3. TEACHING AND LEARNING

Teaching Assistants should consistently aim to teach in a manner that is accessible to all students. Every student will bring his or her own experiences, learning styles, and personalities into a classroom and teaching assistants must be able to teach according to these differences.

Queen's University offers excellent advice on creating an accessible learning environment, with information found at "Creating a Safe Learning Environment" http://www.queensu.ca/idc/idcresources/handbook/handbook2002.pdf

The following section serves to provide TAs with strategies on how to interact with different kinds of students.

Teaching and Learning Styles

There are many different ways of teaching, but experts focus on three major styles. This summary has been adapted from *Teaching and Learning at York: A Guide for Teaching Assistants and Course Directors*.

1. The Subject Matter-Centred Teacher focuses on "helping students master principles, concepts, analytic tools, theories, facts, etc. in a particular discipline." (1989, p.13).

2.The Instructor-Centred Teacher has a goal to "help student learn to approach problems in the field as professors approach them…concentrating on transmitting segments of knowledge that are considered 'standard' in the field." (1989, p.13).

3. The Student-Centred Teacher emphasizes "personal development of the whole student, organizing class sessions around the desire to help student develop as individuals, morally and socially, as well as intellectually." (1989, p.13). The three categories are not mutually exclusive but instructors to lean more towards one than the other. Often you will be largely affected by the direction of your professor because she or he will direct you in how they teach and how they wish you to teach. Be aware of other styles and make a conscious effort to include all three in your lesson planning.

want more?

- University of Guelph, "Learning Styles" http://www.tss.uoguelph.ca/id/ta/tahb/tah2f.html

Planning and Facilitating Seminars

Professor Lorne Adams of Physical Education offers the following advice in planning and facilitating seminars.

Getting Started

Consider the following:

- give students the opportunity to speak at the start of class
- give them the opportunity to get to know each other
- give them the chance to get to know you?
- break their preoccupation when they enter the room (they are thinking about their last class, their last evening, their next date…)
- break up cliques and move groups around

  HOW?

  Have them call out numbers from 1-5 and put all number 1s together

  (or coloured pieces of paper/cards from a deck, etc)

Suggestion:

Start the seminar off with an ice breaking activity that will gets students talking to each other and make everyone a little more comfortable. This may be as simple as….

- a round robin of introductions, (why I am here and what I want to learn)
- pairs: introduce yourself to partner, then introduce the partner to the class
- hand out a sheet of instructions "Find someone who…. has read the course outline/ has come from out of town/ is in the wrong class/ etc " and have students circulate the room, completing the task
- toss a ball of string – whoever catches it has the floor to introduce him/herself
- two truths and a lie (in groups of 3 – 5, say three things about yourself – others decide which one is the lie)

The Dreaded Readings

In a perfect world all students will have read all readings. In this world it is not going to happen. How can we familiarize students with the material without alienating those whose who have read and castigating those who haven't?

Suggestions:

- form small discussion groups (jigsaw) with those who have read the assignment and those who haven't.
- ask students to scan the reading and circle/read out loud the sentence they find most interesting
- tell the students what the most important points of the reading are; then give students the opportunity to scan the reading to find those points
- have students underline one sentence that states the thesis
- play SEARCH and DESTROY: ask students to find something that is badly written or unclear. Students love to point out what doesn't work in the reading – ask them why it doesn't work. This tactic gives students ownership of the material and allows them to review main points.
- Ask students to each write an exam question based on the reading. Form jigsaw groups and get students to discuss the questions and possible answers. Good for review of essential points right before the exam.

Teaching Points

Think of 3- 5 teaching points you want to get across in your seminar. Students cannot remember or assimilate too much information at once. Think abut what the essential points of information are in the content you are covering. What do you want them to get out of it? Then design a learning activity that will allow students to access that material without you telling them.

Learning Activities
Points to remember when designing a learning activity:

- KNOW THE CHARACTERISTICS OF YOUR GROUP
- KNOW THE OBJECTIVE
- KNOW HOW MUCH TIME YOU HAVE
- KNOW YOUR ROLE
- WHAT PRODUCT DO YOU WANT FROM THE GROUP?
- WHO WILL REPORT BACK?

Did you know.....
winners of TA awards receive cash prizes?
For more information, see page 49.

Remember –students learn best by doing.

When thinking of the learning activity ask yourself:
What is the objective?
What is the time allotted?
What is the content?
Method/ materials?
Group size?
Product??

When you have asked yourself these questions then think of the learning activity that WILL MATCH YOUR OBJECTIVES. Your learning activity might be a small group exercise, a survey, a think/pair/share task, a role play, a case study or a set of question and answers. Know your group, since activities such as role plays will not be suitable for large groups or shy students. Build in a degree of choice to the activities.

Closure
Bringing closure to a seminar is just as important as having an effective start. Leave a few minutes as the end of the class to see if students are now familiar with the content you wanted covering. Do the students have an understanding of the 3- 5 teaching points you outlined?

To review – and wrap up the session - consider having students quickly jot down three things they learned from the discussion. Then go around the room, asking students to identify (one quick point each) what they have assimilated. This encourages students to do a quick mental review of the discussion and the material learned.

want more?

- University of Guelph, "Facilitating Seminar Discussions" http://www.tss.uoguelph.ca/id/ta/tahb/tah4f.html
- Queen's University, "Some Common Difficulties in Moderating Discussions" http://www.queensu.ca/idc/idcresources/handbook/handbook2002.pdf

DID YOU KNOW...

According to Weimer (1994), the four biggest anxieties for teachers are speaking in front of a group, preparation for class, comments from students of a hostile nature and answering students' questions with inadequate answers. When this anxiety is triggered, it is further increased by three things; teaching unfamiliar material, dealing with new students and having a negative experience with a particular class. The best way to reduce anxiety is to practice speaking in groups (which most TAs experience at Brock due to our seminar system); be prepared; try to work things out with hostile students; and telling students that you do not know all the answers but will get them the right answer as soon as you can. Make sure you feel comfortable with the content *before* going to class; spend the first class getting to know your students; and try to deal with negative situations as they come up. Now that is teaching!

Should You Call on Your Students?

Weimer (1991b) lists a number of reasons why teachers call on students:

- Students stay alert and aware because they always know that they could be called on next
- Students are encouraged to come to class prepared since they never know when they will be expected to contribute.
- It gives students the impression that you are serious about their involvement
- It allows students to develop verbal communication skills, especially the ability to think on their feet
- Lastly, it prepares students for the "real" world where most jobs will "call on" them for instant answers.

Some of the reasons cited for why teachers prefer not to call on students are as follows:

- Students become anxious: for especially anxious students, the only learning that takes place is how to deal with terror
- Students are encouraged to contribute because they *have* to but not because they *want* to
- Students may become embarrassed when they cannot answer, resulting in a "chilling effect" on the classroom climate where it is less open and interactive.

Weimer also points out that it is more important to consider *how* you call on students rather than *if* you call on students. Make sure that if you do call on students, you do it in such a way that is as unthreatening as possible. Make sure you are calling on everyone equally. Encourage volunteer answers first, leaving at least ten seconds before calling on someone else. Most of all, consider your group. If they are in first year, they may be shy so you may have to encourage their responses, especially in order to hear from everyone. Try thinking back to when you were a student and reflect on how professors and instructors encouraged you to participate. Lastly, ask your students periodically if they are comfortable in the way you call on them in order to monitor the learning environment.

Planning and Facilitating Labs

The following section focuses on tips for TAs/Lab Demonstrators in Math and Science departments.

Senior Lab Demonstrator Ellen Maissan (Biology)

(and winner of the 1998/99 Senior TA Award)

What is the role of the lab instructor in the lab?

Maissan says that the role of the lab instructor varies depending on whether the instructor is teaching a dry or investigative lab. Lab instructors are told what to teach and how to teach it by a Senior Lab Demonstrator; additionally, everything is set up for them in the lab by the Senior Lab Demonstrator. According to Maissan, lab instructors must "provide clear, concise instruction that is absolutely correct. This information is provided by the Senior Lab Demonstrator to ensure not only accuracy, but also the safety of students in compliance with health and safety codes." In a dry lab, instructors are supervisors of students rather than fellow researchers. The investigative lab instructors present material to students and are supportive, but their role goes a little further. The experimental/investigative lab instructor guides students in the practical use of the scientific method and acts as a research partner. Often chemical solution preparation, equipment set-up and use is required of students in this type of lab; and, the lab instructor must oversee that the students perform these tasks safely, as well as collect data and results.

There are some roles of the lab instructor that are common across all types of labs. The lab instructor is someone to turn to when the student has a question. If the lab instructor does not know the answer, the instructor's role becomes "information seeker" because he or she must find someone who does know the answer or, as a research partner, the lab instructor helps the student find the answer by working together. Maissan recommends that lab instructors say the following to students when they do not know the answer to a question: "You've asked a good question and I don't have the answer yet, but you work on it and I'll work on it and let's see what we come up with." Maissan says, "Finding the answer is a learning experience because the process is comparative and collaborative."

What do you look for when marking?

In both dry lab assignments and experimental lab reports, Maissan says that the lab instructor must look for the following: **correct answers**, **accuracy** in drawings and calculations, **clear presentation of data** in tables and graphs; and, the students' **understanding of the concepts** demonstrated through their investigation.

Maissan mentions some key points that lab instructors and TAs must remember when evaluating student's labs, quizzes, tests and assignments. First of all, students must be told exactly **what is expected** of them. "If students are not told what is expected, how can they be expected to "deliver the goods", to satisfy the expectation(s) of the evaluative tools being used?" asks Maissan. Second of all, evaluators must be **consistent in their marking**, which means marking at least all of one question for all students in one sitting. Maissan believes "if you stop evaluating answers to a specific question halfway through, you continue marking in a different space of time, in a different mood that affects the 'memory' and consistency of marking between the first and second half of the assignments." Thirdly, in order for TAs and lab instructors to **mark objectively and fairly**, they should not look at the name of the student whose test or lab they are marking so that biases (conscious or not) do not shine through; as Maissan says, "you must judge the answer and not the student."

What are some definite "no's" with students?

Maissan feels there are a number of definite "don'ts" when working with students. First of all, dishonesty or stating something as true when you are not positive it is correct is unacceptable. A TA or lab instructor should never presume to know more or be more than they are; it is more important to admit you are not entirely sure, get it checked out, and then inform the student of the correct answer. Also, disrespect for a student such as putting them down, showing them up or making them an example, should never occur. There should never be definite differences of opinion expressed by TAs in front of students. If you witness another TA or lab instructor telling a student incorrect information, which may happen since most labs have pairs of instructors, you should take the other person aside and explain to them what you feel is the more correct answer. Then, that instructor can go to the student and state the correction. Another definite "no" is any action that may be misconstrued by the student as sexual harassment. If a student is extremely upset and a hug or arm around the shoulders seems appropriate and would be comforting or appreciated by the student, always *ask* if he or she would like a hug - ***never assume permission*** if your actions are anything more than a casual gesture. Yet another "no" is disloyalty to the professor; Maissan advises if the student makes a negative comment about the professor, put the comment back to her or him in a positive way because Maissan says, "there is always another side to everything." The last "no" Maissan mentioned was to never be uninviting to students, especially first-year students. "You want to encourage students to learn, and part of their learning involves asking questions and seeking answers from 'experts' or people they trust to know the correct answers. Make the most of a student's courage to approach you and ask you a question," says Maissan.

What are some definite "yes's" with students?

Maissan also feels that there are some definite "do's" when working with students. Compassion is one. Maissan advises that students have many other things going on in their lives, and lab instructors should always keep this in mind. Also, a TA or lab instructor should create a personal and positive learning environment so that the student feels relaxed and more comfortable. The instructor must also prepare for each lab; after all, TAs complain when students arrive unprepared, imagine how upset students feel when the TA is not ready to teach. Maissan also believes that students should be continually reassured, and it should be reinforced to students that learning is a process and does not happen instantly; students should be told that if they desire and work to succeed in the class, they will be successful. TAs and lab instructors should strictly follow marking outlines that have been developed by senior lab demonstrators and professors. Lastly, TAs and lab instructors should be as helpful to students as possible and give them the most correct information possible.

What do you do if you spot identical labs?

Maissan says identical labs are like radar, "they find you, you don't have to look for them!" Identical labs have the same expressions, same misconceptions, same spelling errors, same work errors and the same drawings/graphs/tables (often from the same printer, in the same font). If a lab instructor witnesses students working too closely in the lab, the instructor should say something right away - it is best to stop the opportunity for copying before it happens. Remind students of the penalty for submitting identical labs. If you do receive identical labs, stop marking them and inform the Sr. Lab Demonstrator. He or she will address the matter in compliance with departmental and university policy.

Can you make any suggestions on how to mark faster?

Maissan advises that lab instructors should mark only one question at a time so that the marking scheme stays in your head and there is less indecision. Also, Maissan suggests marking all the non-judgmental questions (such as true/false or fill-in-the-blanks) first, and then mark the judgment questions last (or visa versa) in order for your mind to get tuned to one or the other format, allowing you to "speed" through them. Also, don't allow yourself to get "hung up" on one student's answer; that is, if the answer is poor and requires a lot of correction, move it to the bottom of your marking pile, proceed through the better answers and when you return to the poor answer your previous marking experience will speed up your assessment and comments.

What do you do if labs are handed in early or late?

Maissan prefers it if students keep their labs until the assigned deadlines so that they can review and reflect on their work and catch mistakes or give greater detail. Maissan encourages students to take their time and not to rush through their assignments.

Late labs are a different story. Maissan gives students a deduction of 10% per day or 0 at the end of the week. Maissan feels that students should get the idea of what a deadline means because life is full of important deadlines, and students should learn how to handle them at university. Maissan wants students to realize that usually they have only themselves and lack of time-management skills to blame for lateness; and, she wants to be fair to all the students, both those who are good planners and those who stay up all night to get their labs done on time.

What do you do if a student says that they handed in a lab or quiz but they do not get it back?

Maissan has a very organized system of recording all labs that are handed in before they are distributed to markers. If a student states that they did not get their lab back, Maissan checks her records to see if there is a checkmark beside that student's name for that lab. If there is, she gets on the phone to the marker to see if the marker still has it. The one time a lab was "misplaced", it was found under the couch of a marker who had dropped a pile of labs. Because of this system, she has not lost a lab yet. When a student initially complains of a missing assignment in the class, simply ask the other students in the class if they might have picked up two labs because that often happens. If there is still no lab, check your records to see if the student did in fact hand in a lab. If a marker ever was to lose a lab, you could do one of two things: give the student the average mark of the class (which is not fair to the student if they would have gotten a better mark than the average) or give them perfect (after all, the student should not lose out because of another person's mistake).

Should students be allowed to have make-up labs and quizzes?

Ideally, yes, since learning is an experiential endeavour and labs are "hands-on" learning opportunities. Realistically, however, high registration in labs and timing may make it impossible to accommodate every students' need for a make-up lab and/or quiz. If a student has proof of a legitimate reason for missing a lab or quiz (such as a medical or death certificate) and no alternative

assignment is possible, the student should be allowed an omission for that lab or quiz with the understanding he or she will still be personally responsible for the missed material on the exam.

How do you evaluate the labs and quizzes of special needs and international students?

If a letter has been received from the Student Development Office about a student, his or her labs and quizzes should be marked by the Senior Lab Demonstrator all year with their special circumstances in mind. If a lab or quiz was marked by a marker before the letter was received, the Senior Lab Demonstrator should remark the student's labs with their special needs in mind. Maissan advises that many students are not identified, however, and that if you are very concerned about a student's performance speak to the Senior Lab Demonstrator who will determine if the student has special needs status, and alert you to future action. If the student is international, and the TA is concerned about her or his ability to speak and write English, this matter should be drawn to the attention of the Senior Lab Demonstrator or Course Coordinator.

Maissan mentions some things to consider when marking a special needs student's work. Waive spelling if it is related to their special need. Also, with labs, you may have to waive drawing quality in some special cases. The student may also work with a partner if the disability involves coordination or manual dexterity, but ensure that the partner's performance in the lab is not jeopardized by any additional responsibility. When dealing with special needs students, Maissan advises that TAs and lab instructors be discrete to allow the student to maintain their privacy. Also, "take every special needs case on an individual basis". Lastly, ensure consistency with one marker for the year, preferably the Senior Lab Demonstrator who makes up the marking master. What is more important than marking allowances is special attention to one's own actions in the lab. Maissan says that she tries to be more sensitive in the culturally diverse classroom. Maissan tries to respect the clash that students may feel living in a different culture such as the power differences between men and women. Maissan also tries to remember that humour may be misinterpreted and so she is careful not to offend. Above all, she tries to give explanations that are clear and instructions that are consistent. If the student is quite new to Canada, the Senior Lab Demonstrator may take a look over how the marker marked the student's lab or quiz and give extra marks when the international student may have had difficulty in understanding instructions or explanations. Finally, lab instructors should keep an extra eye on international students and ensure a sense of security so that they feel welcome to ask you questions or share information with you because after all, that is one of the benefits of the lab environment!

Thoughts on the Teaching Experience Gail Neff (Chemistry)

Senior Lab Demonstrator, Chemistry (and winner of the 1997/98 Senior TA Award)

I have known I wanted to be a teacher since public school when I was a volunteer helper in the Grade 2 classroom. (Then, the appeal was making red marks on the papers). As I progressed to high school and university, the vision of me as a wise benevolent mentor sitting serenely on a pedestal surrounded by adoring student at my feet, made the profession even more attractive. Although the reality has been far from blissfully idyllic, it has been satisfying, challenging, and often just plain fun! Given my gregarious nature and enjoyment of people, it was, and is, the right profession for me.

A number of years ago, Professor Don Ursino in the Biology department here at Brock gave a talk to kick off the TA Day seminars. He pointed out that "teaching is a craft" to be practised and modified as circumstances dictate, and thus is always evolving. I agree with this thesis, and believe it describes my experience over the past 30-some years.

In the beginning, I lectured to large classes as my professors had done, disseminating the textbook information, and covering the required material in the allotted time. I also met, when requested to, with small groups and individuals. (Discussions with students has always been my favourite part of teaching). Much to my delight, I found that when I was able to come up with a new example to further

fill in the "portrait" of a concept, *my* understanding of both the subject and the learning process was also "fleshed out". As is often true, students aren't the only ones learning during an active dialogue. Those are the best days!

Over the years, though, I embarked on a campaign to make learning easier, and sometimes it meant that students did less. In the interest of pleasing students, (and saving time to get through more material), I gave out more "answers", and made summaries that students could photocopy. In my student days, I remembered spending long hours struggling to understand concepts. With well meaning intent, I gradually opted to help my students avoid some of the painful toil by "telling them how it is" --- and thereby depriving them of the thrill of discovery and accomplishment. Not surprisingly, I have increasingly heard myself lament that too many students do not understand the subjects. Small wonder. Memorizing "answers" allows a student to keep the learning superficial and not take it in internally and integrate it into one's experience. Such learning is soon forgotten when the exam is past.

Memories of my pre-schoolers' busy "working" (not being lectured), and later discussions with my teens about their decisions and mistakes (and why they couldn't just learn from my experiences), have convinced me that there is no shortcut to learning. I see now that much of the very necessary process of learning by doing.

Labs are a natural venue for experiential learning. The initial challenge is to provide meaningful activities, not just cookbook, make-work in a three hour period. But, even great experiments aren't enough if students don't see the connection between the concrete and the theoretical material. To this end, the chemistry lab program is undergoing some modifications which I expect will keep me interested, involved, and enthusiastically practicing my craft for the foreseeable future.

Tips on being a Good Lab Demonstrator

Many thanks to Astride Silis, Earth Sciences, for the compilation of this section.

Pre-Lab Preparation

- ✓ Review lab procedure, work through problems before lab begins
- ✓ Know theoretical material
- ✓ Be aware of hazards, safety equipment and first aid kit locations
- ✓ Arrive at lab ~15 min before start of lab (to answer questions etc)

During the lab

- ✓ Ask open ended questions of students to aid understanding
- ✓ Monitor student work during the entire lab period; do no other work during the lab period or sit in a corner “chatting”
- ✓ Circulate around the room constantly, monitoring equipment setups and student progress
- ✓ Continually reinforce good lab techniques and rules, to maintain a safe and orderly lab

After the lab

- ✓ Ensure students clean their areas when lab is completed
- ✓ Clean up areas left dirty and put away equipment
- ✓ Remain in the lab until all students have left and you have made sure everything was left in proper condition
- ✓ Report any information relating to lab accidents or incidents to the Senior Lab Demonstrator/Coordinator as soon as possible after the lab

Strategies for mixing with students (adapted by the Queen's University Instructional Development Center from *Learning to Teach: Assisting with Laboratory Work and Field Trips,* published by the Oxford Centre for Staff Development, 1997*)*

Remember that most of your work will be done in close proximity to students. A comfortable distance for face to face contact is 2-3 feet. Be sensitive to cultural differences that may make students feel uneasy to be any closer. If the nature of the lab work requires you to move in closer to a persons "comfort zone" (ie. You may need to look down a microscope to reposition a slide), it is always good policy to ask the student's permission before moving in to assist or reposition something in the work area.

Some strategies for getting involved with student progress during the lab.
1) Responding to requests: take up a visible position at the edge of the lab and wait to be summoned by students with request for help

2) Watch and Approch: Wait at the side of the lab, try to spot students needing assistance, then approach.

3) Systemic visits: Approach students one by one or group by group so that everyone's work is monitored and no one is left out. You can also stay in one spot but ensure that all students must pass you at some point in the lab (ie. To obtain necessary equipment)

4) Mingling: Take a random route through the lab and assess needs while meandering through the class. Observe students and pose and answer questions as required.

Tips for Overall Good Lab Demonstrator Attributes

- Be enthusiastic about the subject and the job
- Learn student names ASAP
- Be approachable, act interested, and be willing to help whenever needed
- Leave personal problems and personal biases outside of the lab
- Try to be patient and cheerful (especially with first year students!)
- Be consistent in the treatment of all students – Do not give any student special treatment
- Be courteous and consistent
- Recognizes limits of authority and behaves maturly and responsibly, does not use authority to obtain personal favours.

want more?

- Brock Chemistry Department Lab Demonstrator Guidelines

http://www.brocku.ca/chemistry/etc/section6

- Brock Science Safety Manual

http://www.brocku.ca/oehs/academic/Science_Manual.pdf

- Queens University TA manual

http://www.queensu.ca/idc/idcresources/trainers/trainers.pdf

Science Laboratory Classroom Environments at Schools and Universities

1. Students in this laboratory class get along well as a group.

1	*2*	*3*	*4*	*5*
almost never	*seldom*	*sometimes*	*often*	*very often*

2. There is opportunity for students to pursue their own science interests in this laboratory class.

1	*2*	*3*	*4*	*5*
almost never	*seldom*	*sometimes*	*often*	*very often*

3. What we do in our regular science class is unrelated to our laboratory work.

1	*2*	*3*	*4*	*5*
almost never	*seldom*	*sometimes*	*often*	*very often*

4. Our laboratory class has clear rules to guide student activities.
5. The laboratory is crowded when we are doing experiments.
6. Students have little chance to get to know each other in this laboratory class.
7. In this laboratory class, we are required to design our own experiments to solve a given problem.
8. The laboratory work is unrelated to the topics that we are studying in our science class.
9. This laboratory class is rather informal and few rules are imposed.
10. The equipment and materials that students need for laboratory activities are readily available.
11. Members of this laboratory class help one another.
12. In our laboratory sessions, different students collect different data for the same problem.
13. Our regular science class work is integrated with laboratory activities.
14. Students are required to follow certain rules in the laboratory.
15. Students are ashamed of the appearance of this laboratory.
16. Student in this laboratory class get to know each other well.
17. Students are allowed to go beyond the regular laboratory exercise and do some experimenting of their own.
18. We use the theory from our regular science class sessions during laboratory activities.
19. There is a recognized way of doing things safely in this laboratory.
20. Laboratory equipment is in poor working order.
21. Students are able to depend on each other for help during laboratory classes.
22. In our laboratory sessions, different students do different experiments.
23. The topics covered in regular science class work are quite different from topics dealt with in laboratory sessions.
24. There are few fixed rules for students to follow in laboratory sessions.
25. The laboratory is hot and stuffy.
26. It takes along time to get to know everybody by his/her first name in this laboratory class.
27. In our laboratory sessions, the teacher/instructor decides the best way to carry out the laboratory experiments.
28. What we do in laboratory sessions helps us to understand the theory covered in regular science classes.
29. The instructor outlines safety precautions before laboratory sessions commence.
30. The laboratory is an attractive place in which to work.
31. Students work cooperatively in laboratory sessions.
32. Students decide the best way to proceed during laboratory experiments.
33. Laboratory work and regular science class work are unrelated.
34. This laboratory class is run under clearer rules than other classes.
35. The laboratory has enough room for individual or group work.

The Lab Environment

The above inventory was developed by Frazer, Giddings and McRobbie (1992, in Weimer). They suggest that the questionnaire be used twice, once having students report what actually happens and then a second time having students state what they wish would happen. This inventory has been proven to be a reliable and valid source of information about what students think about the lab environment and only takes five minutes to administer.

Being a TA in the Computer Lab

Here are some "dos" for Computer Science TAs working in computer labs, provided by Computer Science mentor Baoling Bork:

Do…

- advise students that all computers stay on at all times
- remind students of lab protocol (for example, logging in and out with each use)
- instruct students about printing procedures
- keep in mind course specific requirements
- provide plagiarism information
- report all problems with hardware and software
- attend weekly meetings.

DID YOU KNOW?

The Department of Computer Sciences is offering a TA award this year! Contact the department or CTLET for further details.

Exams

This section is intended to outline guidelines on the best ways to study. Our thanks also to the Student Development Centre, for numerous tips on preparing students for exams.

How to Study For Exams (Tips for students)

- attend the last few classes because professors usually do a review, discuss the most important aspects of the material covered and outline the exam format.
- ask questions about what material will be covered on the exam and the extent that you will be expected to know about each chapter. For instance, ask if the exam covers the whole year or just the semester, ask what chapters will be stressed and ask if the seminar readings are included on the exam and to what extent.

- ask questions about the exam's format (multiple choice, short answer, true-false, problems, essays or a combination) and ask how the marks are divided between sections.
- when preparing for the exam, decide on some main themes of the course and write down some main points under each heading. Look through your notes and textbook and continue to fill in more details; this will allow you to see how the course information fits together and this type of understanding will get you the grades!
- reading and rereading the material is simply not enough. For terminology, make up flash cards with the word on one side and the definition or page number of where to find it on the other. If you have to write essays on your exam, try reciting a potential essay out loud. See if there are old exams on reserve and try them out (they will reduce exam anxiety because you will have a better idea of what to expect). Once you have studied most of the information, it is good to do a practice run of the exam, seeing if you can answer all the questions within the exam time. If you are in first year, your textbook may have a study guide that goes along with the text. If you are in a course like Introductory Psychology, there may also be a CD Rom that you can buy to help you understand the material better. Set up study groups to go over material and any problems you have in understanding the material. Lastly, find another friend in that class and quiz each other (especially forming questions to resemble those you will expect to find on the exam).
- if the majority of the exam is in essay format, practice writing, paying special attention to selecting main themes and supporting points. Finding relationships among topics, applying the most relevant and crucial principles and ideas for the themes that run throughout the material. This type of exam is deeper than objective exams, so make sure you understand the material and its relevance in the course.
- if you are doing objective exams with multiple choice or true-false questions, the most important thing to do is learn the material overall, paying attention to details, main points and central themes. This is a more surface exam so learn all the surface points and facts.

Proctoring Exams – General Tips and Procedures

CTLET thanks Astride Silis, Earth Sciences, and the Registrar's Office for this information.

Progress and Final exams are scheduled by the Registrar's office. The large enrollment (usually first year) classes often have their exams held in the gyms. Progress Exams are held for full year courses in December and Final exams are held during the month of April. Be aware that exams can be scheduled on Saturdays and in evenings so you may be asked to come in and proctor at odd times.

Proctoring an exam is included in part of the duties assigned to Marker Graders, TAs and Lab Demonstrators. Depending on whether you are proctoring a course-scheduled midterm or test during the term or an exam scheduled by the Registrar, there may be different procedures you need to follow. Always clarify what you would like the instructor have you do as your role as proctor before the exam starts.

There are usually three stages to the exam that are important to be aware of and are common to all exams.

1) Pre-exam setup:

For official exams set by the Registrar, they request that instructors are at the exam site at least *30 minutes before* the start of the exam to set up materials and to answer questions from students.

You may be asked to help set out exam question papers on desks in addition to:

a) official exam booklets
b) scantron sheets
c) "Sign in card"
d) any additional materials that may be allowed.

2) For exams that have assigned or randomized seating, the sign-in cards will have individual seats designated by row letter and seat number on a sticker on the back of the card. Make sure you shuffle the cards *before* the students come in. Hand out an individual card to each student. Keep pointing out that they must check their seat and row number and sit in their assigned seats.

- Pro's: this system minimizes the chances that friends will end up sitting next to one another and possibly copying answers

-Con's: it takes a bit longer to hand out cards individually, so students must be let in earlier, and often another proctor should be on hand to help students find the proper row/seat if they get confused.

2) Proctoring DURING the exam

It's usually a good idea to have a proctor near one of the entrances for the first 10-15 minutes of the exam to direct any latecomers to seats and/or assist with directions that might have been missed. This also minimizes disruptions to students already writing.

During progress and final exams, the first fifteen minutes should also be the time when proctors begin to collect the sign in cards. Make sure to check cards are filled in and check against Brock ID.

You may be asked to assist with washroom duty for students.

During the rest of the exam it is your job to remain alert to any questions that may arise. Periodically walking around the room, up and down the aisles will encourage any students that may have questions to bring them up as you walk by. It will also work as a deterrent to anyone trying to cheat.

Do not sit at the front of the room and never move from your seat. Do not bring a book to read and

never look up. Do not spend the entire time socializing with other proctors. This is a serious and stressful time for the students who are writing the exam and they deserve your attention to the job.

3) Collecting exam papers

Scantrons:

- When collecting make sure they are all face up and in same direction so the machine will read them correctly
- As student hands in the exam, check that: Name is on sheet, student ID written in, Student ID is bubbled in (ALL 3 Items are important in case of error or crosschecking)
- If one or more items are missing, politely ask them to fill in the information before they leave (have extra pencils on hand to lend so this can be done quickly)
- Also make sure scantron is filled in with PENCIL – if anything is in pen, ask them to redo on fresh scantron.
- If scantron has large erasure marks or blotches, ask student to circle answer they want marked, and put sheet aside (i.e. Bottom of pile) so it is easy to find again later

Make sure you stay FOCUSED when collecting exams. It is easy to get distracted (i.e. talking to fellow proctors or students with questions)

- Do not let students walk out of exam area without handing in exam materials
- Make sure you separate scantrons and question papers in distinct piles. Often question papers are sent directly to the shredder. You do not want to be responsible for accidentally leaving a scantron among a question paper set and then having it shredded!

Ending the Year with a Bang!

The Teaching Professor's article **"How to End Courses With a Bang"** (1995) includes responses from professors throughout North America on how to end classes and courses. For instance, one professor states that many teachers end a course without checking their students' "feelings" about what they have learned. This is like taking a course all year and not finishing the final exam. **Get student feedback** about how they feel about the course, answer their concerns and queries and deal with any relationships, negative or positive, that have developed out of your teaching year. Allow both yourself and your students to feel a **sense of closure** about the course content and about the seminar or lab experience as well.

Another professor stated that as much time should be spent on ending the classes as on starting them. Allowing this time provides students with an opportunity to reflect on their activities so that the learning will become integrated and fully synthesized. Another professor stated that she leaves two hours for activities, including a team game (such as Family Feud or Jeopardy) as an exam review, complete with prizes. Another professor suggested using crossword puzzles for a review because the words in the puzzle alert students to key words to study. Yet another professor uses charades because he feels that it helps students "review, synthesize and prepare for the final" (p.1). He warns, however, that students must study before the charades or else no one will be able to guess the words.

Other professors prefer reflective exercises. One suggests that students complete sentences such as "I'm left feeling…", "Something I learned about myself…" and "Something I learned about others…" (p.2) in order to synthesize their learning. Another professor asks students on the first and then the last day about their ideas and feelings about the particular course. For instance, "What is Philosophy?" or "What is Psychology?" or "What is Economics?" and students can understand how much they have learned by comparing what they felt coming in and what they feel after learning. If you do this, have students put their responses from the first class in a sealed envelope and unseal it in one of the last classes; let them do this anonymously so that they can have a private growth experience rather than a learning experience for others (i.e., the teachers).

Another interesting suggestion comes from a professor who says that he tells a heart warming story to his students which allows him to "let go" of his students. Lastly, one professor stated that when students hand in their final exam, he shakes their hands and says "thank-you". Such a gesture is honest, polite and makes a difference to students. These are all great ideas on how to end the term or school year with a bang!