Instructor: Jeffrey Manning  
Email: jmanning@math.uchicago.edu  
Office: Eckhart 17 (in the basement)  
Office hours: TBA  
Class Website: http://math.uchicago.edu/~jmanning/Teaching/Ma19520_Fall15/  

Lectures: 11:30-12:20 MWF at STU 105  
Problem Session: TBA

Textbook: Multivariable Calculus by James Stewart. Eighth edition. We will roughly cover chapters 10, 12, 13, 14 and 15 (omitting the material on arc-length).

Course description: The course will primarily devoted to generalizing the things you learnt in single variable calculus to functions of more than one variable. We will show how the concepts of differentiation and integration can be generalized to multivariable functions. It will therefore be essential for students to be comfortable with the main concepts of single variable calculus.

The course will begin with a brief overview of single variable calculus, followed by an introduction to parametric equations and polar coordinates. From there we will spend the next 2-3 weeks introducing vectors, and functions defined on vectors, which will be our main objects of study for the remainder of the course. The remainder of the course will then be devoted to partial derivatives and multiple integrals. Topics covered will include: generalizations of the chain rule and $u$-substitution; gradients and directional derivatives; optimization problems and Lagrange multipliers.

Homework: Homework sets will be assigned (almost) every week on Wednesday, and will be due at the start of class the following Wednesday. Problem sets should be stapled and written legibly (or typed). In addition, solutions should be clear and well-organized. The grader may impose a 10% penalty for solutions, which are otherwise correct, but are lacking in clarity. Students are encouraged to work in groups when solving the problems, but solutions must be written up independently. A good rule of thumb is that you should be able to explain every step of each solution that you hand in.
**Late homework policy:** Each student will be permitted one two-day homework extension per term, with no penalty. This means that if the homework was originally due on Wednesday, you would be allowed to turn it in during class on Friday. If you wish to use this extension, you must notify me via email before the homework set is due. Additional extensions, or longer extensions, will only be handled on a case-by-case basis, and may result in a penalty.

**Midterms:** There will be two in-class midterms, probably occurring during 4th week and 8th week. Their (tentative) dates are:

- Midterm 1: Friday, October 23rd (Week 4)
- Midterm 2: Friday, November 20th (Week 8)

**Midterm corrections:** After you receive your graded midterms, you will have the opportunity to submit correct solutions to the problems you missed. You should think of this as an opportunity to earn back (some of) the points you lost. You may treat this like a regular homework assignment – in particular you may get help from me, or from other students. Your score on this assignment will never be lower than your score on the corresponding midterm. If you chose not to submit this assignment, your score will be equal to your midterm score.

**Quizzes:** There will be a short (about 10 minutes) in-class quiz on most Fridays. Your lowest quiz score will be dropped.

**Final Exam:** There will be a two-hour final exam taking place at the end of the term. The precise date and time of the exam is set by the university, and is beyond my control. The final exam for this term will take place on **Friday, December 11th from 10:30am-12:30pm.**

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<tr>
<th>It is the policy of the Department of Mathematics that the following rules apply to final exams in all undergraduate mathematics courses:</th>
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<tr>
<td><em>The final exam must occur at the time and place designated on the College Final Exam Schedule. In particular no final examinations may be given during the tenth week of the quarter, except in the case of graduating seniors.</em></td>
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<td><em>Instructors are not permitted to excuse students from the scheduled time of the final exam except in the cases of an Incomplete.</em></td>
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**Grading policy:**

- Homework: 15%
- Quizzes: 5%
- Midterm 1: 20%
- Midterm 2: 20%
- Midterm Correction 1: 5%
- Midterm Correction 2: 5%
- Final Exam: 30%