Math 212: Multivariable Calculus
Fall 2019

This course will seek to extend the concepts and techniques of single-variable calculus to functions of multiple variables. Computationally, there's very little here that you don't already know how to do; what is new comes mostly from the unfamiliarity of the setting. To get a solid footing there, students will solidify their grasp of the underlying ideas developed in single-variable calculus, and learn not just what their analogues are in higher dimensions, but why their analogues are the way they are, with calculation and visualization playing equally important roles. (Pictures are your friend!) Along the way, we'll see plenty of connections to the physical sciences, with possible detours to Kepler's laws and Maxwell's equations. Fasten your seatbelts - venturing into multiple dimensions can get pretty wild!

Instructor: Stephen Wang (`sswang@rice.edu`)
Classroom and Course Times: Sewall 301, MWF 11-11:50.
Office and Office Hours: Herman Brown Hall 410, tentatively Wednesdays 3-4, Thursdays 2-3:30, and Fridays 2-3, or by appointment.
Help Sessions: Calculus help sessions will be available beginning in the second week, probably Monday through Thursday 7-9pm in Herring 129.

Textbook: `https://openstax.org/details/books/calculus-volume-3`
We will cover pretty much all of chapters 2-6.

Exams: This course will have two midterms and a final exam. The first midterm will be 7-9 PM on **Thursday October 3**, and the second midterm will be 7-9 PM on **Tuesday November 12**. If you have a conflict with these dates you must let me know by the end of the first week of class. Otherwise, no excuse other than a documented medical or family emergency will be accepted for missing the exam.

The date for the final exam is set by the Registrar's office and is not available at this time. It is the policy of the Mathematics Department that no final may be given early to accommodate student travel plans. If you make travel plans that later turn out to conflict with the scheduled exam, then it is your responsibility to either reschedule your travel plans or take a zero on the final.

Grades: Your course grade will be based 75% on the exams[1], distributed among Midterm 1/Midterm 2/Final in a ratio of 4:4:5, 4:3:6, or 3:4:6, whichever benefits you the most, and 23% on the homework. Participation in class accounts for the remaining 2% (this includes answering questions and engaging with classmates at appropriate times).

[1] When computing final course grades, a student's exam scores are normalized against scores of all students in Math 212 this semester, not just those in this section.

Homework: There will be two types of homework. The first type is online, on WebWork; students log in at:

`http://webwork.math.rice.edu`

Use your Rice NetID (without the `@rice.edu`) as your login, with your Student ID (S followed by 8 digits) as your initial password (you can change this). There will be a few problems due most class days at 10:30am.

Written homework will be due weekly, usually at the beginning of class on Fridays. The written homework will be posted on the course Canvas site.

No late homework will be accepted, barring a truly major emergency. If you cannot come to class due to travel or illness, you should email the assignment to me by the due time. However, the lowest-scoring written homework assignment will be dropped, as will the lowest two WebWork assignments.

Collaboration Policies: On the homework, you should work individually on the problems at first. Collaboration and discussion with others is encouraged, but only after you have given the problems a good amount of independent thought. Similarly, I am more than happy to talk with you about the homework, but only provided that you've worked on it before coming to me.

When doing the final write-up, you should do so alone, and you should not look back on any writing or notes produced during your collaboration. (A good habit to get into is to use colored paper when working with others, and white paper when working alone.) Please note the names of your collaborators on your problem set.

Do not use outside software (including calculator functions that go beyond the normal $+, -, \times, \div$ and exponentiation) unless otherwise specified. Do not seek help from internet sites.

Following these instructions is part of your duty under the Rice Honor Code.

Disability Support: Students who think they may need accommodations in this course because of the impact of a disability should give me a written letter from Disability Support Services within the first two weeks of the course.