Math 212: Multivariable Calculus
Spring 2016

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: Herman Brown Hall 427, MWF 2-2:50.
Office and Office Hours: Herman Brown Hall 410, tentatively Mondays 6:30-8, Wednesdays 3-4, Thursdays 2-3:30, or by appointment. Monday office hours are likely to be held in Duncan College Library. Feel free to just drop by as well, though I can't promise I'll always be available.

Exams: This course will have two midterms and a final exam. The first midterm will be 7-9 PM on **Wednesday February 17**, and the second midterm will be 7-9 PM on **Tuesday March 29**. 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 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.

Homework: Homework will be due weekly, usually at the beginning of class on Fridays. No late homework will be accepted, barring a documented serious illness or other emergency. However, the lowest-scoring homework assignment will be dropped.

Each student will have up to two opportunities to re-do a homework problem. This must be a problem that a genuine attempt was made on, and must be requested by email within two days of receiving the graded homework. A re-do may be a similar but different problem, or may be the same problem presented orally, at Steve's discretion.

Textbook: James Stewart's *Calculus: Early Transcendentals*, Eighth Edition.

Grades: Your course grade will be based 20% on each midterm, 30% on the final exam, and 20% on the homework. The remaining 10% will be correlated with how seriously you take the course - attendance, participation in class, etc.

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.

Please note the names of any collaborators on each problem. Furthermore, the final write-up of the problems should be done by yourself. You should show the steps you took in order to arrive at your answer, and you should understand what you are writing well enough that you need not refer to 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.

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.

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.