

Math 251, Section 0201, Fall 2008  
Multivariable Calculus

- Instructor:** John Zweck  
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**Webpage:** [www.math.umbc.edu/~zweck](http://www.math.umbc.edu/~zweck) I will maintain a web page for the course, linked from my web page. I will also communicate with you using a class email list.  
**Phone:** (410) 455 2424 (I rarely check my messages. Email me instead.)  
**Fax:** (410) 455 1066  
**Lectures:** MWF, 11:00-12:05pm (SOND 003)  
**Text:** “Calculus”, Fifth Edition, by James Stewart, Chapters 13-17  
**Prerequisite:** Math 152 with a grade of C or better  
**Material Covered:** The course will cover the following sections of the textbook: 13.1-13.7, 14.1-14.3, 15.1-15.8, 16.1-16.4, 16.7-16.9, 17.1-17.9. In addition there will be a two lecture overview of how Multivariable Calculus can be applied to study Maxwell’s equations which describe the propagation of light.  
**Learning Goals:** See *Course Objectives for Teachers and Students of Math 251* on the course web page.  
**Office Hours:** M 10-11, F 12:05-1 *and by appointment*. Other times I *may* be in my office: M 12-2:30, W 10-11, 12-2:30, F 10-11, 1-2:30. If you cannot come to my office hours *please* contact me in class or by email/phone to set up a time to meet. Also, you can ask me questions by email/phone.  
**Calculators:** No calculators will be allowed on exams. Although you won’t need to, you can use a scientific calculator for homework.

## Academic Misconduct

I will not tolerate cheating in any form. Giving or receiving aid on exams or copying of homework will result in a grade of zero for the exam or homework. Here is a summary of UMBC’s official policy on academic misconduct, which I fully endorse:

By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC’s scholarly community in which everyone’s academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary

action that may include, but is not limited to, suspension or dismissal. To read the full Student Academic Conduct Policy, consult the *UMBC Student Handbook*, the *Faculty Handbook*, or the UMBC Policies section of the *UMBC Directory*.

## Grading

**Grades:** Homework 15%, Midterm One 20%, Midterm Two 20%, Midterm Three 20%, Final 25%

**Homework:** There will be required and recommended homework problems posted on the course web page for each day of class. *Required problems* assigned on MWF will be due at the *start* of class the following **Friday**. At least some of them will be graded. Make sure your homework paper is *stapled*. *Recommended problems* will not be graded. However, since the only way to learn math is to do it, you are expected to do the recommended problems, and **some of them will appear on the exams!** *No late homework will be accepted!* Your lowest two homework grades will be dropped. You may ask me questions about the homework and you may collaborate with another student in the class. In fact you are encouraged to do so! However the final write up is your own – *two identical homework papers will both be given zero*.

**Midterm Exams:** There will be three midterm exams.

- Midterm 1: Wednesday February 20th, on Chapters 13-14.
- Midterm 2: Monday March 31st on 15.1-15.8, 17.6, and 16.1-16.4.
- Midterm 3: Wednesday April 23rd on 17.1-17.7.

**Final Exam:** Wednesday May 21st from 10:30-12:30 in SOND 003. The final will be based on the whole course.

## How I assign final grades

For each exam I work out how many points I expect a student who has a solid understanding of the material to get. I tend to put the bottom B near this score. Then I work out where to place the bottom A,C,D using the grade distribution and by looking at individual exams. I also work out the bottom A,B,C,D for the homework. Then I take an imaginary student who got the bottom B (say) for each component of the course and calculate their score. If your score is higher than the imaginary student's you get a B. To decide on the grades of borderline students I look carefully at performance on the final exam and homework. In brief, I reward "strong finishers" who can show me they have a solid understanding of the entire course.

## Class Ground Rules

I and your fellow class mates would greatly appreciate it if you would please turn up on time, don't leave early, turn your cell phones off, pay attention, get involved in class discussions and ask questions! Thanks in advance for your cooperation.

## Advice for Homework

1. If you get stuck on a problem get help and get it before you waste too much time!! Here are some places you can go for help.
  - Carefully read the book (again!).
  - Ask me for help by email or in person.
  - Ask a fellow class member – often two heads are better than one! I encourage you to find a study partner for this class. First attempt the hwk yourself, then discuss them with your study partner, and finally carefully write the solutions up in your own words.
  - Sleep on it. Some of my best ideas come when I wake up in the morning.
2. My Dad used to say “You can’t do maths on a postage stamp”, so use lots of paper. Write your solutions up neatly *after* working out the problem on scrap paper. Apart from anything else, this helps you organize your thoughts and therefore learn the material better.
3. I’ll teach you by example how to write up your solutions in a connected step-by-step fashion with explanatory sentences. You should aim to write up solutions so that you’ll easily understand them in a month’s time when you’re studying for the exam!
4. Some of the homework problems will be harder than others. Don’t expect to solve them all on the first try!
5. Never start your homework the day before it is due!!
6. You should spend *at least* 10-12 hours a week on this course outside of class time.
7. **If your homework grades are not as high as you’d like you should arrange to meet with me for 15 minutes at a fixed time each week. We will use this time to discuss what you did wrong on past homeworks and also check how you are doing on the current homework. Don’t wait until exam time!**

## Advice for Exams

**Past Exams:** A large collection of past exams are on the course web page together with some solutions.

**Types of Questions:** The exams will test whether you have mastered the basic concepts and methods of calculation as well as whether you can apply your knowledge to solve problems. *You will not get any credit for an answer unless you also show how you arrived at that answer.* Some questions will be similar or even *identical* to homework and review questions. Others will look a little different from those you have seen before and will test whether you really understand the concepts we have discussed in class.

At least one question on each exam will involve *written explanations* of the *theory* we discuss in class. For example, I may ask you to explain some of the more important fundamental concepts, to carefully state some of the most important theorems, and to do *short*

proofs of such results. *As we go through the material in class I will tell you which parts of the theory I may examine in this way.*

**Review for exams:** I will suggest practice problems before each exam and we will hold review sessions in class before each exam.

**Making up an exam you missed:** If you miss one of the 3 midterms you *may* be given the chance to take a make up exam. To request a make up you should speak with me **no later than 48 hours after** the exam time. Generally speaking, you will be offered a make up if you are sick or if a close relative or friend is gravely injured/sick or dies. However I will listen to all reasonable requests. Be prepared to bring appropriate evidence in support of your request. **There will be no make ups for the final exam.**

## How to succeed in the course

This is a very fast paced course and new material is always built on older material. In my opinion to succeed in the class you *must* do the following.

1. Read the results of a survey I did on "*Study Habits and the Transition from High School to UMBC*" which can be found on my web page and find a strategy that works for you.
2. Attend class every MWF. **Do not slack off on Fridays.** A study in the Math Dept at the University of Texas has shown that for every class a student misses their grade falls by about 10%.
3. *Turn up to class on time!*
4. If you do miss class contact me *asap* to find out how to catch up.
5. Begin each hwk assignment *the same day* that we cover the material in class. If you do this you will understand the next lecture much better!
6. Read each section of the book the day *before* we cover it in class.
7. I encourage you to *ask questions* both in and out of class. If you are dazed and confused most likely most of your class mates are too! So you'll be doing everyone a favor by asking your question.
8. In class I call on people by name to answer questions. This is to keep you involved and on your toes. It also helps me find out whether you are understanding what's going on. **If you do not feel comfortable being called on in class, please come and talk with me, and we will find another way to actively involve you.**
9. Come and talk with me in my office.
10. Learn the art of taking good notes.
11. Do *all* the hwk problems. Work out what your mistakes are on the graded hwk and learn from them.
12. Talk math with your fellow students, don't work in isolation.