lies within you.