Handbook for Teaching Assistants
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This handbook is intended as a starting aid for teaching assistants in the Department of Statistics. Much of its content has been copied or adapted from the TA Handbooks of the Departments of Physics, Political Science, and Economics. I am extremely grateful to these departments for letting me take advantage of their hard work and effort. I have added much additional material for this version for the Department of Statistics.

This handbook contains many suggestions about teaching and grading that I hope will serve to make your job easier, and help you along the road to becoming an effective university teacher.

Augustin Vukov
TA Coordinator

Last updated: September 2010
### Useful Departmental Contacts for Teaching Assistants:

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<th>Position</th>
<th>Name</th>
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<tr>
<td>Department Chair</td>
<td>Jamie Stafford</td>
<td>SS 6019</td>
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<tr>
<td>Assistant to the Chair &amp; Office Admin</td>
<td>Sarah Johns</td>
<td>SS 6018</td>
<td>978-3452</td>
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<tr>
<td>Undergraduate Associate Chair (STA)</td>
<td>David Brenner</td>
<td>SS 6016A</td>
<td>978-6368</td>
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<tr>
<td>Undergraduate Associate Chair (ACT)</td>
<td>Sam Broverman</td>
<td>SS 6016</td>
<td>978-4453</td>
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<tr>
<td>Graduate Associate Chair</td>
<td>Radu Craiu</td>
<td>SS 6010</td>
<td>946-7590</td>
</tr>
<tr>
<td>Graduate &amp; Undergraduate Admin</td>
<td>Andrea Carter</td>
<td>SS 6022</td>
<td>978-5136</td>
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<tr>
<td>Teaching Assistant Coordinator</td>
<td>Augustin Vukov</td>
<td>SS 6024A</td>
<td>978-4722</td>
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<tr>
<td>Payroll Enquiries</td>
<td>Ram Mohabir</td>
<td>SS 6020</td>
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<td>Marks Software</td>
<td>Dermot Whelan</td>
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### Other Useful Telephone Numbers:

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BEING A TEACHING ASSISTANT (TA)

The Job

As a TA you have a variety of contractual rights and obligations; but this handbook is not about things like that. Throughout this handbook it is assumed that you will be treated with consideration and that you will be conscientious. If there are serious problems with your job assignment (e.g. timetable conflict), see the departmental TA coordinator immediately. Once you start work, problems that arise should be discussed with your immediate course supervisor asap. And note that you are now a union member! Consequently, there is also a CUPE union steward in the department available for consultation about union-related matters.

TA's in the Department of Statistics do many things, including marking, teaching tutorials, holding office hours or Stats Aid Center hours, proctoring tests and exams, record-keeping, and holding their fingers in the dike when catastrophe threatens. You need to find out which of these things you are needed for, and when they will need to be done, at the beginning of the term. Although your work may be described as a certain number of hours per term, it is bound to be irregular. There may be times when you will have a major marking job to do in a limited time, and other times when you have only a little work or even none at all.

TA's in the introductory courses typically have some regular weekly duties (preparation, tutorials, and office hours), but then have a lot of work to do in a relatively short time when there is a test or exam. You need to know (and are entitled to know) when the busy times will be, so that you can plan your own work in such a way that crises are avoided. Your course supervisor needs to know if you are likely to have some crucially important obligation just when a test needs to be graded. It is unlikely that the test can be moved, but possibly the marking can be left till after your own obligation has been dealt with, and the students forewarned not to expect their tests back as soon as normally. Or if there isn't enough room to manoeuvre, possibly the problem can be solved by arranging an exchange of work with another TA who is working in the same course or is capable of working in it. The sooner problems like this are identified, the more likely it is that they can be resolved satisfactorily.

All this is just one of the reasons why it is essential that you meet with your course supervisor at the beginning of the year. More generally, you need to be well informed about a great many things - such as the scope of the course, the level of the course, and the role of the tutorials if you will be giving tutorials. It is also important to have a reasonably accurate estimate of how much preparation you will need to do.

Of course communication with your course supervisor will continue to be important throughout the year. To do a good job you need to have a very clear picture of how you fit in and what it is you are fitting into.
Hiring Policies

It is important to apply for positions on time. Check for the TA vacancy ads outside the departmental office, and apply before the posted deadline - otherwise your priority will drop.

The highest priority in hiring is for those graduate students who are due a second, third or fourth reappointment (see CUPE contract), and for new grad students promised TA work in their admission offer. If you are not in this category, you are in competition with others, and should do what you can to maximize your employability. Those who show a high level of competence in past work, and who have flexibility (variety of courses listed on the application; readiness to work at other campuses; etc.) will do best in obtaining work. Past teaching evaluations and instructors’ preferences may also play a big role.

BEST TIP: Apply early, and be flexible.

The Job Description

For every job you are assigned, you should be sure to obtain from the supervisor a job description, indicating the nature of your duties and the estimated average hours for a proficient TA to perform each part thereof. Sign it, make a copy, and give the original to Ram Mohabir, after which payment will be arranged.

Unfortunately, though, this form cannot take into account the great variety in people’s approaches to doing a particular job. You have an obligation to yourself not to be overworked. But you also have an obligation to communicate with your supervisor, about ways and means of performing the duties in the hours allotted. The total hours will not be altered, so you should communicate with your supervisor as often as possible, if you believe that you will be going substantially over the allotted time. You may have to amend your method of grading, or the number of problem sets or number of problems graded per problem set, or reduce the number of Aid Centre hours, etc.

However, it would be irresponsible to inform your supervisor around the end of term that you have used up your hours, and cannot perform certain final duties indicated on the job description. So discuss any concerns about the job description right at the start, and as they arise through the year.

The responsibility for avoiding overwork is a JOINT ONE between you and your supervisor!

Interpersonal Relationships / Conflict of Interest

Be friendly, but reserved. Most teaching assistants are only a few years older than the students in their class. The students and the teaching assistant are members of
the same generation. This helps you relate to the students on a personal basis and helps you provide the "personal touch" to their university education. However, remember that you have some degree of authority and power over them, since you are going to be grading them, so do not become their friend. This means that it is not a good idea to go to dinner or movies with them or form other social or personal relationships with them while they are in your class. If you find that you develop a personal relationship with a student or you are a relative or personal friend of someone who registers in your course section, arrange to have the student transfer to another section. If that is not possible, tell the course supervisor about the situation and he/she may be able to arrange to have the student's assignments and tests marked by someone else.

Similarly, should it ever be the case that students enrolled in the course you are TA'ing inform you that they need some additional out-of-class private tutoring and would be happy to pay you for such services, please refer them to the TA Coordinator (A Vukov) or the Statistics Dept office instead. It is not appropriate for you to do paid private tutoring for students enrolled in a course at the same time as you are teaching the course (maybe next term, indicate to the departmental office your availability for private tutoring for this course).

You may also find that some students consult with you when they are having difficulties in their academic work or in personal areas. There will be areas in which you do not have the skills needed to help students, even though you will want to lend a "sympathetic ear" to them. When this happens, you should refer them to one of the many experienced counsellors at the University. In order to do this, you need to know where to find trained individuals available to help students. For example, college registrars know all the rules about dropping and adding courses; there are counsellors available to help with psychological problems. The university provides a study skills counsellor, an international student advisor, an ombudsperson, counsellors specialized in helping students who have physical or learning disabilities, etc. (see list of phone numbers at the beginning of this book).
TEACHING TUTORIALS

Some Important Do's and Don'ts

There are different styles of tutorials, but whatever the style, the following general comments apply.

Make sure that you can be heard comfortably. It is usually necessary to check, because different rooms can turn out to be very different. (One way to check is to ask.) Of course, being audible isn't simply a matter of speaking loudly enough; it also involves speaking slowly and clearly - and to the students, not the chalkboard! Another thing: speak like a living thing, not in a monotone. (How many times have you heard people talking about Professor So-and-So "droning on as usual"? - and how enthusiastic were they about the person and the course?)

The audibility of your students is more likely to be a problem than your own audibility. Especially when they are timid about speaking, students often speak too quietly to be heard by every one in the room. This problem can be fatal to any discussion if something isn't done about it, but at the same time you need to be careful about how you deal with it, in order not to make students regret having spoken at all. Maybe you can say something about not having caught the last bit of what was said; or, instead of saying anything to the student, paraphrase what was said as a preliminary to inviting comment from other students (or whatever it is that you want to do next). It is a good idea to mention at the first meeting that it is necessary to speak quite loudly to be heard by everyone "in a group this size" or "in this room".

Pauses are another important aspect of speaking. After you ask a question, wait - to allow every one time to think. Also, after a student asks a question, again there needs to be time to think: time for you to think, and probably a longer time for your students to think enough so that their minds will be ready to come to grips with somebody's response to the question. Similarly, statements other than questions are often simply wasted if time is not allowed for them to be absorbed before something else is said.

Occasionally, we receive complaints from students who complain that it is difficult enough to try to follow and understand "Statistics", without having the additional problem of not being able to understand well the English of the TA, whose native language is not English. If you fall in this category, tell your students that you want to improve your verbal English skills and that you will ask them to repeat things slowly or rephrase what they have said if you don't understand them. Ask them to let you know if they cannot understand you. Don't pretend to understand, if you do not. Also, think about the tips above, and in particular, try to SLOW DOWN your speaking speed, to project your voice, to talk directly to the class, and to avoid mumbling. You can also ask the Chair or TA coordinator about university services.
that are available to help you improve your English. Check the department bulletin boards for notices about such classes.

Besides what is said, there is also what goes on to the chalkboard. Be sure that it is legible and visible - large enough and dark enough, and not hidden from some students by some obstacle such as a lectern. At the end of the first meeting, have a look for yourself, from a back corner of the room, at what you have written.

If you think it is worthwhile for students to copy something from the chalkboard, remember that they will need time to do it.

**Students with Disabilities**

Students with disabilities may approach you to discuss their special needs. They should go to Accessibility Services to request special accommodations for test or exam writing, not to you, but otherwise, do your best to make the classroom experience accessible for them, and if uncertain about what actions you may take, e.g. regarding quizzes or assignments, consult with your supervisor.

There are some other important do's and don'ts about teaching tutorials that seem too obvious to discuss. Of course: be well prepared; get there on time or a bit early; and don't run overtime. Classes begin at 10 minutes past the hour, and end at the hour.

**Student Types**

Before considering possible stratagems for conducting a tutorial, it is a good idea to give some thought to the types of people who may be in it. The following four pages (from R. R. Allen and Theodore Rueter, Teaching Assistant Strategies, via the Department of Political Science's Handbook for Teaching Assistants), should help you to do that.

Being effective as a TA demands the ability to relate to a variety of students. The undergraduate student body is extremely diverse, representing differing ages, intellectual abilities, and academic interests. Students will also vary greatly in emotional maturity and in their abilities to adapt to the social and intellectual demands of university life. Many students, especially first-semester freshmen, are intimidated by university. They are often surprised at the amount of work required and they are anxious about their ability to succeed both academically and socially. TAs need to deal effectively with different types of students, including those described below.

**The Self-motivated Learner**

Self-motivated learners, more likely to be found among juniors and seniors, have been weaned from the professor's spoon and are able to formulate their
own educational objectives. Most self-motivated students are able to think creatively, participate in class easily, and feel comfortable socially with instructors. Such students have been dubbed "independent" in the learning styles literature, and prefer independent study, self-paced instruction, problems requiring independent thought, self-designed projects, and student-centred classroom settings.

Self-motivated students, while not in need of day-to-day attention, do require an intelligent and caring mentor to ask questions and to provide encouragement. On occasion the TA as mentor can save self-motivated students from chasing the wild goose by pointing out likely avenues of inquiry.

**The Respectful Learner**

Respectful learners enjoy taking college courses and have great respect for their professors and TA's. They ask good questions in class and often seek out the TA or the professor for additional information. They are innately excited about learning and pursue new knowledge with vigor. In the learning styles literature, such students have been dubbed "participants" - people who want to learn course content, enjoy going to class, and thrive on class-related activities. Respectful learners are a joy for the TA to behold. They can be counted on to be eager participants in class discussions and to be leaders in small-group activities.

**The Submissive Student**

Submissive students expect the professor or TA to tell them what to do. They expect to come to class, to sit quietly, and to take extensive notes. They neither expect nor desire to interact directly with the instructor. The Grasha-Riechmann student learning style typology identifies these students as "dependent" and provides the following description:

This style is characteristic of students who show little intellectual curiosity and who learn only what is required. They see teacher and peers as sources of structure and support. They look to authority figures for guidelines and want to be told what to do.

While some instructors may welcome a classroom full of submissive students, taken to an extreme this student offers little intellectual or emotional satisfaction for TA's. In fact, they may cause immense frustration to college teachers. Submissive students must be cajoled, challenged, and confronted. Alternative explanations of phenomena may be presented, requiring students to draw their own conclusions. Course objectives and tests can stress student thinking rather than just student recall or comprehension of facts. The TA can serve as the devil's advocate to challenge concepts commonly thought to be true. Whatever, the method used, TA's need to encourage submissive
students to present their own views rather than simply regurgitate the ideas presented to them.

**The Paranoid Student**

Paranoid students are like submissive students in that they want to be spoon-fed. The main difference is that they are afraid they will miss the feeding. Paranoid students live in the fear that they will miss something, and therefore constantly ask the instructor to repeat definitions and concepts. Paranoid students frequently are competitive and exhibit high ambition, anxiety, and suspicion. In the literature, these students are referred to as "competitive." They vie with other students for grades and the teacher's attention and praise.

It is easier for TA's to become irritated with paranoid students since they interrupt the instructional flow to request that information be repeated or more fully elaborated. Paranoids also seem to imply that the TA is out to get them by being vague or that the TA intends to be picky by testing for trivial information. In dealing with paranoid students, TAs should assure them that tests will involve major concepts and will be fair.

Sample questions from previous tests may even be distributed to all class members to assure the paranoid that all is well. Having done this, the TA should ask the persistent paranoid to stop by after class so that his or her questions may be answered without taking class time to do so. Since the paranoid student thrives on praise, TA's may wish to provide some when it is deserved.

**The Calvin Coolidge Type**

President Calvin Coolidge was the strong, silent type. A Washington society reporter, famed for her ability to make people talk, told Coolidge that she had bet a friend that she could elicit more than two words from him. Coolidge's response? "You lose".

Many undergraduates are the silent type. Fearful of saying something stupid, they choose instead to remain silent. TAs should not ignore or give up on Calvin Coolidge types but should instead attempt to create a friendly and supportive classroom atmosphere that will encourage students to participate. TAs may have students discuss questions or issues in small groups so that Calvin Coolidge-type students will be more likely to participate. In whole-class discussions early in the semester, TA's may ask such students questions that call for a yes, no, or other limited response. Later in the semester, after the student has acquired confidence, questions calling for an elaborated response may be asked.
The Party Person

Students who are party persons enjoy the social aspects of class. Party persons love to talk, function in classes as social-emotional leaders, and view classes as "meet markets". They are attention-seekers for whom social concerns are more important than intellectual matters. These students are called "collaborative" in the learning styles literature; they learn best by sharing ideas, working in the company of others, and enjoying social interaction.

Party persons can perform ably in class if they are given what they seek: attention! TAs can let party persons distribute handouts, organize a schedule for student oral reports, or present a summary of a previous period. By giving party persons recognition, TAs can provide the necessary motivation for them to achieve intellectual goals in addition to social ones.

The Unprepared Student

Some students simply lack what it takes to make it in college, due to a lack of preparation. The unprepared student may lack necessary study skills, career direction, interest in the subject matter, or, possibly, native intelligence. Some may even be in college at their parents' insistence, rather than their own desire.

The TA's responsibility is to get unprepared students to counselling services, to remedial services, and to other testing and tutorial services on campus. Information about such services may be obtained from the student's College Registrar's Office, which is the focal point for information and advice of all kinds for the undergraduate student. The Counselling and Learning Skills Service telephone is 978-7970.

The Preoccupied Student

Students may be preoccupied with non-academic pursuits: U of T Camera Club activities, intercollegiate volleyball, work, dating, family, drinking, or pumping iron. Second-semester seniors are notorious for "senior slump" - the feeling that they have had enough of school and that it is time to party before entering the "real world." Preoccupied students may come to TAs with a veritable plethora of excuses for late papers, nonattendance, or shoddy work.

The TA's strategy in dealing with preoccupied students is to let them know that they are not going to get away with it - that their grades will suffer if they do not start attending class regularly and doing the assignments. Once the TA has established the policy, it must be enforced.
The Intimidator

An intimidator treats college professors and TAs with hostility, cynicism, and detachment. Intimidators are habitual rebels who sit in the back of the class, make cutting remarks, and generally disrupt class proceedings. Intimidators are frequently juniors or seniors who are taking required freshman-level classes and who feel that the class is beneath their dignity. The learning style literature terms these students "avoidants". Such students are "uninterested ... by what goes on in classes," are "generally turned off by classroom activities," and "do not like enthusiastic teachers".

Intimidators should not be taken lightly, especially if they are bright and verbally facile. A college professor once said to a intimidator, "If you don't wish to listen, maybe you'd like to teach the class". The intimidator replied, "What's the topic?" When the professor stated "meandering streams", the intimidator noted, "I can hack that", came to the front of the classroom, and delivered a thirty-minute lecture, accented by the professor's mannerisms, on meandering streams. He also excused the class fifteen minutes early to go observe a small stream on the north campus. The embarrassed professor tagged along.

TAs who are victims of intimidators cannot ignore the situation since intimidators can destroy the learning environment for all students. The most civilized way to deal with a intimidator is to arrange a private conference. During the conference, the TA should openly express how the intimidator's actions make him or her feel. Approaching a intimidator on a person-to-person level sometimes causes him or her to behave in a decent manner. This strategy is not, however, universally effective. When a intimidator persists in expressing contempt for a course and/or a TA, he or she should be told to drop the course. As a last resort, the TA may ask the course director to speak with the intimidator in a firm manner.

Aggressive, verbally facile TA's who are victims of intimidators may be tempted to respond in kind by berating the intimidator with ridicule, name calling, and insults. While such hostile weapons may silence the intimidators, their use does little for the TA's image as a mature and responsible person.

Encouraging Participation

We can take it for granted (as the authors of the discussion of student types that you have just read did) that discussions in which questions are raised and there is general participation in confronting them are a superior way of learning.

Some topics give rise to discussion very readily. But a great many statistics tutorials are concerned with questions which are not excessively rousing - for example: "How would you design and then analyze a study to compare the wear
for 2 different shoe sole materials?" Or perhaps start by describing such a study, writing down some simple data, and asking how to proceed to answer the experimenter’s questions.)

What can be done to get students involved in discussing questions like that? Here are some suggestions:

1. Be gentle. It is essential to have an atmosphere in which students feel welcome to participate and are not afraid that they may be embarrassed or humiliated.

You will sometimes be surprised at how little students understand. Many things that came easily to you won't come at all easily to average and even above-average students, let alone below-average ones. Your expectations are especially likely to be unrealistic in the case of first and second year students, because many of them don't have any idea of how to learn statistics (or to be more accurate, they have wrong ideas about how to do it). All this being so, you can expect students to ask questions and say things that you will find surprisingly ignorant. When this happens it is important to respond in a positive way, so that neither the student who spoke nor the others who are listening will be intimidated into not asking "stupid" questions in the future. Quite often you will be able to respond to a question by saying in all sincerity that it is an important question to get sorted out - while resolutely hiding your surprise that any one would need to ask it.

2. Obviously, be ready with questions designed to start discussion and questions designed to lead it further. With many problems the best approach is to stand at the chalkboard and develop the result as the discussion proceeds. Perhaps start by writing down the names of 8 subjects for the study. Ask what type of experimental design would be appropriate. Ask why one type would be superior to the other type. Is it necessary to randomize? How would you do so? Then use a Random Number Table to actually do so (in the back of most intro stats texts). Fabricate or use some data from the textbook, and write the data down on the board. Ask how to proceed to analyze the data. Do you have to make any assumptions? How can you check them? What can/should you do if the assumptions are mildly or severely violated? After you ask a question, wait 5-10 seconds, and try to give different people a chance to respond to questions. Ask if they follow or are lost. Ask if they have questions. Try not to explain something exactly the same way twice.

It may turn out that the most valuable thing of all that you can do is ask the student who provided the solution how they thought of dealing with the problem the way they did. An amazing number of first and second year students only want to know the solutions to problems and don't realize that
what they need to learn is how to approach a problem when they don't have any idea what the solution will turn out to be.

If the advice you got when you asked a question was wrong, it is important that you try to think of a way to respond that doesn't make the student who gave the advice feel cut down. Maybe you can convey the impression that the student's response was one that you more than half expected, because students often take that approach to that sort of problem - and then explain that there is a difficulty. Or you might say something like "Yes, it's very tempting to come at the problem that way, but it turns out that there is a difficulty."

3. Have up your sleeve one or two questions that would be valuable to raise after a problem has been dealt with - because sometimes everything goes swiftly and as a result your students haven't had much of a workout and there is time left over which can be used to give them something to think about. For example, ask what constitutes a type I and type II error, and how these are controlled. Or about other possible designs, or non-parametric approaches to analysis (what do we mean by "non-parametric?"). Perhaps, discuss how to use the course's computer package to analyze such data.

You might ask the students for some further examples of comparative (paired and independent samples) studies, or for hypothetical ones to investigate some question of interest to the student or to you. You can discuss how the procedure you are discussing now ties into/extends/differs from previous procedures (e.g. if discussing the one-way ANOVA F-test, you can ask how this ties in to the t-test and if the assumptions differ; or how this is similar/dissimilar from the chi-square test of association and from a simple regression or correlation analysis).

Don't get carried away though. Keep in mind the time, and necessity to discuss a good number of problems during the hour. You can come back to a particularly interesting discussion point at the end, if time permits, or you can just pose some of these questions briefly for students to think about. Or save your best tricks for last, after some important basic material has been covered.

The key point is: ask questions of your class, ask, ask, ask! This will encourage participation, and liven things up considerably. Even if it is only, "Do you follow so far?" and "What should I do next?"

How Much Participation Is Enough?

Even when a tutorial works well, with an easy unthreatening atmosphere and wide participation, there may be some students in it who never say anything. You can make a point of ensuring that they can catch your eye at moments when some one
(possibly yourself) is just finishing speaking, so that it is clear that they can get a word in edgewise if they want. But if they don't want to say anything, and they appear to be listening and thinking, the importance of inveigling them into saying something is debatable. Indeed, if the group is too large, as many of our groups are, you may be grateful to have a few Calvin Coolidge types in it. Coolidge himself thought that Calvin Coolidge types are o.k., and felt strongly enough about it to utter a few words:

Let men in public office substitute the light that comes from the midnight oil for the limelight.

**When Is General Participation too Time-consuming?**

Not often. Even when an assignment appears to be too long, quite often it isn't because right answers are suggested promptly, and few questions are asked, or because you aren't very successful at generating discussion and have to fall back on dealing with some of the material by lecturing.

Sometimes, though, the discussion may be unusually time-consuming, or you may use up a lot of time reviewing something important that seems to be widely misunderstood -- with the result that you then find yourself running out of time. An obvious solution is to abandon general discussion and "cover" the remaining material quickly yourself. But an alternative worth considering is just to continue the successful discussion and then say that you will distribute written notes on the left-over problems at the next tutorial. If you can do this easily, the advantage of doing it is obvious. But if you ever do get involved in anything like this, be clear about exactly what it is that you are undertaking to do, because you will be coming up against the LAW OF EXPLODING EXPECTATIONS. (According to this Law, the more you do, the further it will fall short of what people expect.) If you just mention casually that you will bring written answers to the rest of the assignment next time, somebody will want to know how to get them sooner, somebody else will want to know how to get them if he isn't at the next tutorial, and the more general question of why you don't provide written solutions to all the problems all the time may also come up!

**Other Methods**

Dyads and triads: A variation of this method was used successfully by a STA 221 TA one year, who even gave colourful names (of birds) to each group. Students, in groups of two or three, discuss an assigned question or problem. All the groups can discuss the same problem or different questions can be given to each group. Students, who are reluctant to speak out in a larger group, will talk when with they are in groups of two or three. Groups are given a stated amount time (5-15 minutes) to complete the task. You can circulate and monitor what is going on. Then, each group reports back to the rest of the class (or submits a written answer to the quiz question), after selecting a member as its reporter.
**Tutorial Quizzes**

In most courses, short (maybe 10 minute) quizzes have replaced the handing in of problem sets. The quiz is a direct substitute for the latter, and generally involves regurgitating something from the problem set. It is not meant to challenge, but to motivate the students to do the problems honestly and conscientiously. This also shortens grading time for TA’s. It is usually held at the very end of the tutorial. It is important to return it at the very next tutorial, and to take up any difficulties students experienced. You will likely have to write the questions on the blackboard. However, check with your supervisor about the feasibility of other approaches such as photocopying and distributing the quiz questions, or posting them up via an overhead projector. And remind your students at the first tutorial to bring blank paper to future tutorials for the quizzes.

We can learn a lot from others’ experiences. Here are some comments from a very experienced TA: “Something I’ve learned from experience doing tutorials is that it’s not necessary (nor possible) to go over every question from the homework. My least successful tutorials have been open question and answer sessions (you tell me which question you want to see, I’ll do it at the blackboard, repeat until time is up). In my better tutorials I’ve decided what should be emphasized from the homework and picked sample questions using them to elicit discussion on the topic in general and the homework in a broad sense. My quizzes then follow directly from this. Working in the Stats Aid Centre on Monday mornings has been really helpful for finding out where the problems lie with most students and helping me determine what the focus should be that week. I usually have time to answer a couple of specific questions after that, but I think usually the tutorial has given the students enough confidence to return to problems on their own.”

**Tips for that First Class**

Beforehand, be sure to meet with the course supervisor and discuss the role of the tutorials, obtain the course outline, textbook, solutions manual (not to be lent to your students), and first problem set. Pick some good discussion problems from it.

Check where the tutorial room is in advance, and arrive a few minutes early and greet the students as they arrive. Start on time (10 after the hour).

Write your name on the board (along with the course number and title, so they know they are in the correct room). Tell them your name and how you want them to address you (perhaps by first name). Tell them what your area of study or research is and why you are enthusiastic about teaching this course.

I would NOT tell them that the subject of this course was not an area of interest or research for me, or that I had never taught this course before -and hence, know very little about it; i.e. don’t pass on your insecurities to the students. Students have paid for and have a right to expect a competent teacher. Neither would I say
that "I am only a teaching assistant", as if teaching assistants were a low and not very worthwhile category of instructor.

Try to begin to get to know your students during the first class. (e.g. you could have them fill out index cards with info like-name, area of specialization, math background, why they are taking the course, what they think or expect of this particular subject; maybe even some data for future analysis like height and shoe size).

Run the first class in the way you want the class to operate during the rest of the term. Be sure to get into the statistics content during the first class (perhaps a question and answer session on the first problem set). There may be no quiz at the first tutorial, but you could still post a "quiz" question on the board, for discussion or feedback purposes. If you want the students to participate in discussion, get them involved in discussion during the first class. If you spend the first session lecturing, you are giving the students the message that the purpose of the class is to listen to you.

End the class a few minutes early, so that individual students can come up to ask you questions about the course.

If you experience any difficulties in your first class, discuss it with your supervisor right away.

Do expect to enjoy your teaching! If you work at being a good teacher, you should find it one of your most enjoyable, professional experiences.
GRADING TESTS AND EXAMS

I have never met anyone who claimed to enjoy grading. It is just something that has to be done, fairly.

Tips on Grading

The grading of multiple choice or other highly structured questions is simply boring. The grading of less structured questions manages to be boring and challenging at the same time. The challenge is to grade fairly without spending an inordinate amount of time, and the following are four stratagems that should help you to do that.

1. Mark one question at a time. Even though this involves handling each paper several times, you will still save a lot of time, and you will also find it much easier to be consistent. (Of course the fact that it is easier to be consistent is one of the reasons for the saving in time.)

2. Answer the question for yourself before beginning to mark it - even if you know the answer from past experience and your supervisor has supplied a marking scheme. The payoff for doing this is that your mind will be more ready to relate what students say to what you expect and to assess the relative importance of the amazing variety of valid statements and mistakes that they will come up with.

3. Prepare a list of what you will give marks for and how many marks you will give, and a list of mistakes that you anticipate and how many marks you will deduct for them. (If your supervisor has supplied such a list, all you will need to do is rearrange it in whatever way will make it easiest for you to use.) Such a list will save you a lot of time by saving you from having to go back and reconsider answers that you have already graded.

4. Another possible approach is called "grading sideways". Instead of going through a pile of many solutions to the same problem and grading them sequentially as you read them, quickly go through all the solutions and arrange them in stacks, each stack containing only those problems done in the same way, or with the same answer. For instance, one might subdivide a set of electronics problems by putting all those with load lines drawn in a given direction on the same stack. Then, subdivide these stacks into smaller stacks, in each of which the same mistake was made.

After the divisions are made, go back and grade the papers, starting with the best ones and finishing with the worst. This saves the problem decisions until the last, when you've gotten thoroughly familiar with all the possible mistakes the students can make. (If you use sequential grading, Murphy's Law will insure that the first paper you pick will be done in some weird manner, and
you'll lose a lot of time trying to determine whether or not it was a valid method.)

This technique has some interesting side-effects. It helps pick out cheaters - by correlation. Also, by putting off the grading of the worst papers until last, you are able to change a grading procedure halfway through without having to go back and change a lot of previously marked papers.

This "trick" can be a powerful time-saver, and possibly cut a quarter to a half off grading time. Naturally, there are some types of problems for which this method won't help (for instance, every one of the solutions may be different), but any technique breaks down if carried to an extreme.

Inevitable Complications

Grading answers to questions that are not highly structured is not just a matter of deciding how many marks to assign to each of the elements you are looking for. Neither you nor your supervisor can possibly foresee all of the ideas and combinations of ideas that students will come up with. For instance, when a student makes an error this simplifies a problem or proof, but some good work follows, or uses a different interpretation or misinterpretation than was intended and does some good work, or applies a less appropriate though not completely off-base analysis, how much should you reduce the mark? The possibilities are endless, so it is important to find out as much as you can about your supervisor's views on the relative importance of different things. You can also consult with the other, perhaps more experienced, TA's for the course, in some cases, to ensure consistency and reasonableness.

You also need to know whether the grade for an answer should depend at all on anything other than the statistical or mathematical content. Should you give the same mark for a clear well-organized exposition and for a mess, as long as the essential content turns out to be the same? Different instructors have different views about things like this. (In contrast, there is general agreement that we don't want to penalize students for lack of fluency in English.)

Another major complication can arise when in a multi-tutorial course, each TA marks just his/her own tutorial papers. If you are grading harder than other TAs, your students will discover this and complain. If you are grading easier, students in other tutorials will discover this and complain. Believe me- there is lots of communication among students from different tutorials! Check with your supervisor or other course TAs about part-marks philosophy, and how to handle certain types of (maybe unexpected) responses to questions. Prevention here is the key. It is a real headache for your supervisor, when confronted with this type of complaint from students, and dealing with it after the fact is very difficult indeed!
Grading Appeals

Students may ask you to reassess your grading of a particular question. This is an ENTIRELY LEGITIMATE request. You may have missed something, misunderstood something, added up marks incorrectly, or even erred somewhat in your initial assessment of some work. Let the student state his/her case. Listen politely, and then make your decision. Try to stay calm and unemotional. Do not get into an argument, even if the student is extremely persistent. By all means, do explain your logic to the student, and if relevant, also indicate to the student the need for you to be consistent across the class in your standards. But be firm and avoid an endless back and forth, one-upmanship debating game. Tell the student that he/she may request a reevaluation of the paper by the course supervisor (this usually entails regrading the entire test, not just one question), if unhappy with your grading.

When the query is non-trivial in nature, or just to save some class time, I would suggest telling the student to write a note explaining his/her point and to attach it to the paper. Then you can calmly reevaluate things later on.

Sometimes students say things like "Well that is what I meant to say", or "I wasn't told I had to show all my work". You should reply that you can only mark what is written, and indeed you have to do it in a comparative way based on the quality of that written work, so those who express things more clearly and thoroughly deserve more marks.

Sometimes students say that the question was somewhat ambiguous or not phrased clearly enough. I almost always find that these are the poorer students, who fail to understand what is being asked because they just don't understand much of what is going on in the course. These people need to be pushed to spend more time on the course material and exercises. Being able to properly interpret a typical problem setting is something assimilated during the course, and test questions will not go overboard to "clarify" things that should be understood by that point in time.

Entering Marks

In a multisectioned course, you will receive a list of students registered in your tutorial section in time for your first tutorial. Invariably there will be students who register late, or change their tutorial. You will receive instructions on how to handle this, since the procedure changes from course to course.

You will likely be entering grades into a computerized marks recording system, perhaps via the Blackboard course management system. Guidance should be provided by your course supervisor (or some head TA). Remind your students to keep all of their quizzes, tests, etc. until the end when they can check the posting of course records and then resubmit these if there are errors. If you have any
hand-written records, be sure to drop these off with the course supervisor at the end, along with unreturned tests.

Note that a zero is not the same as a blank mark. **Do not enter zero unless someone has actually written something and merited zero.** Sometimes, a special coding is used for marks missing due to a valid reason such as illness, and make a computerized adjustment for these. Check with your supervisor.

It is VITAL that you record in the system each and every grade that you have - even if you believe that this person is not in your tutorial, or if you think that this person has dropped out of the course. Often matters arise later re course drop-outs via petitions and deferred exams, and the course supervisor will then need all available data. If you are asked to assign a tutorial grade for a student and this person was only present for the first 2 weeks, you still need to compute a grade based on that, and record it.

**BEST TIP:** Always err on the side of completeness.

**Returning Tests and Problem Sets**

Return tests and problem sets in tutorial. Tests should be returned by handing them out individually to the students, not by having them pick them up from a big batch you have spread out on the front tables. The latter would violate confidentiality and make it easy to lose someone's paper. Afterwards, you should not leave them lying around somewhere, like outside an office in a box, or in the Stats Aid Centre, or somewhere in the departmental offices. If not picked up, bring them to future tutorials and Stats Aid Centre hours. When the course ends, drop them all off with your supervisor.
LIMITING CHEATING

We want to take all reasonable measures (and occasionally ingenious ones) to limit cheating. However, there are trade-offs. For example, a sermon about not cheating, delivered at the first tutorial, is not a good idea - because it would be likely to sour the atmosphere, possible for a long time, and quite unlikely to do much good. Students already know that we don’t want them to cheat.

If you find yourself in a situation where you are sure that a student is cheating, don’t discuss it with the student. Hold on to any evidence and talk to your supervisor.

Some students cheat by altering their tests and then saying that there was a mistake in the grading; and we are extremely vulnerable to this kind of cheating because grading mistakes do occur. If you find yourself in the position of having to increase a mark even though you suspect that the test may have been altered, you should do two things:

Be pleasant about it. You may be dealing with an honest student who was the victim of a grading error. Arrange to keep photocopies of the student's subsequent tests.

A great deal can be done to prevent students from altering their tests and submitting them for re-grading. If your supervisor requires that tests be written in pen, there will then be less scope for altering them afterwards. Some students will still write in pencil - but if it says right on the test "Write in pen, not pencil", we can reasonably refuse to re-grade tests that are written in pencil. Of course this question of policy is one of the many things that you will need to discuss with your supervisor at some point.

Announce, when returning tests, that a sample of the tests have been photocopied (whether or not you have done this). One instructor used to deal with suspicious cases by telling a student with an apparently altered test offered to him for remarking, "That's okay, you keep it, I'll just check my photocopy". If you forget to announce that you have made photocopies, you might wish to try this.

When you mark tests there are simple things you can do to make cheating difficult: for instance, draw a diagonal line through blank spaces that could be used to expand or replace an answer; put some sort of symbol (such as n.a.) beside questions which aren't answered; circle in red the correct letter beside each multiple choice question that is wrongly answered or not answered. You will find that this sort of "cheat-proofing" soon becomes automatic. In fact it becomes so automatic that some T.A.s do it when they mark final exams - even though there is no point, because the originals of final exams are not returned to students.
OTHER MATTERS

Stats Aid Centre Hours

If holding hours in the Stats Aid Centre (a drop-in help room) is part of your job:

1. Don't let a few students hog all of the time. Consider using the blackboard if a number of students appear to have similar questions or difficulties.

2. Don't be afraid to say that you don't know but you'll think about it or find out about it.

3. Don't just give quick solutions when you are asked about points of theory or about exercise or test problems. Try to lead students towards understanding for themselves. (Of course, this isn't easy.)

4. Do be reliable. Stats Aid Centre duties are as important as tutorials. If you cannot make it, there will surely be people there waiting and waiting, growing frustrated, and likely complaining to the departmental office or course supervisor. If you cannot make it for tutorial or Aid Centre, the best approach is to arrange a substitute or swap deal with another TA. Your supervisor will really appreciate not having to get involved. If not possible, report the problem asap to your supervisor. If a last minute thing (traffic accident, illness, etc.) intervenes, call in to the stats office (978-3452), and leave a message that you cannot make it, so that a note can be posted at the room, or a last minute substitute can be sought.

How to Invigilate (Proctor) a Test

Note carefully and follow the instructions of your course supervisor regarding the pick-up of test papers, and try to report early, so that your supervisor won't start worrying about a last minute absence, and what to do about it (there is enough stress on test night!).

Know where the test location is beforehand. You may be asked to post it in tutorial, and should be able to give directions to your students.

Make sure you bring with you to the test room a copy of the room reservation slip. It should have the phone number for the U of T police, who can open up the room, if it is locked. And on rare occasion, there can be confusion about reservations, so if someone else is claiming the room, and refuses to leave after seeing the reservation, phone the course supervisor for advice right away.

Arrive at the test location at least 10 minutes before the scheduled start, so that you can assist students, and get things organized and started on time. Help students get seated properly. In many rooms, this means ensuring that they sit with
one seat between any two students. You might specify that they should sit only in the first, third, fifth, etc. (vertical) rows. If possible, make it difficult for a student to copy from someone directly in front as well. It is extremely important to do everything possible to minimize the opportunities for cheating. Distribute the papers face down, before the start time, announcing that they should not touch the papers yet.

Check that the room conditions are the best possible, e.g. opening windows, checking lighting, telling the music band down the hall to quiet down, etc. Report any bad conditions to the course supervisor afterwards.

Post the starting and ending time on the board, and thereafter, post the current time every 15 minutes. Announce to the class the time when there are 15 minutes left, in a one hour test, and announce the midpoint as well in a 2 hour test.

Announce that students should display their student I.D. cards at the corners of their desks, and that no cell phones or other unauthorized aids should be in their possession. Students' books and bags generally are to be placed somewhere at the front or the back of the test room. Tell the students to begin when appropriate. Whether or not you start exactly on time, it is important to give exactly the specified amount of time. If you give more, surely other students in other tutorials will hear of this, and complain to the course supervisor about their disadvantage.

Circulate during the test, looking for disallowed aids, and other possible problems. Confiscate disallowed aids with the test paper, but give the student another test paper to finish the rest of the test. If you suspect the possibility of some copying going on, immediately move one of the students. Do not explain why. You are in charge, so just do it. Proving cheating, and pursuing this through the academic channels is extremely difficult. PREVENTION IS WHAT WE HAVE TO FOCUS ON.

Keep all your conversations with other TA's and students as quiet as possible. Don't stand behind a student and read or appear to read his/her paper. This makes a student nervous.

Be very alert for students holding up their hands to get your attention (so don't sit at the front with your head buried in a book). If they ask for help on a question, remember that you cannot help them to solve a problem, e.g. by giving a little hint. You can assist with interpreting of some words or phrases, and occasionally in the interpretation of a question, if you are convinced there is some genuine ambiguity. However, this is a gray area. You do not want to assist students in interpreting things they should be familiar with. You can tell the students that if they are not sure of the interpretation of something, they should make a clear note on the paper indicating their particular interpretation.
Assist late arrivers to get seated quickly. You cannot give them extra time, but you can make a note of the time of arrival, should they arrive quite late, and forward to your supervisor.

Midway through, go around signing in students on a sign-in list, checking out carefully the I.D. for those you do not recognize. Impersonations have been known to occur. Count the signatures, and do a head count.

When there are 2 minutes left, announce that 2 minutes remain and that students should finish up what they are doing, and that now everyone should stay seated until all the papers have been collected and an announcement has been made that they may leave. When time expires, announce that everyone should stop writing. Go around collecting papers in some logical fashion (e.g. back of room to front). Do not ask them to pass their papers down the row. If people start to get up, repeat loudly that everyone must stay seated. Do not tolerate those who ask for another minute to finish something.

It is important to execute things well at the end, as students have been known to not hand in their papers, later claiming that they in fact did. When you have all the papers, count them. If they do not match your earlier count, immediately check around the room, and later report the discrepancy to your supervisor, and indicate whose paper is missing.

Obtain the phone number of your supervisor, so that you can call during the test if necessary. Find out where the closest phone is located at the test site. If you think you have found an error in the test, call it in right away.

_BEST TIP: Be early, and try to prevent problems before they occur._

**Help**

There may be times when you would like to discuss something connected with your teaching with someone else. Other graduate students (some "TA Award" winners you might want to consult with are Zeynep Baskurt, Andriy Derkach and Chunyi Wang), and your supervisor are obvious possibilities. Another possibility is to talk with me, and you are very welcome to do that (Augustin Vukov, Room SS 6024A, 978-4722).

**Help!**

Any suggestions for improving next year's version of this premier edition of the handbook would be extremely welcome. Especially when you have some experience as a TA, you are likely to be able to suggest changes that would be helpful for future TA's.