# Table of Contents

1. Information about the Physics ASE program .......................................................... 2
2. Payroll and Workload Information ........................................................................... 2
3. Instructional responsibilities ...................................................................................... 4
   3.1 Lecture Instruction and Administration ................................................................ 4
   3.2 Laboratory Instruction and Administration ......................................................... 5
4. Answering student questions .................................................................................... 6
   4.1 How Do Students Add/Drop Classes .................................................................. 6
   4.2 Where can Students go for Tutoring? OASIS, Tutorial Center ............................ 6
5. Who’s Who in Student Affairs .................................................................................. 7
6. The ASE and university policy .................................................................................. 8
   6.1 Sexual Harassment Prevention ......................................................................... 8
   6.2 Association of Student Employees (ASE-UAW) ................................................... 8
7. Beginning to teach ..................................................................................................... 9
   7.1 Questions to ask your instructor ....................................................................... 9
   7.2 Conducting Discussion/Problem/Lab Sections ................................................... 10
   7.3 Lab Sections: How to spend your time in lab ...................................................... 12
8. Approaches to Instruction ....................................................................................... 14
   8.1 Preparation ....................................................................................................... 14
   8.2 Motivating Students ....................................................................................... 14
   8.3 Teaching with Technology ............................................................................... 15
9. Administering exams ............................................................................................... 16
   9.1 Student privacy: code numbers ....................................................................... 16
   9.2 Items for ASEs and Instructors to discuss ........................................................ 16
   9.3 Proctoring Exams ............................................................................................ 17
   9.4 Grading ............................................................................................................ 18
   9.5 Scantrons: What to do with them ................................................................... 18
   9.6 Returning graded material ............................................................................. 19
   9.7 Test accommodation for students with special needs ...................................... 20
   9.8 Final Exams ................................................................................................. 20
10. End of the quarter ................................................................................................... 21
    10.1 Final Exams Procedures ............................................................................... 21
    10.2 When can I leave? (When is my job done)? ................................................... 21
11. Teaching resources at UCSD ............................................................................... 22
    11.1 UCSD Department of Physics Senior TA ......................................................... 22
    11.2 Center for Teaching Development (CTD) ....................................................... 22
12. Really Practical Stuff .............................................................................................. 23
13. Emergency information .......................................................................................... 26
    13.1 UCSD Emergency and Information Numbers ............................................... 26
    13.2 UCSD Physics Department ASE Emergency Contacts .................................. 26

Appendix A: Typical weekly timelines for ASE’s ....................................................... 28
Appendix B: Typical quarter timelines for Physics ASE positions ............................ 29
Appendix C: Code Number Assignment Form ......................................................... 30
Appendix D: Comments from Senior TA, 2002 ......................................................... 31
Appendix E: Comments from Senior TA, 1998 ......................................................... 33
1 INFORMATION ABOUT THE PHYSICS ASE PROGRAM

Each quarter about 100 students apply for Physics Academic Student Employee (ASE) positions. The Physics Department employs about 60-80 people, typically about 40-50 graduate students and about 20-30 undergraduate students.

Who may serve as an ASE in Physics?
Students who are in good academic standing (3.0 cumulative GPA or better) and who have completed \textit{at least} 3 quarters of a physics introductory sequence with grades of B+ or better are eligible to be TAs.

What is the Physics ASE application process?
Physics graduate students in need of financial support are given priority. Physics graduate students are asked to fill out the application to update us on their contact information and to provide us with their preferences. Non-physics graduate students and undergraduates must complete the entire application. These applications are reviewed only after all physics graduate students with promises of support have been placed.

As a physics graduate student, do I have to work as an ASE?
Graduate students in physics have a teaching requirement as part of the PhD program.

2 PAYROLL AND WORKLOAD INFORMATION

When will I get paid?
Graduate students are paid on the first of each month for the time worked in the previous month. For example, if you start teaching in the fall your first paycheck will be November 1st. If the first of the month falls on a weekend, you will be paid the next business day.

Undergraduate readers and tutors are paid biweekly. Tutors and readers fill out timesheets to report the number of hours they work. A payroll calendar/schedule is available from Tracy Williams or Courtney Spindler in Payroll.

How much will I get paid?
Your pay rate will depend on your position. The position titles and the 2006-2007 rates are:

- Graduate student TA (Lecture or Lab TA), $1734.50/mo. (50% time)
- Graduate student Reader (grader/proctor), $11.93/hour
- Undergraduate student Tutor (Lab TA), $13.59/hour
- Undergraduate student Reader (grader/proctor), $11.33/hour
How will I get paid?
You will receive a paycheck that will be delivered to the campus address you provide to Tracy or Courtney when you complete the paperwork to become a Physics ASE. You may also sign up for SurePay, which allows direct deposit payroll transactions to your personal bank account. To enroll in SurePay you must complete an authorization form and submit it with a current voided check from the account you plan to use.

What if I don’t get paid?
If you do not get paid on the first of the month, you should contact Tracy or Courtney for further instructions.

How many hours am I supposed to work each week?
This depends on your appointment percentage. The appointment percentage tells you what percent of a 40-hour work week you should be working. For example 100% time is 40 hours per week, 50% time is 20 hours per week, and 25% time is 10 hours per week. The exact number of hours you work each week may vary slightly. Most TAs work for either 50% time or 25% time.

What should I do if I am working too many hours?
If you find that you are consistently working more hours per week than your percent time appointment indicates, contact Charmaine Samahin-Manns or Richard Hsu as soon as possible. We will try to find additional help to relieve your workload, talk to the instructor if needed, or provide you with additional compensation. If you find yourself in this situation, please inform us immediately! Waiting to report a problem makes it more difficult to solve.

Information for Undergraduates:
Do I need to fill out a timesheet?
Undergraduates need to fill out timesheets because they are paid by the hour.

Where do I get a timesheet?
Undergraduates will receive their timesheets from Courtney and return completed timesheets to her.

How do I fill out a timesheet?
On each day record the number of hours worked to the nearest 15 minutes. If you do not work, please record “0” for that day. Make sure you sign your timesheet. Please do not fill out any other boxes on the timesheet.

I am an undergraduate and I get paid by the hour. What do I do if I am working too few hours?
Undergraduate readers and tutors only get paid for the number of hours worked. If you find that you are working fewer hours than you were hired to work, you should inform Charmaine as soon as possible.
3 INSTRUCTIONAL RESPONSIBILITIES

3.1 LECTURE INSTRUCTION AND ADMINISTRATION

3.1.1 Lecture Instructors

Lecture instructors teach physics lecture courses. Most lecture instructors are department faculty members; occasionally a lecture instructor is an affiliated lecturer.

3.1.2 Graduate Student Lecture Teaching Assistants (Lecture TAs)

The TA is responsible for some or all of the following:

- Course material preparation
- Course web site development
- Occasional lecturing or attending class meetings
- Holding discussion and/or problem sessions
- Supervising/Coordinating graders and proctors
- Communicating with the Scantron Service Staff
- Preparing homework solutions
- Coordinating, administering, and proctoring weekly quizzes
- Coordinating, supervising and participating in weekly grading
- Maintaining complete record of grades
- Holding office hours weekly
- Any administrative matters relating to the above

Specific duties are determined by the needs and preferences of the instructor.

3.1.3 Graders

Graders may be graduate or undergraduate students. Graders are responsible for:

- Discussing with the TA and/or instructor how quizzes should be graded
- Asking the TA when and where the grading will take place
- Arriving at the grading location on time
- Informing the course TA or instructor immediately if there is any evidence or suspicion of cheating
- Grading all homework, quizzes and exams consistently, following directions given by the TA and/or instructor
- Turning in their biweekly timesheets on time
- Grading final exams
3.1.4 Proctors
Proctors may be graduate or undergraduate students. Proctors are responsible for:

- Being at the designated location at least 10 minutes before the quiz/exam starts
- Discussing with the TA and other proctors the strategy for proctoring
- Making sure students are seated and have all prohibited materials put away
- Distributing quizzes
- Answering student questions according to TA and/or instructor guidelines
- Constantly “patrolling” the room,
- Giving the class notice at least 10 minutes before the quiz ends
- Collecting bluebooks/scantrons from students at the end of the quiz
- Turning in their biweekly timesheets on time

3.2 Laboratory Instruction and Administration

3.2.1 Laboratory Instructors (LIs)
Laboratory Instructors are responsible for:

- Course material preparation
- Creating lab syllabus
- Laboratory instruction and grading
- Holding regular meetings with instructors/TAs
- Training demonstrations
- Administrative duties
- Holding office hours
- Answering student e-mail
- Visiting all lab sections a few times during the quarter to observe/evaluate the Lab TAs
- Maintaining grade records

3.2.2 Laboratory Teaching Assistants (Lab TAs)
Lab TAs are responsible for:

- Lab instruction
- Lab report, lab book, lab homework grading
- Attending regular meetings with instructor/TAs
- Maintaining grade records
- Patrolling the lab
- Maintaining a safe lab environment
- Answering student e-mail
4 ANSWERING STUDENT QUESTIONS

4.1 HOW DO STUDENTS ADD/DROP CLASSES?
All adding and dropping of classes through the second week of the quarter can be done via WebReg on TritonLink or through the Registrar’s Office. Students should not enroll in a section they cannot attend.

To find out if there still is room in a section, students should check the Schedule of Classes on TritonLink.

Late Adds
According to the policy posted by the Registrar, you may add classes after the second-week deadline, but you will be subject to a late fee. If you wish to add a section during the 3rd or 4th week of classes, you must fill out an Add Card, obtain a department stamp (or signature) from the Physics Dept., and then take the Add Card to the Registrar’s Office. Late adds cannot be done via WebReg. (Note: you may drop a class with no penalty up to the end of the 4th week of classes.)

Wait Lists
The only purpose of the wait lists is so that the department can determine if additional sections need to be created. Being on a wait list does not give students priority or even guarantee enrollment.

4.2 WHERE CAN STUDENTS GO FOR TUTORING?
The Office of Academic Support & Instructional Services (OASIS) provides individual and group assistance to all registered UCSD undergraduates. OASIS' specially trained tutors and peer mentors provide students with academic support in foreign languages, English language assistance for foreign-born students, math, and science.

Students also should be encouraged to go to the Physics Department Tutorial Center in Mayer Hall room 2101. Physics TAs are available in the Tutorial Center to assist students who are taking physics classes. The Center is open Sunday through Thursday, from 3 pm to 8 pm. This is a free drop-in tutoring service provided by the UCSD Physics Department.
## 5  WHO’S WHO IN STUDENT AFFAIRS

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Phone</th>
<th>Office</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charmaine Samahin-Manns</td>
<td><a href="mailto:csamahin@physics.ucsd.edu">csamahin@physics.ucsd.edu</a></td>
<td>858-534-5982</td>
<td>UHA 120</td>
<td>ASE hiring and training; contact person for academic dishonesty cases and student complaints</td>
</tr>
<tr>
<td>Richard Hsu</td>
<td><a href="mailto:rhsu@physics.ucsd.edu">rhsu@physics.ucsd.edu</a></td>
<td>858-534-3290</td>
<td>UHA 115</td>
<td>Student Affairs front window assistance, ASE hiring and training, TA contracts, textbook checkout</td>
</tr>
<tr>
<td>Sharmila Poddar</td>
<td><a href="mailto:spoddar@physics.ucsd.edu">spoddar@physics.ucsd.edu</a></td>
<td>858-534-3290</td>
<td>UHA 115</td>
<td>Student Affairs front window assistance, textbook checkout, WLH key checkout, course web site support</td>
</tr>
<tr>
<td>Randy Kelley</td>
<td><a href="mailto:rkelley@physics.ucsd.edu">rkelley@physics.ucsd.edu</a></td>
<td></td>
<td></td>
<td>Provides confidential feedback on TA performance, assists with training</td>
</tr>
<tr>
<td>Patti Hey</td>
<td><a href="mailto:plhey@physics.ucsd.edu">plhey@physics.ucsd.edu</a></td>
<td>858-822-1468</td>
<td>UHA 118</td>
<td>Discussion/Problem Session set-up, instructional materials duplication, quiz copying and administration</td>
</tr>
<tr>
<td>Tracy Williams, Payroll/Personnel</td>
<td><a href="mailto:Williams@physics.ucsd.edu">Williams@physics.ucsd.edu</a></td>
<td>858-534-5780</td>
<td>UHA 110</td>
<td>ASE employment forms and employment processing, payroll, timesheets</td>
</tr>
<tr>
<td>Courtney Spindler, Payroll</td>
<td><a href="mailto:Courtney@physics.ucsd.edu">Courtney@physics.ucsd.edu</a></td>
<td>858-822-2374</td>
<td>UHA 110</td>
<td>ASE employment forms and employment processing, payroll, timesheets</td>
</tr>
<tr>
<td>Brad Hanson</td>
<td><a href="mailto:bhanson@physics.ucsd.edu">bhanson@physics.ucsd.edu</a></td>
<td>858-534-7049</td>
<td>WLH 2126</td>
<td>Demo and lower-division lab support</td>
</tr>
<tr>
<td>Jeff Patterson</td>
<td><a href="mailto:jpatterson@physics.ucsd.edu">jpatterson@physics.ucsd.edu</a></td>
<td>858-822-5031</td>
<td>WLH 2126</td>
<td>Demo and lower-division lab support</td>
</tr>
</tbody>
</table>
6 THE ASE AND UNIVERSITY POLICY

6.1 SEXUAL HARASSMENT PREVENTION

The University is committed to "creating and maintaining a community in which all persons who participate in university programs and activities can work together in an atmosphere free of all forms of harassment, exploitation, or intimidation, including sexual harassment."

The Office of Sexual Harassment Prevention and Policy provides assistance in investigating and resolving complaints of sexual harassment and provides education to the entire campus community. Emphasis is on prevention and early resolution. More information about OSHPP is available at http://oshpp.ucsd.edu

6.2 ASSOCIATION OF STUDENT EMPLOYEES (ASE-UAW)

In 1999, the TAs, readers, and tutors at UCSD voted to be represented by the Association of Student Employees, International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW), AFL-CIO. TA, Reader (grader), and Tutor positions are covered by a collective bargaining agreement between the University and the UAW. Pursuant to the agreement, your name and departmental address will be released to the UAW, which is the exclusive bargaining representative for these positions. The Agreement can be retrieved electronically at http://atyourservice.ucop.edu/employees/policies/systemwide_contracts/uaw/index.html

6.2.1 Workload (Article 30)

A TA with a 50% appointment shall not be assigned a workload of more than 220 hours per quarter. This standard shall apply proportionately to other percent appointments.
In addition, a TA with an appointment of 50% or less shall not be assigned a workload of more than 40 hours in any one week. The number of hours worked in excess of twenty (20) hours per week may not total more than 50 hours per quarter.
Readers and tutors shall be compensated on an hourly basis.

6.2.2 Teaching Evaluations

TAs are evaluated each quarter by their supervising instructor and/or lab instructor.
7 BEGINNING TO TEACH

7.1 QUESTIONS TO ASK YOUR INSTRUCTOR

7.1.1 Lecture TAs:

- May I get a copy of the syllabus?
- What are the objectives of the course?
- What are the common majors of students who take this course?
- What days and hours does the class meet?
- What days and hours will the quizzes/exams take place?
- What days and hours will the grading take place?
- When can I obtain a list of students who are enrolled in my lab or discussion section?
- What is your late assignment/exam policy?
- What is your policy for adding students at the start of the quarter?
- What is the procedure for dealing with student grading disputes?
- Who are the other TAs for the course?
- What are my responsibilities as a TA?
- Do I run labs or sections?
- Will I be expected to lecture?
- Should I organize review sessions?
- Will I be responsible for creating some assignments or exam questions?
- Am I responsible for photocopying and other administrative tasks?
- Am I responsible for the course website?
- Do I need a copy of the course textbook?
- Should I hold office hours?

7.1.2 Graders:

- May I get a copy of the syllabus?
- What are the objectives of the course?
- What am I responsible for grading? (quizzes, exams, homework)
- What days and hours will the grading take place?
- Where on campus will grading take place?
- How long do you expect the grading to take each week?
- What is your policy on partial credit?
- What is your late assignment/exam policy?
- What is the procedure for dealing with student grading disputes?
- Who are the other graders and TAs for the course?

7.1.3 Proctors:

- May I get a copy of the syllabus?
- What are the objectives of the course?
- When are the quizzes/exams?
• How far in advance should I arrive at the quiz/exam?
• Who are the proctors and TAs for the course?
• What is the strategy for proctoring this class?
• Do we have to check student IDs?
• What materials are students allowed to use at quizzes/exams? (Calculators, notes, etc.)
• What types of questions am I allowed to answer?

7.2 Conducting Discussion/Problem/Lab Sections

The distinction between a discussion and problem solving session is not always clear. Be sure to discuss with the professor of the course what the purpose and goals of your section are. Sometimes you will have considerable freedom regarding the format of your class. Below is a list of things that you should consider before you decide how to run your own physics show.

7.2.1 Preparation:
• Do all the assigned problems all the way through. Make notes and look for places where students could get off track. Try to remember what it was like learning this material for the first time.
• When you prepare your notes and problems, make sure you use the same notation, sign convention, and units as the professor and/or textbook.
• Think of, or find, outside everyday examples and analogies related to the current topics.
• Attend lecture at least once a week. There are so many good reasons for doing this, such as obtaining knowledge of notation, course progress, and possible shortcomings in the lecture. If you are feeling a time constraint, then bring some other TA-related work to do (such as writing up homework solutions).

7.2.2 In class:
• Arrive at least 5 minutes early.
• Write your name, office hours, email, etc. in one corner of the board before class starts. Do this every time
• As students enter the room, engage in small talk. Informally ask them how the class is going, etc.
• Ask for general questions about the concepts or lectures before going over specifics.
• After addressing the general, ask for the specific (problems or concepts) and write an agenda of what will be covered. Insert items you feel are important that were not asked for.
• Don’t try to do too much. Take a vote on whether you need to remove some of the items from the list.
• Look at the students and not at the chalkboard. Read their faces and interact with them as much as possible.
• Be methodical in your presentation. Don't just write formulae and equations when solving a problem; provide the physics and the logic. Remember: they are learning and need to know the steps.
• Avoid doing too much algebra - if some students are lacking in mathematical skills, bring them up to speed at the end of class or in office hours.
• Avoid lecturing. Try to mix a variety of activities. Be creative.
• Show demonstrations. Small classes are ideal for demos: students can see more easily and you can even allow them to come up and play with the demo after class.
• Do not spend too much time on one question—other students may get bored if you do not keep them involved. If a question is beyond the level of the course try “That’s a very good question, let’s talk about that after class.”
• Don’t try to answer anything unless you are prepared. If you are unsure, be honest and address the question next time or by email.
• Take all questions seriously. They should all be termed “good questions”.
• Be aware of your presentation speed. Nervousness often makes people speak quickly. You may want to avoid caffeine before your sections; you usually will not need it.
• Move around. Not only does this keep the students more alert, it helps you get rid of some nervous energy.
• Avoid negative comments about the class, book, professor, etc. They tend to turn the students off the subject in general. Let them know you are a student too, but also remember you are representing the physics department.
• Avoid describing concepts and problems as “easy” or “simple”. These things may be easy and simple for you, but you are an expert TA, not learning this for the first time!
• Speak loudly and clearly and try to keep all students involved.
7.3 **LAB SECTIONS: HOW TO SPEND YOUR TIME IN LAB**

Labs are intended for students to have a first-hand experience with physics and figure things out on their own. Lab TAs are facilitators: your job is to assist the students in the learning process by encouraging them to find their own solutions to problems.

At the beginning of every lab, you should make sure that your name and email address are clearly written on the board. It is a good idea to erase anything left on the board from previous sections, including other TAs email addresses (having 10 TA names and emails on the board can be confusing!).

*For Physics 1ABC only:* You should announce that the first 5-10 minutes should be used for the students to talk to the people at their lab table about the pre-lab homework. Students should check their answers with the others in their group and come to a consensus when they differ. During this time, you should circulate to get a sense of where and why students got stuck, and help the groups figure out how to get un-stuck.

The next few minutes should be reserved for announcements regarding changes to the lab manual/procedure, safety issues, how to use equipment, etc.

You should not give a pre-lab lecture unless specifically instructed to do so by the supervising instructor. This type of lecture takes up so much time in the lab that there isn’t enough time left for the students to finish their experiments.

“Patrol” the lab constantly. Students often have questions they are too afraid to ask. It is your job to talk to the students! Walk around to the different groups and ask them what part of the experiment they are doing. Ask them if they understand what needs to be done. Also, give them some idea of how they are doing time-wise.

You should NEVER be sitting at the front or back of the room just waiting for students to ask you questions! If students don’t have questions for you, ask them a question that makes them think critically about WHY they are doing something. (Example: A good question to ask in a mechanics lab would be “What would happen if you did this experiment on the moon?”)

Do not use the computers in the lab to play games, check email, web surf, etc.

Never work on your own homework or research during a lab session.

Don’t hang out in the lab when you are not teaching.
7.3.1 Lab Safety
ASEs are expected to wear appropriate personal protective equipment. Closed-toe and closed-heel shoes must be worn in the labs at all times.

ASEs should be aware of the locations of the safety shower, eyewash, fire extinguishers and emergency phone.

7.3.2 Lab Keys
Keys for Physics 1AL, 1BL, and 1CL are given to Lab Instructors only. The LI on duty will open these lab doors as needed.

Keys will be issued to TAs by Sharmila Poddar in the Physics Student Affairs Office. You must pay a $5 deposit for keys. Keys must be returned within one week of the last day of labs for each class. Failure to do so will result in a charge for re-keying the door (approximate cost $100-$150).
8 APPROACHES TO INSTRUCTION

8.1 Preparation

The amount and kind of preparation required differs from course to course. It is important that you discuss with your supervising instructor the number of hours per week that you should be spending on each of the various preparation activities. Prep time will include activities such as reviewing the text, attending lecture, preparing for office hours/discussion sections/problem sections/lab sections. Please keep in mind that your preparation time is a portion of the total number of hours per week that you should be working. If you feel that your preparation time is causing your total working hours to be greater than your appointment, please talk to the instructor AND Student Affairs Director as soon as possible.

8.2 Motivating Students

Listen to your students
- Take the time to listen to their questions and concerns
- Make sure they know you are listening and that what they say matters

Ask your students to let you know if you are giving them what they need
- Ask them if they would like to you to structure office hours/problem session/etc. differently
- Ask them if they understand you/if you are loud enough/if you are writing clearly/if you are providing enough detail

Reward success openly and immediately
- Let them know when they are doing well

Give timely, appropriate, and informative feedback
- When grading, don’t just mark the problem wrong. Let them know where they went wrong and how.

Appeal to student interest
- Many of the largest courses the department offers are for non-physics majors. Find out what your students are majoring in and try to relate the topic you are teaching to their interest, when possible.

Be enthusiastic about physics!
- Many non-physics majors enroll in physics courses as a requirement, and have an array of negative feelings about taking a physics class. Part of motivating students is helping them see how exciting, fun, and interesting the field really is!
8.3 Teaching with Technology

8.3.1 Electronic Mail (Email)
TAs are expected to provide assistance to students via email. TAs may choose not to give out their personal email address, and instead have a designated email address specifically for student email. TAs are expected to check their email at least once a day. If possible, let students know when you check your email, so that they know approximately when they can expect to receive a response. Ideally, student questions should be answered within 24 hours.

8.3.2 Course Web Pages
All Physics department instructors are encouraged to have a webpage for their course. Minimally the course webpage should contain the syllabus and instructor and TA contact information. Additional materials for a course website include homework and exam solutions, announcements, grades, links to other sites of interest, etc. The course webpage may be maintained by the instructor or the course TA.

8.3.3 Campus and Department Computing Labs
Academic Computing Services (ACS) has general access computer labs around campus. To locate a general access computer lab, please refer to the ACS website: http://acs.ucsd.edu/instructional/

The Department of Physics has a computer lab in Mayer Hall accessible to Physics Graduate Students. For a login, code to the computer lab, and other related questions, email the Physics Computing Facility Helpdesk at helpdesk@physics.ucsd.edu

8.3.4 Office hours

Office hours are the opportunity for students to meet face-to-face with the TA to discuss any questions or concerns that they have regarding the course and the course material. You should make sure that your office hour location and times are given to the students on the course website and on the syllabus.

You should encourage students to attend your office hours. If they are poorly attended, you may want to ask the students if the time and day of your office hours are inconvenient, and if so, pick a new time!

8.3.5 Time management

Learn to Say No: You do not have to agree to every request made by your students or supervisor, particularly if requests fall outside your regular duties, or will create a workload problem.
If you feel like some of your TA responsibilities are creating an excessive workload, you should record how long you are spending on each task. Doing this for a few days will document the problem and help your supervising instructor prioritize tasks. If it looks like there will still be a problem with your duties taking more than the number of hours per week you are assigned, please notify the student affairs manager.

9 ADMINISTERING EXAMS

Most of the lower division courses have a quiz once per week. Ideally the course instructor should be at the quiz to be in charge of the quiz administration with TAs and proctors assisting. This is not always possible, and when the instructor is not able to take charge of the quiz administration, the duty falls to the TA of the course with proctors assisting.

9.1 STUDENT PRIVACY: CODE NUMBERS

In large courses, students are assigned a code number (typically 3 digits long). Students use their code number on all assignments that are graded.

When grades are posted online, these assigned code numbers are used. Names, student ID numbers, and government issued social security numbers are prohibited from being used due to laws governing privacy.

TAs for courses using code numbers need to obtain blank Code Number Assignment Forms from Patti Hey. It is the TA’s responsibility to write or stamp code numbers on the blank forms.

The forms are distributed to students and then returned to the TA. The TA must create a spreadsheet containing student names and code numbers.

An example of the Code Number Assignment form can be found in Appendix C.

9.2 ITEMS FOR ASEs AND INSTRUCTORS TO DISCUSS

The instructor, TA(s), and proctors should meet prior to the first quiz to discuss the process of the quiz administration. Items to think about during this discussion should include:

- What materials are students allowed to use during the quiz (Calculator? Notes? Book?)
- What materials will students provide vs. what materials will be available (Bluebooks? Scrap paper? Scantrons?)
- How are students seated in the room (every other seat, students pick seats, proctors assign seats, etc.)?
• Will Student IDs be checked?
• Are students allowed to take the exam/scrap paper out of the exam room?
• Who is bringing copies of the exam to the exam room?
• What time is the exam? How soon before the exam should TAs/proctors arrive?
• How are exams distributed at the beginning of the quiz? Who will distribute them?
• How are exams collected at the end of the quiz? Who takes the exams out of the exam room and where do they go?
• During the exam are students allowed to ask questions? Who is allowed to answer questions? What type of information is allowed to be given to students during the exam (Equations? Constants? Conceptual information?)
• What to do if cheating is suspected?

9.3 Proctoring Exams

Proctoring is an **active** job that exists mainly for the purpose of discouraging and catching cheating.

The proctoring role begins at least 10 minutes prior to the start of the exam, and may include seating students randomly or checking students’ IDs as they enter the room.

During the exam the proctors should be actively patrolling the room and looking at students and at the area surrounding the students (to check for illicit materials). Any suspicious activity should be reported to the instructor or TA immediately.

It is particularly important to remain attentive toward the end of the quiz and while students are turning in their exams. Students tend to forget that others may still be taking the exam once they have turned theirs in and talk to proctors or other students about solutions to exam problems. This should not occur, and students who are finished should be asked to leave the room.

9.3.1 Preventing cheating on exams

Make sure that the students are given clear information on what is and is not permitted.

Let the students know that cheating will not be tolerated.

If there are alternate versions of the exam, make sure that students sitting next to each other do not have the same version.

Proctor actively! If students see that proctors are talking to each other, sitting down, not looking at the class, etc. they will know that it is easy to cheat.

Always have at least one proctor at the front of the room that is not answering questions, but watching the class. The proctor at the front can also serve as a
9.3.2 Dealing with cheating
Incidents of cheating are often very hard to prove, particularly if the suspicious action is “wandering eyes”. If you suspect a student is looking at other students’ exams, you should quietly and discreetly move one or more students. Alert other proctors and the TA of your suspicion.

Do not confiscate the exam, but allow students to finish and discreetly hold the suspicious exams aside from the others. If other forbidden materials are found such as notes or “cheat sheets”, it is generally ok to confiscate those.

As a TA or proctor, you should only record and report facts. You will not become involved in the formal process, as that is the responsibility of the faculty in charge of the course.

9.4 Grading
Most lower division physics courses make use of machine-graded multiple-choice exams on Scantron forms. A few lower division courses and all upper division physics courses are graded manually. When there is only one TA for a course, it is the TA’s responsibility to grade the exams. Occasionally there will be more than one TA, or there will be additional graders assigned to the course.

All grading must take place on campus. When there is more than one person grading for one course, all TAs/graders must grade in the same location at the same time. There are many reasons for this including consistency of grading and security of exams. Graders are NOT permitted to take exams off campus.

9.5 Scantrons: What to do with them
The Physics Department uses Testing Services to score all Scantrons used for quizzes and exams. The Testing Services office is located in Literature Building Room 231 (the building next door to Warren Lecture Hall, on the 2nd floor) and is run by Monnie Barker.

Monnie Barker; mgbarker@ucsd.edu; 858-534-3373

9.5.1 Scantron form use
- Use Scantron answer sheets number X-101864-ERI-L or X-101864-PAR. They are available at the bookstore.
- Fill out answer key and place it on top of the stack of answer sheets.
- If students are using their UCSD id number, have them fill in “ID Number” slots. Use 0 for A. If you have assigned a 3-digit ID number, have them fill that in “Exam Number” slots.
• Test Versions—If you are using more than one version of the exam/quiz, make sure the students fill in A, B, C, or D under “Test Form.” We must have a separate answer key filled in on a Scantron for each test version. “Test Form” must also be filled in on the answer key.

• Condition of Answer Sheets – Before dropping off answer sheets, please make sure they are all facing the same direction. If students have used pen or the wrong answer sheets, those answer sheets will not be scored. (They try to catch those as they are run through the Scantron, but can’t always get them all, so please help.)

9.5.2 Taking scantrons to be graded

• Drop off scantrons at Monnie Barker’s office. If Monnie isn’t there, leave them in the Scantron drop-box.

• Fill out the “Test Scoring Request Form” in Monnie’s office. Copies of the Request Form will be in the box on the wall across from LIT 231. If this form is not filled out, the Scantrons will not be scored.

• Make sure you obtain an “index number” from Patti Hey in advance. You must write this number on the Test Scoring Request form. This number is used to charge the department for use of the scantron grading service.

9.5.3 Picking up scantrons

• After scoring, results will be e-mailed to you in Excel format. You may pick up the answer sheets from a box outside LIT 231. Please pick them up as soon as possible as they do scoring for several departments and the box gets full quickly.

• If there are multiple TAs for a class, please appoint one person to be responsible for picking up and dropping off answer sheets. This avoids confusion and saves time and duplicate trips.

9.5.4 Results

• The professor and/or TA need to decide in what form they want the results (email, printout, etc.), and what scoring information they need.

• If you need specialized scoring, such as accepting more than one answer per question, please call Monnie to see if this type of scoring is possible.

9.6 RETURNING GRADED MATERIAL

Students can retrieve graded material (homework, quizzes, finals, etc.) from the Student Affairs window in Urey Hall Addition during regular work hours Monday through Friday 8 – 4:30pm (closed 12-1pm).

Scantron forms are NOT returned to students.

To retrieve graded material, students will need to show a photo ID.
The TA for the class needs to bring the graded material to the Student Affairs office during normal operating hours.

Before bringing quizzes to be returned, please put the quizzes in numerical order by student code number (i.e. 100, 101, 102, etc.).

9.7 TEST ACCOMMODATION FOR STUDENTS WITH SPECIAL NEEDS

The Office for Students with Disabilities (OSD) facilitates the implementation of UC System-wide Guidelines for Accommodation of Students with Disabilities through collaboration with the Student, their diagnosing physician, and the Academic Departments.

OSD will issue an Authorization For Testing Accommodation Form (AFTA). Students will be expected to present this accommodation form to their instructor during the first two weeks of the quarter.

OSD will make specific disability-appropriate recommendations on the AFTA form. This documentation specifies the amount of time the student is entitled to for taking quizzes, midterms and final exams.

The instructor refers the student to Patti Hey in the Student Affairs Office. She is the liaison with Adrian Contreras, the exam coordinator at OSD. Patti works with OSD and the course instructor to schedule a time and location for the special needs students to take their exams for the length of time designated in the OSD documentation (usually for the 10-week quarter).

More information is available on the OSD website at http://orpheus.ucsd.edu/osd

9.8 FINAL EXAMS

The University Academic Senate requires faculty to be present at final exams. Assigning grades is the faculty responsibility, although ASEs may be asked to assist.

It is strongly recommended that student IDs are checked and enrollment is verified. Patti Hey can provide enrollment lists for this purpose.
10 END OF THE QUARTER

The end of the quarter is a busy time for ASEs, as exams are 3 hours long so proctoring and grading finals is a long and tedious task. Lecture TAs are also expected to assist the lecture instructor with assignment of grades.

10.1 Final Exams Procedures

The final exam schedule time and location for all courses is listed on the schedule of classes on TritonLink.

TAs and proctors are expected to be available to proctor the final exam. Please check the final exam schedule to verify that you will be able to proctor at the time the final is scheduled.

If you have a conflict, please notify Richard or Charmaine immediately! You are still expected to proctor during finals week and you will be informed of your alternate assignment.

ASEs who are graders are expected to be available to grade after the final has been administered. The course instructor will give detailed instructions to the graders.

ASEs who are lab TAs may be asked to proctor and/or grade final exams for the lab class. The course instructor will notify you if this is the case.

10.2 When can I leave? (When is my job done)?

ASEs are expected to be available through the end of the quarter (Tuesday AFTER Finals week, or whenever all Finals grading is complete).
11.1 UCSD Department of Physics Senior TA

The Physics Department employs a Senior TA every year to serve as a resource for Physics Department graduate students who are working as TAs. The Senior TA observes each new grad TA at least once. The Senior TA then meets with each TA to discuss what has been observed and provides suggestions for improvement. These observations and meetings are confidential and the results are not disclosed to the department.

New grad TAs are encouraged to contact the STA, Randy Kelley (rkelley@physics.ucsd.edu) to discuss TA-related issues that they would like brought to the attention of the department, but do not feel comfortable bringing forth on their own.

11.2 Center for Teaching Development (CTD)

CTD offers a variety of programs for teaching assistants, including the TA Development Program, the International TA Language Program, the Preparing Future Faculty Program, and the Preparing Future Physics Faculty Program.

CTD offers consultation and observation free of charge to teaching assistants.
The advice that follows was generated by some of the most common questions and concerns TAs express.

**WHAT SHOULD YOUR STUDENTS CALL YOU?**
This is up to you. Some students feel it's easier to approach a teacher they can call by their first name. Some students need to have an authority figure and calling the instructor by their surname helps to reinforce the student-teacher relationship. In general, female teachers tend to have fewer disciplinary problems when their students address them as Ms. ___________.

**HOW SHOULD YOU DRESS?**
This too, is largely up to you and dictated by taste and finances. We strongly discourage sexually provocative clothing for teachers, but just about anything could be construed as "sexually provocative." You will see the gamut of clothing styles, from suits to blue jeans. Women needn't wear dresses or skirts; slacks are fine. Men needn't wear ties or jackets, either. Dress can, however, subtly influence your students' attitudes toward you.

**WHAT SHOULD YOU BRING EACH DAY TO CLASS?**
As a good role model for your students, bring your texts each day, as well as some paper, pens, and a grade book. A book bag or a backpack is a good investment.

**GRADEBOOKS:**
Grade / roll books constitute a legal record. They protect both you and the student. Devise some kind of method for keeping track of assignments and attendance, and put a legend at the front of the grade book. Grade books make it easier to handle grade disputes. For example, if a student goes to your supervisor claiming her D grade was the result of your dislike for her, all your supervisor has to do is look at the grade book. More often than not, the student making such a claim generally has missed many days of class and many assignments.

**HOW CAN YOU MAKE COPIES OF ASSIGNMENTS, ETC.?**
The Physics Student Affairs Office has a photocopier for ASE use when photocopy jobs are small. The SAO copier is NOT for personal use!

For large photocopy jobs, please see Patti Hey. Large photocopy jobs are taken to Imprints, a campus printing facility. Patti Hey will be able to charge the cost of the photocopying to the appropriate department budget number.
WHERE'S YOUR OFFICE?
Graduate Students working as Physics TAs may use Mayer Hall 2101 and 2106 for office hours. Lockers are available for storage of personal items.

HOW CAN STUDENTS REACH YOU?
E-mail is a great way for students to contact you and you them. Exchange e-mail addresses, but don't share the class list of e-mail addresses without the students' permission.

HOW MANY OFFICE HOURS MUST YOU KEEP?
Technically, one hour per week for each 3 hours taught, but most teachers spend more.

WHERE CAN STUDENTS LEAVE THINGS FOR YOU?
This is a problem. Discourage students from leaving things taped to your door or slid under it. There are too many arguments that arise from disputes over papers that didn't arrive on time or that disappeared. The same goes for teachers leaving something for a student pinned to an office door. Again, the best way to handle collecting papers is to designate a time when you or a colleague will be at the office to collect and/or distribute materials. This may be inconvenient, but it's necessary to avoid the problems of plagiarized papers. In addition, the Family Privacy Act prohibits publicizing in any way any particular student's grades.

CAN YOU ACCEPT LATE PAPERS?
This is up to your supervising instructor. Many teachers have a formal policy that allows each student to turn in one late paper. Others are very strict about not accepting any late papers. Check with your supervisor for guidance regarding late papers. Whatever the policy, give it to students in writing.

WHERE DO YOU SIT, OR SHOULD YOU STAND DURING CLASS?
It's best to move around. Actually, moving around keeps you and the students alert.

WHAT IF YOU DON'T KNOW THE ANSWER?
Admit it or ask someone else to answer the question. Students might recognize this last strategy as a diversionary tactic, but you can serve as a good role model for the acceptability of admitting when you just don't know.

WHAT IF A STUDENT COMPLAINS TO YOUR SUPERVISOR?
Each supervisor handles these situations differently, since a lot depends on the context of the complaint. It's important to remember that your supervisor is there to support you and the students. In all probability, your supervisor will let the student know that they have been heard and that the incident will be investigated. The supervisor will probably come to you for your version of the situation. In most cases, the situation is one of miscommunication. Work out the situation collaboratively with your supervisor.
WHAT DO YOU DO WITH A DISRUPTIVE STUDENT?
See your supervisor immediately.

WHAT DO YOU DO IF IT APPEARS A STUDENT REALLY ISN'T PREPARED FOR THE CLASS?
Sometimes students who have transferred from another college and who legally have met the requirements for your class in reality just aren't prepared. If you encounter such a situation, you have several voluntary options. First, bring the situation to the attention of your supervisor. If the problem seems to be related to English as a Second Language (ESL), the student can be retested and referred for special help. If the problem is not ESL-related, the student can either drop the class and spend time with a tutor on a volunteer basis, or take a course at another school. (In the last instance, they can only take the course for their edification, not for UCSD credit.) Legally, a student who has met the prerequisites for your course has the right to stay in it.

WHAT IF THE STUDENT IS VERY ADVANCED?
Occasionally students are held for a class because they tested poorly on a standardized placement test. If you think the student would be better served by advancing to the next course, take the matter to your supervisor. Such advancements may be handled through petition.

WHAT DO YOU DO IF A STUDENT INSISTS HE/SHE MISSED CLASS, QUIZ, EXAM, OR LAB BECAUSE HIS/HER GRANDMOTHER DIED?
There's a saying that TAs are the leading cause of death for grandmothers of college freshmen. This excuse has been used often, but occasionally it's true. You'll have to make a judgment based on what you have experienced with the student previously. If you suspect a fabrication, see your supervisor before making a decision.

WHAT IF A STUDENT DISPUTES A GRADE?
Technically, since your supervisor is really the instructor of record for all the classes, students have the right to have the grading of their papers reviewed. There are some qualifications to this, however. First, since most students wait until the end of the quarter to bring all their work to the supervisor for review by the faculty member, your supervisor may announce that grade disputes have a statute of limitations. Second, Academic Senate rules prohibit changing any course grade except for reasons of clerical error. Only grades that resulted from a mathematical or bookkeeping error will be changed. Ask your supervisor how such situations are handled in your department.

HOW TO HOLD THE CHALK SO IT DOESN'T SQUEAK:
Don't laugh. This can be vitally important when you're in front of a class. Hold it at a 45-degree angle.
13 EMERGENCY INFORMATION

13.1 UCSD EMERGENCY AND INFORMATION NUMBERS

UCSD Emergency Phone Number (Fire, Rescue, Police, Medical) …………911

Environmental Health and Safety………………………………………..(858)534-3660

Physical Plant Repair/Maintenance Service……………………………..(858)534-2930

Sexual Harassment…………………………………………………………(858)534-8298

Student Health Service…………………………………………………..(858)534-3300

Campus Emergency Status Information………………………………(888)308-8273

Lost & Found Phone………………………………………………………..(858)534-4361

Community Service Officer Escort Program:
858-534-WALK (858-534-9255) for an escort starting at sunset until 1:00 a.m

13.2 UCSD PHYSICS DEPARTMENT ASE EMERGENCY CONTACTS

There are a number of possible “emergency” scenarios that may occur while you are working as an ASE for Physics. Some examples are:

- Not enough proctors for a quiz
- Not enough exams for the number of students
- The room for your quiz, discussion section, lab, etc. is locked
- You have an ASE commitment that you have to miss without much notice (sick, family emergency, etc.):

In these types of scenarios, here are some numbers to call:

Physics Department Office (staffed 8am-4:30pm)…………………..858-534-3290
campus phone dial: 43290

Patti Hey (7am-3:30pm)………………………………………………………..858-822-1468
campus phone dial: 21468
If you know in advance that you will need to be absent from an ASE commitment, it is your responsibility to:

1. Find a replacement ASE that will substitute for you with an even exchange (example: Patti substitutes 3 hours for Charmaine on October 3, and in exchange Charmaine will work 3 hours of Patti’s assignment on October 12.)
2. Inform the professor, Charmaine, and/or the appropriate Lab Instructor in advance what the arrangement is and for which dates.
APPENDIX A: ASE TYPICAL WEEKLY TIMELINES

Lower Division Lecture Courses:
* = TA duty

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
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<tbody>
<tr>
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<td>Lecture</td>
<td>Lecture</td>
<td>Problem Session*</td>
<td>Quiz*</td>
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<td>Office Hours</td>
<td>Return prior</td>
<td>Put homework</td>
<td>Take scantrons for</td>
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<td>week’s quiz to</td>
<td>solutions on</td>
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<td>Student Affairs</td>
<td>website*</td>
<td>OR</td>
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<td></td>
<td>Office*</td>
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<td>Grade quiz</td>
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<td>Take quiz to Patti for copying</td>
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<td>Post quiz</td>
<td>Grade quiz</td>
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<td>with other TAs/graders</td>
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Upper Division Lecture Courses:

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<tbody>
<tr>
<td>Lecture</td>
<td>Lecture</td>
<td>Lecture</td>
<td>Homework Due</td>
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<td>Office Hours</td>
<td>Discussion</td>
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<td>Grade homework</td>
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<td>Return graded</td>
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<td>homework to students*</td>
<td>homework solutions and scores online*</td>
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Lower Division Lab Courses:
1. Meet weekly with Lab Instructor
2. Conduct lab sections during the week
3. Grade lab homework/reports during the week / weekend
## APPENDIX B: TYPICAL QUARTER TIMELINES FOR PHYSICS ASE POSITIONS

<table>
<thead>
<tr>
<th>Week #</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Classes Start</td>
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<td>FRIDAY QUIZZES</td>
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<td>Week 2</td>
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<td>Last day to ADD classes</td>
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<td>Week 3</td>
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<td>Week 4</td>
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<td>Last day to DROP classes</td>
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<td>Week 5</td>
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<td>Week 6</td>
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<td>Enrollment begins</td>
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<td>Week 7</td>
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<td>Week 8</td>
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<td>Week 10</td>
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<td>Last Day of Class</td>
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<td>FINALS</td>
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<td>WEEK</td>
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<td>FINALS</td>
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APPENDIX C: CODE NUMBER ASSIGNMENT FORM EXAMPLE

Department of Physics
Physics 1B– Spring Quarter - 2006
Prof. Levine

MY CODE NUMBER IS: _________

THE COURSE NUMBER (i.e. 2B, 1A(a), etc.), YOUR CODE NUMBER AND THE CURRENT QUARTER (SP06) MUST BE WRITTEN ON EVERY SCANTRON FORM YOU USE FOR THIS COURSE.

SCANTRONS ARE NOT RETURNED TO STUDENTS.

TEAR OFF AT DOTTED LINE AND TURN IN BOTTOM PORTION OF THIS PAGE.

******************************************************************

INSTRUCTIONS:
1. Print your full name below

LAST NAME \hspace{1cm} FIRST NAME \hspace{1cm} MIDDLE INITIAL

2. Your code number is _________. WRITE THIS NUMBER ON EVERY SCANTRON FORM YOU USE FOR THIS COURSE.

3. Tear off bottom part of this page as indicated.

4. In compliance with the Privacy Act, your scores will be posted by code number on a website set up for this course.

THE COURSE NUMBER (i.e. 2B, 1A(a), etc.), YOUR CODE NUMBER AND THE CURRENT QUARTER (SP06) MUST BE WRITTEN ON EVERY SCANTRON FORM YOU USE FOR THIS COURSE.

SCANTRONS ARE NOT RETURNED TO STUDENTS.
Teaching can be an intimidating experience, particularly if you’ve never done it before! It isn’t every day that you have to talk in front of an intelligent group of anywhere from 30-300 people, let alone discuss a technical subject in clear enough detail that (hopefully) everyone in the room can understand what you’re talking about. Once you get over the initial shock of seeing 600 eyes staring at you waiting for you to start the show and you start talking about physics, I’ve found it gets considerably easier… it’s rather like the way Richard Feynman described his conversations with Niels Bohr: “I never knew who I was talking to. I was always worried about the physics. If the idea looked lousy, I said it looked lousy. If it looked good, I said it looked good. Simple proposition.” Once you start getting into solving problems or discussing theory, you’re too busy thinking about physics to worry about who’s staring at you!

However, at first, you may find that the concept is ideal in theory, but reality is a completely different story. But there’s still a few tricks that I’ve found make it a little easier, in two easy-to-follow categories:

**Category 1: “Oh my god, all these people are looking at me”**

- There are ways to deal with the general anxiety of talking in front of people… you’ve all heard that you should imagine people in their underwear, you should stare at their foreheads, or whatever. What I have found works is to get to know who a few people in the class are, and then look at those people while you are talking and act like you’re talking to them. It’s always easier to talk to people you know!

- Don’t worry about whether you’re boring them, or if the people in the class like you, or any of that. You’re not there to entertain them or make friends! You’re there to teach them physics, and no one is forcing them to be there. Just be yourself and don’t sweat it, and if they don’t want to be there, they won’t come!

- Be confident. You’re the boss, so speak loudly, write large, and act like you know what you’re talking about, because you do! Even if you don’t, act like you do anyway! Of course, it’s best to not resort to that, so…

- Be prepared. Do the problems and review the theory before you have to teach it. Confidence comes more easily when you know everything inside out. The students will be able to tell that you know what you’re doing and will trust you more.

**Category 2: “So what am I going to do, anyway?”**

- Once you get at ease talking in front of your class, you’ve still got physics to teach! And unless the professor you’re teaching for tells you the format of the sections specifically, you need to decide how you’re going to do it. I’ve found it’s good to come up with at least a couple possible formats, and then at the first meeting ask the students which they prefer! They’ll appreciate the fact that they have input in how things go, you’ll know the majority of people are satisfied with the format, and, not least of all, you get everyone talking!

- Once you have them talking, keep them talking! Ask questions, get people to help, and make sure everyone is following you. You can never ask the question, “Is everybody with me?” enough.
• One of the best investments you can make is a set of colored chalk. The different colors will make your diagrams easier to understand!

• Write large and speak loudly! Write large and speak loudly! If you’re not sure if it’s large or loud enough, ask! And then write larger and speak louder!

• Lastly, make sure the students know how to get in touch with you. Tell them your office hours, give them your e-mail address, etc. Some students will participate in class and help you out, but some are just as worried about talking in front of everyone as you are. They need your help too, and they and everyone else will appreciate your willingness.

Beyond that, the best way to get used to teaching is experience. And the only way to get that is to do it… so good luck!
APPENDIX E: COMMENTS FROM SENIOR TA, 1998
Jason Kriesel, Senior TA 1998: General Comments on Teaching Physics

While different students learn in different ways (i.e. some are visual learners), research in physics education has shown that the majority of students learn more effectively when they are actively engaged in the information being presented. Lower division students who have gone through traditional courses, where they are passively told information, often view physics as a collection of facts, formulas, and mathematical tricks. Frequently they fail to integrate the parts into a coherent picture of the physical world, and in many cases they leave the class with no better conceptual understanding of the universe than before they began.

Given the not too surprising idea that students learn more with a brain that is working as opposed to one that is just listening; you may now want to ask: How do I get my students to think? Below is a list of ideas compiled from research papers, the Center for Teaching Development, and personal TA experiences. Above all, the most important action you can take is to also think. Occasionally bring your thought process to your teaching. You will inevitably find that the steps taken to improve your teaching effectiveness will be rewarding in many ways—including gaining a deeper understanding and appreciation of physics. Even blocks sliding down ramps may appear beautiful after a while.

- Avoid the urge to give the answer. It’s what most students want, but not what they need.
- Try to lead them with questions (i.e. a Socratic dialogue) such as “What do you know about this problem?” This method not only gets them thinking, but provides an example of questions they should be asking themselves. Remember that you are not only teaching them physics, but also teaching them how to think like a physicist.
- Lead them through the thinking process, and make them participate with specific questions. “What is the next step?” “Why?” It is important to show the reasoning and not give the impression that the steps are obvious.
- Vary the level of your questions. Mix in no-brainers with some stumpers, but try not to ask a question for which you do not know the answer. “What is T in this equation?” “What does temperature mean?”
- Present opposing answers to a question and have them vote.
- Slow down and don't be afraid of “quiet time”. Give them a chance to ponder.
- Make them work in class. “Here’s a little example. Work on it for 5 minutes and then we will discuss.”
- Encourage them to discuss things with each other. “What do you think about that?” Getting them to verbalize is one of the best ways of getting them to think about the subject.
- Do not correct wrong answers without trying to probe deeper to find the source of the error. “Why do you think that?” You may be able to uncover a deep misconception that is inhibiting the students understanding, but try not to make the student feel dumb. Lead the student to see a conflict that would result from their misconception. “I can see why you thought __, but how does that fit in with ___?”
- Tie concepts together. “Does Bernoulli’s equation remind you of any of the conservation laws that you know and love?”
- Relate the concepts to their everyday experiences. “You place your thumb over the end of a garden hose, and what happens to the water stream? Why?”
- Try to tackle the Big Picture questions like “Why should I care?” and “What does this really mean?”