

# ECO 231W F.A.Q.

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## Material

- [Help! I think I copied something wrong in my notes/I missed class and did not fill my notes. How can I get the full class notes?](#)
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Before the course starts

### **Why should I take this course? Will it be useful? Will it be hard?**

This course is a mandatory requirement for almost all people that take it. Then again, this course is mandatory for an awful lot of majors. I wonder how many people would take it if they were not obligated. In general, I find that students arrive at this course somewhat nervous, afraid that it will be too difficult, or too much work. All students end up thinking that the course is indeed a lot of work, but not necessarily too difficult. Many, many students write to me after the course ends, sometimes after they get a job, to tell me how the course has helped them.

Let me try to convince you that Econometrics can be very useful if you master it.

A lot has changed in social sciences in the last decades. Computers have made it possible to do complex operations with large data sets. Because of this, the standards of applied research have changed, and it became the norm to test theories using real world data. Now, the bulk of the scientific production in Economics is applied, which means that researchers have to understand how to deal with real data. Government and private institutions which employ social scientists also expect analyses that are backed up by real data.

However, one thing has not changed: the majority of the data available for social sciences research is still observational. You will understand what is an observational data set in this course, and why it's so hard to have things any other way. Econometrics is the set of techniques developed to deal exactly with this kind of data set. If you do well in this course, you will have learned all the basic

techniques which are still the most widely used by researchers, government agencies and companies. You will also learn to criticize the information that you receive from editorial newspapers and magazines that is supposedly based on applied research.

When you graduate, you will likely enter the job market, and compete with other people for jobs. Why are you more attractive for companies than somebody that did not go to college? You did study at least 4 more years, this should count for something, right? Well, it does. Education alone, no matter the subject, will likely develop your analytical capabilities as well as your ability to express your ideas. What else can you sell? You did study a particular subject for many years, so you probably developed a lot of intuition about it. If you are an economist, for example, thinking about incentives and marginal costs and benefits must be second nature. This is somewhat valuable for companies. After all, you need to speak the language of your field. Will you use the models that you painstakingly learned over many different courses? Unfortunately, the answer is no, at least not directly.

You will not be hired to write down models like the ones you learned, unless... Unless you can apply your theoretical knowledge to real-world data. This is a real college-level skill, one that can be added to a resume, and that makes you a more desirable competitor. In this course you will learn how to set up basic models, apply them to real data using the most popular software in the field, analyze what you achieved, and also anticipate the flaws. I am assuming that you picked your major because you saw yourself in that field, using everything you learned. If you acquire this skill, you may be hired to do exactly what you studied to do, and isn't this what you want?

Now for the bad part. What you heard is true: this course is pretty demanding. Some things in life are hard, and some hard things are worth learning. I think metrics is one of them, and I see no other way that you can learn this unless you practice. If you look at the curriculum, you will see that it is not very long. However, I will force you to work deeply on it no matter how much you complain, so that when you leave you have a good measure of independence. I have been very successful with this approach. Ask around and most students will tell you that yes they struggled through this, but they got something out of it.

Some of you are coming to this course already with a bad attitude. I know who you are, sitting in the back, and looking at me with angry faces because I force you to work when you just wanted to fulfill a requirement. If you think you are in

this situation, then try to figure out a way that you can take econometrics when I am not teaching it. The same goes for those students that do want to take it with me, but are already taking too many courses. I say this without any prejudice at all. It is just the way the course is set up. Even if you want to do the least possible, the least possible in this course is already a lot, and one must be realistic.

For those of you that read what I wrote and felt excited with the challenge, you are in the right place. In the end of the semester you will know the satisfaction of having achieved something quite remarkable, and you will rip the rewards in your job interviews. Wanna bet?

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### **Course pre-requisites: what do I need to know in order to take this course?**

Officially, the pre-requisites are ECO 207 and ECO 230 (or equivalent SST 213 or MTH 203).

In reality, you need to know some things from Math and Statistics. From Math, you need to know the basic operations involving the summation sign  $\sum$ , as well as polynomials, logarithms, exponentials, etc. You also need to know calculus, mainly derivatives of basic functions, products, ratios, etc. From Statistics you will need to know the basic terminology of data set handling (for example, what are observations, sample, population), basic probability properties, random variables, expectations, variance, standard deviation, conditional expectations, conditional variance, and hypothesis testing. In some cases, we will go over a short review of the topics as the need arises in class, but the review will be superficial, just a refresher. If you are afraid that your background may not be enough, read the answer to the next question. Overall you need to be mindful of your shortcoming, especially in the beginning. Make sure to participate in the forum, and go to office hours to get one-on-one help.

I should add a note to say that this is not a Math course. Many students are surprised by that. They expect that because they are good at Math, that they will cruise. The opposite is also true. Many students that don't have great Math backgrounds end up doing very well. The majority of the material is very analytical, and you will be trained in a series of completely new skills. It is thus hard to know in advance who will find it easy and who will find it hard. The best way to prepare for this course is to enter in the mindset that you will have to work

a lot, and perhaps get a lighter course load than usual.

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**I am concerned that my background will not be sufficient for this course.  
What can I do about it?**

If you read the [previous question](#) and concluded that your background may be insufficient, here is what to do:

If you are just a little rusty on the pre-requisites, just make sure you pay especial attention in the beginning of the course. If you want to review, I suggest that you focus on the conditional expectation properties.

If you are really rusty, it will pay off to skim through the Statistics book of the pre-requisite course you took (the parts of the book that refer to the topics mentioned in the [previous question](#).) Additionally, you can [scroll to the end of this answer](#) to see a selection of videos from the Khan Academy which may be helpful. Again, the most important topic among the pre-requisites is the conditional expectation.

If you feel that your efforts may not be enough, then do the following: choose one of the resources, and make it a habit of using it faithfully. For example, you may choose one office hour and go to the same every week. You can always participate in the Live Help Event of one of the instructors at the forum every week. If a CETL study group for ECO 231W is available, you should join it. If none is available, you can ask the CETL to organize a study group. Another idea is to choose one office hour and go every week. The first time you use the resource, tell the instructor about your concern, so that somebody knows what you are going through. The point is to make yourself known to the instructor managing the particular resource you chose. If you follow this advice, you will see that the instructor will be much more effective in helping you, and this will improve as the time passes. They will not treat you in a generic manner, but rather they will be able to tailor the help exactly to your need, because they are following your progress.

In some cases the background issue is really serious. If after reading about the pre-requisites you do not recognize many of the topics described there, then maybe you should consider taking ECO 231W later. In the mean time, take measures to remedy the background gaps. The most effective way is to simply take one of the pre-requisite courses, even if you have taken them already in the

past. Another alternative is to take some private classes. Before you think that you cannot afford them, try to ask around whether there is a cheaper option. Talk to the Economics Department, talk to the CETL, talk to your coordinators. Maybe somebody else wants to take classes as well, and you can share the same instructor. If you do find an interesting resource that is also inexpensive, please write to me and let me know. I would love to mention this here, so that other students can benefit as well.

## **Video Resources**

Have you heard of the Khan Academy? This is a wonderful resource. Their videos are very well done, and cover an extensive array of important topics. I selected a few that seemed most helpful for those looking to brush up on the pre-requisite material. Unfortunately, they don't have videos in all the topics we need.

If you find a good video that contains helpful material for this course, please let me know. Email me, and don't forget the link! I am particularly interested in a video showing the linear properties of the summation [operator](#).

### **Math videos**

[Linear Equations in Slope Intercept Form](#)  
[Linear Equations in Point Slope Form](#)  
[Linear Equations in Standard Form](#)  
[Slope and Rate of Change](#)  
[Predicting with Linear Models](#)

### **Statistics videos**

[Statistics: The Average](#)

[Statistics: Sample vs. Population Mean](#)  
[Statistics: Variance of a Population](#)  
[Statistics: Sample Variance](#)  
[Statistics: Standard Deviation](#)  
[Statistics: Alternate Variance Formulas](#)  
[Introduction to Random Variables](#)  
[Probability Density Functions](#)  
[Expected Value:  \$E\(X\)\$](#)   
[Introduction to the Normal Distribution](#)  
[ck12.org Normal Distribution Problems: z-score](#)  
[ck12.org Normal Distribution Problems: Empirical Rule](#)  
[ck12.org Exercise: Standard Normal Distribution and the Empirical Rule](#)  
[ck12.org: More Empirical Rule and Z-score practice](#)  
[Confidence Interval 1](#)  
[Small Sample Size Confidence Intervals](#)  
[Hypothesis Testing and P-values](#)  
[One-Tailed and Two-Tailed Tests](#)  
[Z-statistics vs. T-statistics](#)  
[Type 1 Errors](#)  
[Small Sample Hypothesis Test](#)  
[T-Statistic Confidence Interval](#)  
[Large Sample Proportion Hypothesis Testing](#)  
[Variance of Differences of Random Variables](#)

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Course setup

### **Where is the class syllabus?**

The syllabus of this class is this website. Begin from the course [homepage](#). Observe that there is a small tab at the top of the white part that will take you to a page that explains how to use this website, so that you don't miss anything. Most of the typical material usually found on a syllabus is on the [check-in page](#), such as assignments, grading, course book and important dates. You can find a detailed description of the material in the [class plan page](#).

The reason why I decided to eliminate the traditional printed syllabus is because it was hard to update. Though the fundamental things about this course will not change, I may need to tweak some things, like the class plan for example. In the

past I found that updating both the website and the syllabus was a waste of time. Students in this course learn to rely on the website as the one source for all administrative information about the course, so the syllabus is redundant.

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### **Why isn't the course information on Blackboard?**

If you are reading this answer, then you probably already found the course information, but here it goes. This course does not use the Blackboard page. The university automatically makes one for every course, but we will not use it at all. At most I may publish the link to the course webpage on Blackboard. The reason is because Blackboard does not allow me the freedom to build the resources I think are best for this course. As soon as you have a look around this website you will see that it is different from a Blackboard course website in many ways.

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### **I missed the first class, what should I do?**

If you didn't come to the first class, you probably missed important information. You should go to the first office hour you can make, preferably office hours of the Material TAs. The TAs will help you catch up.

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### **I feel overwhelmed. There are so many things going on in this course. How can I be sure I didn't miss anything?**

Don't despair! It just feels this way in the beginning. Here is what you should do:

Start in the CHECK-IN page (look for the tab at the top of the [main course page](#). You must read that page, which will walk you through everything that you should know to start this course.

Then, go back to the [main page](#) and explore the links there. You don't have to use the resources available, but you should take advantage of the ones that better suit the way you learn.

Finally, go to the [announcements page](#) and figure out how you will keep up with it. Everything you need to know once the course starts will be posted there, especially the assignment rules. You have to make it a habit of checking it, or [subscribe to the RSS feed](#).

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### **What is a positive mark? Can it harm my grade?**



The positive mark can get you bumped a whole grade level. For example: if your grade would earn you a B+, a positive mark can bump you to an A-. If your grade was a B, you can be bumped to a B+. You cannot go from a B to an A- though.

The way to earn a positive mark is to make yourself noteworthy in a positive way. It is a reflection of overall excellent attitude throughout the course. The actions that can get you noticed for a positive mark are: proactive participation in class, excellent effort evident in office hours, helpful presence in the forum, both submitting questions to it, as well as participating in topics generated by other students, outstanding effort in the project, significant improvement in grades as the course progresses (not of the grade itself, but the position in the curve). A positive mark is a hard thing to earn. Only about 10% of students receive it, and past experience suggests that students in all parts of the curve are able to earn it.

Some students expressed concern about the existence of the positive mark in this course. I believe that their distress can only be due to a misunderstanding of this evaluation tool. The positive mark can never hurt you, it can only be neutral or help you. Let me explain: your grade is determined in a curve. Grading in a curve is comparative, so the performance of your classmates affects your results. Once everybody's letter grades are determined, some people are bumped up. This means that if you were not bumped, your grade was not affected in any way.

Why do I adopt the positive mark in this course? For many reasons. The first and most important is so that people that did badly in the beginning can always have a chance of recovering. In this course it is always possible to do better, and I give you an incentive to try by providing this extra reward if you do manage it. Second, some students show exceptional effort, and they deserve to be rewarded. Sometimes I see some students that are struggling, but are trying really hard and not giving up. These students come to office hours, participate in the forum, ask questions in class, and they show that they care even though they may not be succeeding so well in the grades. The positive mark is in place to help these students. Finally, there are students that wow instructors with their positive attitude. They contribute positively to the course at large, be it by participating in class or in the forum, and they influence their colleagues in a positive manner. This kind of active attitude needs to be stimulated, and I do this with the positive mark.

The positive mark is a subjective criterium, so you cannot demand it under any circumstance. I will take the TAs' input in strong consideration when awarding the positive marks, so your efforts with them also count.

### **How are the grades assigned? What is the usual distribution of grades in this class?**

The final grade is determined in the following manner: after all the numbers are computed, I order the students according to the grade. Your final grade will reflect the cluster to which your score belongs. Hence, there isn't a pre-determined proportion of A, A-, B+, etc. After your letter grade is assigned, you may or not be bumped up with a [positive mark](#).

This class has a fairly high grade distribution. Historically I end up with roughly 30% of students in the A range, 30% in the B range, 30% in the C range, 5% in the D, and 5% fail. This means that about 3 or 4 people per class fail (1 or 2 in each group), not much more than that.

The students that fail this course are never surprised. They knew that they were struggling for a long while, and usually they are just not doing the work, they miss assignments, they never come to office hours, etc.

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### **Why are there so many rules in this course?**

Yes, I am aware that there are many rules in this course.

The first reason for the rules is so that the course runs smoothly. The second is educational. Let me explain the roles of the rules (cute...)

The homeworks and project have several rules concerning tardiness, and how you should hand them. The rules exist there so that we can receive the homeworks with safety, and we can process the grading quickly. At the same time, the homeworks teach you how to work with deadlines, and also with files in a group. In a work environment you often have to produce files that must be able to run in the computers of other group members. I want you to get used to this way of doing work.

The exams have several rules about the way you must behave in the exam room, as well as rules about where you should sign your name, and where you can answer the questions. These rules are there mostly for your convenience. I restrict

where you can answer your questions so that you always have space leftover if you later want to come back to your answer and continue to improve it. I also separate the booklets, so you don't have to go back and forth to read the question again. However, the booklets and the other rules do provide an extra layer of security that make it harder for students to cheat. I hope to maximize the fairness in this course, and this is one way to do it.

There are also some email rules. Many students choose to disregard them at their own risk. In case you missed them, read them [here](#). Using the form to contact me and following the rules guarantees that your email won't get lost, and that you will get a quick answer.

Although the rules may annoy you in the beginning, you will later find a comfort in them. There is a great predictability that comes from their existence. You follow the rules, I keep my side of the bargain. You don't follow them, you are held accountable. How can the TAs and I do the things we must do in this course if we are dealing with several exceptions all the time? It is easier if you get in the habit of not fighting the system. Everything in it has a reason, and defiance won't get you anywhere with me. However, if you want to know why you are required to do this or that in this course, anything at all, please ask! I am happy to explain.

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## Assignments

### **How do I hand my homework/replication?**

Stata homeworks must be submitted in the [upload page](#). There is a specific link for each assignment. Click on it, it will take you to a form. You must fill out all the information carefully in order to insure that we receive your homework. Here are the instructions.

**Name:** fill out your first and last name exactly as it is in your transcript (example: John Doe). This will allow us to find you in the roster to record your grade.

**Email:** fill out an email that you use often. If your .do file does not run, the TA will contact you using this email, and he/ she will give you a deadline to correct the problem. It is usually somewhere around 24 hours, so it is a good idea to provide an email you check often. We won't accept an excuse that you didn't see the email.

**Student ID:** your student ID helps us in case there are conflicts, similar names, etc.

**Password:** the password is the same for all assignments, and changes every year. I give those out during regular class time. I will post in the [announcement page](#) the dates when I will be giving out the password. If you use the wrong password, the form will let you know as soon as you try to submit. Reload the page and try again.

The file must be of the format specified in the announcement post. The program won't accept different file formats. If you mistakenly selected a file with the wrong format, reload the page, otherwise you won't be able to upload the correct file.

When you click "upload," a blue progress line shows up. However, don't leave the page until the file bar turns green, and it says "Homework submitted." This way you can be sure that it was indeed uploaded.

**ATTENTION:** if you make any mistake, including (1) forgetting to fill out part of the form, (2) putting something other than an email in the email space, (3) filling out the wrong password, (4) uploading the wrong type of file (not a .do file), the form will let you know what is wrong when you click "submit." You must then **RELOAD** the page and try again.

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**When writing the .do file, would you like us to add comments after each line of code to describe what they do? How and where would you like us to answer the questions that require a written response? Would you like the .do program to display them or would you like us to write them in the comments? Should I e-mail you the .do files?**

I make you hand the homework in .do files for the following reason: when working in groups in the workplace, each member has the same data sets uploaded on their computer (often they even share a cloud folder). You would send them one .do file, they would change the path, and then run it. It should run. You must get used to this way of working. Not only should your programs (and a .do file is a program) run easily with minimum changes, they should also be easy to understand. All the rules concerning the .do files have the objective to teach you

to work in this way.

When the assignment requests a .do file, you must hand just one file. Even if the assignment has many questions, you should still have just one file. Separate questions clearly using comments.

The TA will receive your file, change the path to his own computer, where he will have the same data sets you should have used, then run it. It should run. This means that your file must upload the data, which must have the original name (no path, just the name). Don't bother changing the path in the beginning of the file, as I said, the TA will change it. If you want to make sure your .do file will run, send it to a friend. He or she should have the data sets in their directory, they should only change the path in the beginning of the file, and then run it. If it runs in their computer, it should be fine.

When you write a .do file for the assignments in this class, you must remember that the TA will grade the output that appears on the screen. Hence, you must write the .do file so that the output is extremely readable. This means that you must use comments (*/\* \*/*) not only to separate the questions, but also to explain the commands, and to answer the questions themselves. For example, if after running a command, Stata outputs a table with several numbers, you must point out exactly which among these is the number in which we are interested. Alternatively, when you learn the commands, you can program the .do file to output only the number of interest. This will yield a more organized output, and your grade will be higher.

As you become more proficient, you can stop commenting on the commands. However, if you are attempting something more complicated, or if you have many lines of commands to do one job, you might want to explain briefly what these lines do. This way the TA will know what you were attempting, and perhaps give you partial credits even though your answer may have been wrong.

A few suggestions:

- Make sure to use the 'clear' command before using any data set in your do-files so that any previous data in STATA's memory can be cleared away.
- With the 'use' command don't give in the entire path name of the data set, just write, use GPA2.dta, for example. You can set the home directory separately using 'cd'.

Never email me the .do files. Follow the rules stated in the assignment post in the [announcements page](#).

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### **Can I bring homework questions to prof. Caetano's office hours?**

My first priority during office hours is to address matters that only I can address in the course. Hence, students that need exceptions made, or that have concerns relative to the course will be addressed first.

The second priority is to speak to those students that are looking for career or graduate school advice. I strongly incentivize students that have such questions to come and talk with me.

I know that when you have a question about the material, it may seem unfair to you that somebody that just wants to talk about the future takes precedence. However, you must consider that there are several resources that you can use in this course, while people wanting to talk about their career only have my office hours to do that. Seeing as I write several letters of recommendation every year, I think that giving those students priority makes a lot of sense.

If I am not busy with the previous cases, I am happy to help with questions about the material or the project. However, I am not happy to help with Stata homework questions. For such questions, I recommend that you speak with the TAs, especially the graduate TA that holds the regular office hours on Thursdays. The Stata TAs consider Stata questions their first priority.

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### **Help! I uploaded the wrong file!/I found a mistake in my homework! Can I upload a new file?**

Don't despair! You can upload a new file. If we have more than one upload from you, we will erase all your previous uploads, and only consider the last one. Hence, as long as it is before the deadline, you can submit new files without any problem. After the deadline, it is still your last file that counts, so you may be penalized for tardiness.

**ATTENTION 1:** I am allowing students to upload a file again as a favor. This means that I expect at most 2 or 3 uploads from some of you. If I start seeing an excessive amount of uploads from several of you, I will eliminate this privilege for everybody, and you will only be allowed to upload your homework once, no

matter what. Use this privilege conscientiously. You never know if you will need it tomorrow.

**ATTENTION 2:** When you upload the file, we receive an attached file with a lot of information about whoever submitted it. This means that we have the time you uploaded, location, IP address, and several other identifying details. Don't vandalize this tool. I provide it for your convenience, and I will not hesitate to pursue those that misuse it on purpose.

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### **I'm going to be late with my homework/replication, what can I do?**

When the homeworks are posted, I will post the rules concerning that assignment in the [announcements page](#). Unless specified in the post, late homeworks are NOT accepted. For homeworks handed electronically we may accept late files subject to a penalty. The post about the homework will have all the information on penalties for tardiness.

If you have an extremely compelling, unexpected reason why you need accommodation for handing your homework late, let us know. [Write to the Stata homework TA](#), and he/she will evaluate your case, and send it to me if it grants special treatment. If you can provide proof and your reasons are serious and unexpected, I will make concessions. Attention: internet problems are not an excuse. We give you an extra hour of leniency on the assignments you have to upload exactly for that reason, so you will not get a concession based on that.

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### **I did not pick up my homework/exam/project in class. How can I get it now?**

If you did not pick up your graded assignment in class, you can get it in the boxes in the Economics department (2nd floor Harkness Hall). There are two boxes, one for each of the groups I teach. Your homework should be in the box corresponding to your class. However, I might mix up a homework in the wrong box, so if you can't find your homework in the right box, search in the other one.

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### **How should I prepare for the midterm? Why do you give a preparation midterm? Why do you give theoretical variables instead of real ones? Why is it so long?**

The questions I give you in the exam preparation are the most important questions in Econometrics. You should be able to answer them no matter what is the specific

situation you are analyzing. This is why I give them to you in advance. There is no point trying to surprise you. I don't want to surprise you, I want you to work at, and then show me that you learned exactly the most important things. However, as I said before, you should be able to answer these questions in any situation, and this is why give you the questions in an abstract format and then surprise you with an actual situation that you only find out in the midterm itself. While you practice you should be thinking of the examples I give in class and any other example you can imagine. Any causal question will do, really. Practice with as many as you can think, and if you are not able to think of any, just go talk to any of the TAs, or post in the forum so people can help you come up with a few to practice. Someone may even guess the one I wrote in the midterm!

You should think of the exam preparation as a homework. It really is just that. The only difference is that I force you to not only write the homework, but really learn it so you could reproduce it under pressure. That is the whole point. Hopefully you will be able to then go on to reproduce the same reasoning in any situation in the future, be it at a company, research of any kind, and even conversations with friends (though you may need to adjust the language a bit...)

Unfortunately the midterm time is only a little over one hour, so I cannot ask you all the questions I asked you to prepare. I tried to restrict to a subset that you can answer in the time given. However, you should know that the number that remains is still large, and that you won't have a leisurely time during the exam. Most likely you will find yourself pressed for time, and running against the clock. Even this I do for a reason, and it is this: I not only want you to know this material, I want you to internalize it, so that you hardly need to think about it anymore. I want you to be so quick at this that you will raise your hand at seminars or that you will ask questions at meetings, because you reached a point where the cracks in the arguments of others are obvious to you. Not only this, I want you to learn to express these ideas clearly and concisely, so that you are actually heard by others. So, I am giving you the incentives to develop those skills. You must prepare for the exam not only by learning the answers, but by learning what is the most important information to convey first, what you should write only if you have time leftover, and what is useless flourish.

I know, I repeat I KNOW that you would do so much better if you had more time. I know that your answers would be more polished, that you would have answered things you left blank, that you would have completed a question that you had to leave incomplete. However, this is true for your classmates too. Remember that your classmates have the same time that you do, and that this course is graded on



a curve. Hence, if they do better than you it is because they had more maturity with the material, so they could express more content in the same amount of time, avoiding low payoff trains of thought. One more thing: in this course, as in life, one can always do better. There is always a way to go from a good answer to a brilliant answer. However, as in life, time is scarce. Hence you must learn to prioritize. First think about what are the most important things you should say in your answer. Think how you would say them in a few words. Only then bother with flourishes.

In conclusion: prepare your answers well. Think not only of the right answer, but of what matters most and what will you write if (and only if) you have extra time. Practice so that you can apply the same reasoning to any situation quickly. Approach the exam at a fast pace. Think of your strategy in advance so you can keep calm and not make stupid mistakes. Good luck, though luck is hardly necessary.

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### **Can I bring a calculator to the midterm? Can I use a pencil?**

In all exams you are not allowed any source of outside help. This means no calculators, cell phones, books, cheat sheets, notes, notebooks, laptops, or any other similar device I may have forgotten. If you bring one of these to class, they must be put away during the exam. Away means inside your backpack, nowhere to be seen. TAs have instructions to treat disobedience to this rule harshly. This could mean that you will be asked out of the exam room, and we will assume that you cheated in the exam. Over your table you must have only the pen or pencil you will use, plus an eraser. Draft paper will be provided. The proctor will bring staplers.

You may answer your exam in pen or pencil. It must be a clean piece of work. Illegible or disorganized answers will be punished. If the TA can't understand what you wrote, the TA will ignore it. If your answer is not on the space provided, the TA will ignore it. Don't worry, there is a large and clear designated space for each answer in your exam.

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### **I missed the exam. Can I get a make-up?**

No.

You have the dates of all assignments since the beginning of the semester, so plan accordingly. If you know in advance that you must be away at a midterm, you must contact me immediately. We will arrange how you will make up for this, be it by taking the midterms while away, or by doing extra work.

If for an unexpected reason you miss a midterm, you must come talk with me and provide evidence for the reasons why you missed the exam. Among the acceptable reasons are (and I sincerely hope that nobody has to use those) accidents, emergency hospital admission, travel due to death in the family. In this case, I will decide how you will make up the grade. It **will** involve doing extra work.

Missing the Final subjects you to the university's whim. Your case will be discussed with the department authorities, and we will decide what to do. You do not want to be in that situation.

NOTE: I receive about 10 requests for special treatment per assignment. Most of them have horror stories which would clearly constitute fair grounds for accommodation. When I ask for proof, all but maybe 1 or 2 provide it. I cannot tell from a quick e-mail whether your request is a true one. Hence, if you really are in a serious situation, take this in consideration. I am happy to help in whatever I can, but you must talk with me, so I can see that you really are in need of help, and not just trying to get out of the rules.

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### **I got a bad grade on my midterm! I'm so disappointed, I worked so hard! What should I do?**

Are you sure that you got a bad grade? How is your grade compared to the class? Are you around the 75th percentile? If you are, then you did very well, it doesn't matter whether your number grade is a 50 or an 80, it is still an excellent result. Check the usual [final grade distribution](#), you are in the A or A- range!

I find that students often don't understand what grading in a curve means. They are still hang up on number grades, when it really doesn't make any difference. What matters is how your grade compares to your colleagues! In fact, when a course is graded on a curve, often the harder the exam the better it is for you, because the dispersions tend to be higher.

Many students see an exam with an average of 60%, for example, and they think

that this is very low. I think they carry this misconception that college should be like high school where 60% was the passing grade. So, when they see a midterm with an average of 60%, they think that half the class wouldn't have passed. There are so many things wrong with this way of reasoning!

First, 60% is an ideal average. When I write an exam that has a 60% average, I am very happy. Sometimes my exams have higher averages, and sometimes much lower. I am not a particularly consistent exam writer. Why do I aim to have a 60% average? Because I need to have enough dispersion so that the curve makes sense! Suppose that the average is very high, say 80%. Then the best students will be all crammed from 95 to 100. How will I be able to see the difference between the good ones and the great ones? No, no. We want an average that is far away from 0 and far away from 100, so that the students can be all nicely distributed according to their ability.

Second, 60% passing grade? What??? If 60% is the passing grade, since usually 96% of students pass, that leaves me 40 points (from 60 to 100) to evaluate almost the entire group. Why would I do that? I'd rather evaluate you all on a bigger spread, where we can see the differences between the As and the Bs clearly, avoiding differences in grades that are only due to luck.

I think that this way of thinking comes from the idea that a person must know at least 60% of the material to pass. That makes intuitive sense, but it doesn't really work like that in this course. I'll explain why. The questions I ask in exams and homeworks are not stylized so that an undergraduate student can answer them. The questions I am giving you are the same ones you would encounter in real-life situations. Why waste time in idealized situations when I can train you in the real thing? I understand that you cannot at this point be perfect in answering all questions, and this is why you can still pass and get a good grade even though you got 40% in a midterm. It means you knew 40% of what a real researcher should know in such situations, I consider this to be very good indeed! As the course progresses you will see that many questions are repeated in the following midterms, but you will be able to answer them with much more dexterity. The final exam is designed to showcase your maturity. It gives you a lot of freedom of expression. I have seen students that get around 85% in the essay question in the final. In my view, it means they know 85% of what a real world, PhD level researcher should know given the techniques taught in this course. I think this is outstanding. In fact, I often recommend my best students saying that they know more about applied research than the overwhelming majority of entrant PhD students at the top programs. That's with 85%. 60% is therefore a very respectable

Ok, now let's suppose that you did indeed get a bad grade, in the sense that it was bad in comparison with your colleagues. Don't give up! In this course you always have a very real chance to recover, till the very end. Remember that even at the very last week, there is still 15% of the grade to be counted for the project, and 25% for the final. That's almost half the grade. Moreover, I usually reward those cases of students that did badly at first but improved as the course progressed. That's to give you an incentive to always try harder.

Above all, be an adult and own your mistakes. Your colleagues did better, so it's not my fault. Either you didn't work enough, or this course isn't playing to your strengths. It happens. Learn to get up and keep walking, it will serve you well in life. Get help, there are plenty of resources in this course. Come to my office hours, or the office hour of one of the TAs. Understand where you need to improve and take measures immediately. We are here to help. Good luck!

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### **What time is my final? Where will it be?**

You can find the final schedule for all your classes on this link:  
<http://www.rochester.edu/registrar/examschedule.html>

The location of the final is usually in the same room you have your regular class. Closer to the final, check the final on the [calendar application](#) to confirm the location.

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### **Material**

### **Help! I think I copied something wrong in my notes/I missed class and did not fill my notes. How can I get the full class notes?**

If you did not complete the notes in class, you must take actions to remedy that.

First, try to borrow the notes from a colleague. If you still have questions, go to the office hours and talk with a TA. The Material TAs come to most classes, and they have full notes of their own. Choose one of their office hours and ask for help.

If you are just concerned about specific parts of the notes, you can ask in the forum.

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### **Can you provide Word files for the notes?**

No. I produce the notes on LaTeX, so I cannot generate .doc files. If you don't like to take notes by hand, I suggest that you get a software that can edit pdf files. Acrobat Professional is one option. You should still bring something to draw plots and write equations, but other than that you should be ok.

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### **When you write "log," do you mean log base 10 or the natural log?**

It means the natural log. Whenever you see "log" written in class, notes, exams, etc. it means the natural log.

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This website

### **How can I print from this website?**

Most pages in this website are naturally printer friendly. Some are not. Here is what to do:

For the Class Plan and the FAQ pages, go to the sidebar and scroll to the bottom. You will see the link "Printer Friendly Version."

If you would like to print from the Calendar application, first select which calendars you would like to print (click on the down arrow on the upper right corner), as well as whether you would like the week, month or agenda view. Then click on the printer button on the upper right corner, and select from the options available.

If you would like to print from the Forum page, click on the topic you would like to print, and then click on the "Print" link on the right.

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### **You keep talking about RSS feed. How should I use this?**

The RSS feed is a nifty resource which allows you to keep track of the changes made to a webpage. In this course you have the obligation to keep up with the Announcements page. You may make it a habit of reading it often, or you can

simply use the RSS feed of the page to alert you when I make a new post. All pages in this website that are updated often have the RSS feed enabled, meaning that you could subscribe to be alerted of changes to any of the pages here, not only the Announcements page, but also the Class Plan and even the FAQ. There is no need to worry about the other pages, because I will tell you in the Announcements page if I ever change or update them in any way.

How can you subscribe to the RSS feed? There are many options. One is to use a news reader, which is an application that organizes the material you like to read on the web. You can subscribe to websites by entering their address. Once you subscribe, you can manage all the entries you want to read, mark them as read, e-mail them, etc. There are many free news readers, just google it. In fact, Google Reader is an excellent choice. The second option is to use the RSS feed itself. In many browsers, you can find the link to the RSS feed in the right side of the address bar (Safari 6 has eliminated this option). Simply click on it to go to the RSS feed page. In this website, you can also find the RSS links in the sidebar. Once you get to the RSS feed page, bookmark it. The bookmark name will show the number of unread entries, the same way many e-mail applications do.

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### **How can I use the Calendar application?**

There are many interesting things you can do with the Calendar application. In the calendar page, there is a tab at the top of the page that says "How to use this calendar." You can find the answer to your question there.

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### **How do I post questions in the forum?**

First you need to register. The place to register is in the upper left corner of the forum page. Once you register, you will see more options.

To post a new question, go to the appropriate board, click on the name. Then, on the top right corner, click on New Topic. This will open a thread that starts with your question.

If you would like to reply to an existing topic, simply scroll to the last reply, and find the Reply button on the bottom right.

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### **The Check-in page on my computer looks like it refers to a different**

**semester. What is the problem?**

I am not sure why, but the browsers tend to cache the Check-in page, so that when the website is updated, the Check-in page may not be. Clear the cache of the website carolinacaetano.net in your browser and load the page again. You should see the current semester just below the page title.

To clear the cache on Safari, go to Preferences>>Privacy>>Details>>search carolinacaetano.net>>select it and click Remove, then Done. Reload the page.

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