Math 133: Calculus II

Fall 2019

Basic Course Information

Instructor: Prof. Paulhus
Section: 04 – MWF 1:00-2:20 PM in 2517 Noyce Science Center
05 – MWF 2:30-3:50 PM in 2517 Noyce Science Center
Office Hours: M 9-9:50 AM, T 3:30-4:30 PM, TH 9:00-10:00 AM, F 11:00 AM -12:00 PM
Office: 2519 Noyce Science Center
e-mail: paulhus@math.grinnell.edu
Course Webpage : `http://www.math.grinnell.edu/~paulhusj/teaching/ma133f19.html`
Text: *Calculus*, James Stewart, 6th Edition
Material Covered: We will cover Chapters 8 and 13-16 of the textbook. We will also cover parts of Chapters 11 and 17. Our goal is to interpret and redefine ideas of derivatives and integrals to functions with many variables.

Learning Goals

This course is designed to aid you in several explicit learning goals. By the end of the semester, a student who is successful in this course will:

- understand the motivation for, and crucial concepts of, functions of several variables
- generalize and extend the computational procedures from Calculus I to the multivariable setting,
- develop geometric visualization and reasoning skills,
- be prepared to apply the course topics in their own field of study, and
- develop skills to work well with a diverse group of colleagues.

Growth toward these goals will be measured by the student's ability to solve computational problems, interpret and solve word problems, explain conceptual ideas from the class, and interact well with all members of the class.

Grading Breakdown

- homework 15%
- quizzes 15%
- in-class exam with the lowest score 10%, other in-class exams (2) 15% each
- final exam (cumulative) 20%
- daily definition/concept sheet 5%
- group worksheets/partnerships 5%

Grading Policies

Homework assignments will be due *at the beginning of class* almost every MWF. Assignments will be listed on the class webpage. The assignments will consist of several required problems which are to be turned in to be graded, as well as additional problems which you may choose to solve at your discretion but should not be turned in. No late homework will be accepted but the lowest three homework scores will be dropped.

Write your name at the top of the first page and **staple!!** your homework if it is more than one page. Unstapled multiple page assignments will incur a 2 point penalty.

Due to time restrictions for the grader, not all the turned in problems will be graded most weeks. **Show your work on the homework. Answers with no work will receive zero points.**

Quizzes: On the weeks when there is not an exam, we will have a 15 minute quiz at the end of class, typically on Wednesdays. No makeup quizzes are given but I do drop your lowest quiz score. No books, no notes, no calculators on the quizzes.

Exams: There will be three in-class exams. They will be on **September 25**, **October 30**, and **November 25**. Be sure to let me know immediately if there will be any conflict with the exam dates.

Final: There will be a final exam, which will be cumulative. The final exam is **Wednesday, December 18** from 2:00 PM - 5:00 PM for section 05 and **Friday, December 20** from 2:00 PM-5:00 PM for section 04. Do not make plans to go home early.

Concept/Definition Sheet: Before every class you will be given a list of a few words or basic concepts which will be covered that day. You should spend about 15 minutes before every class writing down the definitions or brief explanations for these words.

Every class you should add the new words to the previous ones so by the end of the semester you have a list of most of the concepts in the course. I would recommend storing them all in a small 3-ring binder or notebook. Occasionally I will collect these sheets to make sure you are maintaining the list. I will be grading for completeness, and you will only get credit for the word list if it (and you) were in class that day.

The reason for the sheet is threefold: (a) reading math before the lecture can make a big difference in understanding the lecture, (b) this sheet will be a ready-made study guide for exams, and (c) you will have all the definitions easily accessible during class in case I mention a word and you cannot quite remember the definition. I will sometimes ask you to look up a concept on your sheet.

Group Worksheets/Partnerships: Four to five times during the semester we will spend the class period working in groups to learn a topic. The groups will be randomly assigned. You also will work every day with a different partner and your participation during that time will impact your final grade.

Course Policies

Cell phone usage is strictly prohibited during class. I typically do not allow laptops or tablets in class, but if you would like to take notes on such a device, come talk to me.

Your final grade in this course will reflect your performance throughout the whole semester. Except for a possible bonus question on the exams, there will be no extra credit and you cannot retake an exam nor redo homework.

Basic Classroom Courtesies
Please show up on time, please do not leave in the middle of class unless it is an emergency, and please keep conversations among yourselves during class to an absolute minimum.

Attendance and Workload
You are expected to attend every class and you are responsible for all material presented and changes announced during class. There is a strong correlation between attendance and grade performance in this course. Late homework will not be accepted and no makeup exams will be given unless agreed to beforehand.

The amount of time students spend on this course outside of class varies depending on many factors, but about 7-8 hours beyond the classroom time is quite typical.

Calculators and Computers
Calculators will not be required for the exams. If you would still like to use a calculator, only scientific calculators with no storage and no graphing capabilities will be allowed. I will also provide calculators you may borrow for the exams.

Some of you may find great value in using graphical aids to help you learn the material in this course. Computer programs such as *Maple* and *Mathematica* are available to students at Grinnell. The program *Sage* (`http://www.sagemath.org/`) is a free program, available either to work online or to download. You may use any computing system to assist you with homework or for exploration of a topic. But remember that you will not have access to any of these technologies during the exams. We will use *Maple* for the lab worksheets.

Academic Honesty
Make sure you are familiar with the guidelines for academic honesty which you can find here:
`http://catalog.grinnell.edu/content.php?catoid=12&navoid=2537#Honesty_in_Academic_Work`

There are very serious consequences if you are found to be in violation of one of these polices. I do encourage you to work together to solve homework problems, but everyone must write their own solutions. **Copying solutions from any sources is considered academically dishonest.**

Additionally, if you work with others or get assistance at the Math Lab, you must note this at the top of the first page of the assignment. This is purely for bookkeeping purposes and will not affect your score whatsoever.

Getting Help

The Math Lab (Mathematics Learning Center) has tutors available many hours during the week and on Sundays. Their web page is: `http://www.grinnell.edu/academics/arc/math-lab`.

Come to my office hours with questions about material, assignments, or general questions about the course or your grade. These are times during my day I specifically set aside to be available to answer questions.

Work together with others.

Grinnell College makes reasonable accommodations for students with documented disabilities. Students need to provide documentation to the Coordinator for Student Disability Resources, John Hirschman, located on the 3rd floor of Goodnow Hall (x3089) and discuss your needs. Students should then notify me within the first few days of classes so that we can discuss ways to ensure your full participation in the course and coordinate your accommodations.

Success In My Classes

Students come to Calculus II with very different backgrounds, skills, and experiences. Usually the most successful students in my class have two things in common: they work hard and effectively, and they are able to self-reflect honestly and then make adjustments to their behaviors accordingly.

Unsolicited Advice

Take ownership of your education.

Exam problems will not necessarily be exactly like the homework problems. Understanding *why* we solve a problem in a certain way will probably result in a better grade than simply trying to mimic examples we have done previously.

Think of math a bit like learning how to bowl. You can have someone explain to you how to throw the ball and how to put spin on it to make it hit the pins but chances are the first time you throw the bowling ball, you will throw a gutter ball. How do you improve at bowling? You practice. The same is true in math. The best way to learn math is to **practice, practice, practice**.

I can't say it enough, work together when you can.

If you are struggling, come to see me early. If you wait until a week before the final, there isn't much that can be done to help you.