MathExcel Workshop: MA 113.20

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Homework Help from TA: T: 1:00 PM-2:00 PM in 722 POT  
R: 11:00 AM-12:00 PM in 722 POT.  
W: 3:00 PM -4:00 PM in MathSkeller  
Always available by email or through the WHS system.

Workshop Times and Locations:  
M: 3:00 PM-4:50 PM in Math House  
T,R: 2:00 PM -3:50 PM CB 215.

Welcome to MathExcel!

You are part of a very fortunate group of students who will get the opportunity to learn calculus in a small, supportive environment. Here we will work on learning and practicing calculus in small groups (4-6 students). Both academic research and several semesters of anecdotal evidence suggest that this is a very effective way to study calculus. On exams MathExcel students tend to score, on average, an entire letter grade higher than their peers in traditional recitation sections.

How does MathExcel work?

In each MathExcel session you will be assigned to a small group. Your group will receive a problem set to work on together. The worksheets will consist of problems of the following types:

1. Easy practice problems to reinforce technical skills. These problems will look much like the Web Homework problems you will be assigned for your lecture.

2. Longer, more technical problems which emphasize organization, method, and computation. These problems will serve as very good practice for your exams.

3. Theoretical/Conceptual problems.

4. Applications problems from physics, economics, and engineering. If you want to see applications from your area of interest, let me know and I’ll try to find some for you.

At the end of each class your group will present selections of their work to the TA’s and the other groups.
Attendance

The staff will take attendance in every MathExcel session. To get credit for MathExcel you can miss no more than 3 sessions. I will make no distinction between excused and unexcused absences so be sure to use your 3 “free” days wisely. If you have a significant life issue that you believe warrants an exception to this policy, come and talk to me.

Community Standards

The small learning community model is at the heart of MathExcel. As part of a MathExcel group you have the following responsibilities to your group members:

1. Actively contribute to the group worksheet.
2. Stay on track; do not sidetrack the group from their work.
3. No cell phone use (including texting); No laptop use. You will immediately be told to put these things away.
4. Be respectful of your fellow group members.

In return for upholding these community standards you have the following rights within your group:

1. You will be treated with respect at all times.
2. You can dismiss non-contributing members from your group.

You can be dismissed from MathExcel for failing to uphold your obligations to your group. A dismissal will be counted as an absence and thus can impact your grade. It’s also likely to be pretty embarrassing.

Role of the TA

My role is that of a facilitator. My primary job is to make sure that the small group learning process is working properly for every student in the section. In this capacity, I will be responsible for making the weekly group assignments, mediating group conflicts, and responding to individual complaints.

Additionally, it is my job to assist you on your lecture homework outside of MathExcel. Please send me an email or come to my designated homework help times as listed at the top of the syllabus.
Roles of the TA and UTA’s

Together, the UTA’s and I will help guide you toward solutions of the problems on your worksheets. We can help you to get started, organize your approach, or suggest alternative ways of solving a tough problem. If you have placed into MA 113, the expectation is that you already have some mathematical ability. Our job, in addition to helping you navigate the course material, is to help you refine your own talent. In this way, our primary goal will be to help you develop your problem solving, organization, mathematical sophistication, and critical thinking skills. We will require your presentations to the staff and the other groups to reflect these attributes and will often suggest ways to improve your solutions.

What about the homework from lecture?

Though the work in MathExcel is completely separate from the homework you have been assigned in lecture, working diligently on the problem sets during our sessions should prepare you to do the homework on your own at home.

If you have questions about the online homework or the worksheets you have been assigned in class, send an email or come to one of my weekly homework help sessions, listed at the top of the syllabus.

Why Study Calculus?

- Famed development economist Jeffrey Sachs argues that Newton’s *Principia Mathematica*, the volume where Newton first describes and applies the methods of calculus, is one of the most important books ever written. “By showing that physical phenomena could be described by mathematical laws, and providing the tools of calculus to discover those laws, Newton set the stage for hundreds of years of scientific and technological discovery, and for the Industrial Revolution which would follow the Scientific Revolution.”¹ In this light, the study of calculus can be seen as the study of one of the great pillars of the modern experience, with Newton’s *Principia* a document as important as say the *Bill of Rights* or the *Origin of Species*.

- Success in almost every technical discipline including physics, engineering, statistics, earth sciences, and biology requires facility with the tools of calculus. In general, a great many disciplines across the university are becoming more technical and quantitative. Knowledge of calculus and more advanced math, will help you to keep up with the latest research in political science, economics, and business, and you’ll absolutely need calculus if you want get an MBA or go to graduate school in any scientific field.

- Calculus will give you a powerful tool to analyze many phenomena of the real world. As a MathExcel participant you will to work on LOTS of great application problems.

How to Succeed in Calculus

If you find yourself struggling at some point during the course, which is very normal, you should think about trying some of the following:

• Make a study schedule. Be sure to work on calculus everyday for at least an hour outside of MathExcel, homework, and lecture. If this is hard for you, try breaking several hours of studying into 30 minute or 15 minute mini-sessions.

• Instructors for this course are usually very clear about what they are expecting on exams. Make sure you understand their expectations! Ask someone (TA, UGA, or instructor) to look over some of your work. Have them point out areas where you could improve.

• Besides reviewing the notes, text, and homework I believe the best preparation for the exams is to work on the old exams. There are a great many past exams available online, in the MathSkeller, or through friends.

• Read the book and review your lecture notes regularly (like 3 times a week). Try to read ahead for lectures.

• Work out the supplement problems suggested on your syllabus. Check your answers in the back of the book. Do as many problems as you need to until you understand the concepts.

• If you don’t understand a concept or method from class you should do at least one of the following: (1) ask a friend or group member about it, (2) email/ask your TA about it, (3) visit your professor and ask about it, (4) talk about it in MathSkeller, and (5) look it up online, in your notes, or in your book.

If you are worried about how you are doing in the course please come and see me ASAP. I am interested in your success and I can help you to come up with a plan to improve.