Multivariable Calculus
Math 231, Section 1, Fall 2014

INSTRUCTOR:	Sarah Bockting-Conrad

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SECTION INFORMATION: Section 1

- *Day & Time:* MWF 9:00-9:50 a.m.
- *Location:* King 241

COURSE GOALS: This course serves as an introduction to the calculus of functions of several variables. Many of the ideas we will explore are natural generalizations of concepts you have seen in earlier calculus classes (limits, differentiation, integration, etc.). The material will be grounded in concrete examples and applications, while providing a view of the theory that makes the subject both beautiful and worthwhile. The goal is for you to gain a meaningful understanding of the theory, computations, and applications, as well as an appreciation for the beauty of mathematics.

TEXT: J. Stewart, *Multivariable Calculus*, 7E, Cengage Learning, ISBN: 978-0538497879.

CHAPTERS TO BE COVERED: We will cover most sections in Chapters 12-15 and as much of Chapter 16 as time allows. Each week I will announce the sections to be covered the following week. In general, we will aim to cover one section of the book per day. We may spend more or less time on certain topics depending on the needs of the class. Announcing the sections each week (rather than announcing everything at the beginning of the semester) gives us the flexibility to do that.

ONLINE: Copies of assignments, handouts, etc. will be posted on the course Blackboard site. Go to www.blackboard.oberlin.edu and select your Academic Hub to access these materials.

EMAIL POLICY: Email is a great way to get in contact with me. I usually respond to emails within 24 hours. Keep in mind that if you email during the evening (or on a weekend), I might not see the email until the next day. Please see the "How to Write an Email to a Professor" handout.

GRADING: The grade you earn in this course will depend on homework assignments, three midterm exams, and one final exam. They will be weighted as follows.

- Homework - 20%
- Midterm exams - 17% each
- Final exam - 29%

HOMEWORK: Homework assignments will be posted on the course Blackboard site approximately one week before the due date. Homework is due by 4 p.m. on the date given. **Late homework will not normally be accepted.** If there are unforeseen circumstances (e.g. significant illness) interfering with your ability to complete some work in the course, please contact me *before* the assignment is due. Note: Assignments for other classes do not count as unforeseen circumstances.

Your assignments will contain a list of pages to read in the textbook as well as a list of problems. Problems marked with an asterisk will be graded. Problems which are not marked with an asterisk will not be graded. Even though you will not be graded on those problems, I <u>strongly</u> recommend that you do all of them.

You will be graded on the completeness and clarity of your solution, not just for the "final answer". In fact, for many homework problems, the answer will be available in the back of the book. In order to receive full credit, you should show your steps, justify your answers, and write clearly and in complete sentences. Imagine that one of your classmates was looking at your work and ask yourself, "Would they be able to easily understand what I've done?"

You are permitted (and encouraged!) to collaborate with your classmates on these assignments. However, it is important that everyone writes their own solution to the problems (i.e. not to copy). If you do collaborate, you should indicate the name(s) of any student(s) with whom you worked.

Lastly, be kind to the grader. There should be plenty of space for each problem and problems should occur **in order**. You should read the "Guidelines for Writing Mathematics" handout before turning in your first assignment. Homework should be stapled and have your name on the first page. **HOMEWORK THAT IS MISSING A NAME OR STAPLE WILL RECEIVE ZERO CREDIT.** Also, be sure to write and sign the honor pledge at the end of each assignment.

SUMMARY SHEETS: Students will have the opportunity to earn a bonus point on each homework assignment by presenting summary sheets for the sections covered by the homework. These summary sheets are meant to include all the information from a given section that you would need to study for an exam. They should certainly include all important definitions and statement of theorems, as well as some discussion of the types of problems encountered in that section and strategies used to solve them. Students that have written these in the past have found them very useful for learning the material and studying for the exams. Be sure to turn in your summary sheets with your homework. However, please **STAPLE THEM SEPARATELY** from your homework.

"COOL MATHEMATICS" ASSIGNMENT: The world is full of interesting and exciting applications of mathematics. Your assignment is to find an application of calculus (or some other area of mathematics) that you find interesting, do some research, and write a 1-3 page paper describing what you found. (These papers should be typed, not hand-written.) Because we all love learning about cool mathematics, I will combine all the papers into a single PDF and share them with the entire class. This assignment is due by **4 p.m. on Friday November 7**. You will be required to submit this assignment via Blackboard in PDF format. The assignment will count toward your homework grade.

EXAMS: There will be three midterm exams and a final exam. The midterms are tentatively scheduled for **October 3, October 31, and November 21.** The final exam is scheduled for **2:00-4:00 p.m. on Wednesday December 17**. Make sure to clear your

schedule for these times. If you are already aware of a conflict, please inform me immediately.

▶ **Inside the Classroom:**

"Successful students are in class, on time, every time."

There is no formal attendance policy for this course. However, as the quote suggests, good attendance is crucial to your success in this class. If you miss a class, it is your responsibility to find out (from your classmates) what you missed. In addition to being physically present, it is important to be mentally present. This means that you should be paying attention, asking questions, and being otherwise engaged in the class. It also means that you should avoid being distracted by electronic devices.

I strongly encourage you to ask questions during class. If something really does not make sense, tell me! There is a good chance that others in the class have similar questions.

Take good notes so that you can refer to them later.

▶ **Outside the Classroom:**

Doing mathematics involves working lots problems, making mistakes, and learning from those mistakes. Solving the homework problems is probably the single most important thing you can do to help yourself do well in this class. So please take your homework seriously. Be sure to start your assignments early so that you have time to ask questions. If you ever want to do additional problems but are not sure which ones are the "good" ones, I will be happy to suggest some.

When struggling with a homework problem, it often helps to talk it out. I encourage you to talk with your classmates and form small study groups. You are also more than welcome to talk to me when you have questions. Office hours are a great time for this. If your schedule does not allow you to come to my regularly scheduled office hours, send me an email and we can set up a time to meet.

Read the textbook slowly and carefully. Have a pencil and paper next to you and take notes as you go along. Try to work through the examples before you read the solutions. Write down any questions you might have and ask them.

Lastly, for every hour spent in class, you should expect to spend 2-3 hours working on the material outside of class. This time may be spent reading the textbook, working on homework exercises, looking over your notes, etc.

GETTING HELP:

▶ **Office Hours:**

If you do not understand the material as well as you would like to, feel free to stop by my office during my office hours. The schedule is given in the table below. In addition to my regular office hours, I also do office hours by appointment. This means that if you are unable to come to my regular office hours, or need additional clarification of a problem, we can set up a time to meet. I am more than happy to do this. In fact, getting to talk with students is one of my favorite things about my job! In general, I am also happy to answer short questions via email. For more complicated questions, it is probably better that we meet in person.

M	T	W	R	F
4:00 - 5:00 p.m.	None	2:00 - 3:30 p.m.	3:00 - 5:00 p.m.	1:30-2:30 p.m.

▶ **Walk-in Tutoring:**

"Walk-in tutoring" is available 7:30 - 9:30 p.m. Monday through Thursday. The room is King 241 for Mondays, Tuesdays, and Thursdays. The room is King 227 for Wednesdays. Upperclass students will be available to answer questions and work through problems.

▶ **Additional Tutoring:**

Additional tutoring is available through Student Academic Services. This is mainly for more extensive help. To obtain this service, you need to get a card from Kay Knight in Peters 114 and bring it to me. After I sign the card, you should return it to Ms. Knight and shortly thereafter you will be assigned a private undergraduate tutor.

HONOR PLEDGE: On every assignment that you submit for credit, you are expected to sign the Oberlin College Honor Pledge:

"I have adhered to the Honor Code in this assignment."

For general information about the Honor System at Oberlin, consult
http://new.oberlin.edu/conservatory/academic-resources-and-support/honor-code.dot

STUDENTS WITH DISABILITIES: Appropriate accommodations will be granted to students with self-disclosed disabilities. Any questions about the process necessary for documenting disabilities should be address to Jane Boomer, Director of the Office of Disability Services, at jane.boomer@oberlin.edu. If you would like to discuss accommodations for a documented disability, please contact me early in the semester.

SYLLABUS CHANGES: I reserve the right to alter this syllabus at any time. All students will be notified via email of any syllabus changes.