MATH 3510(H): Multivariable Mathematics (part II)
Spring 2017 Syllabus

Instructor: Professor Michael Usher (usher@uga.edu)

Scheduled Class Meetings: MWF 11:15-12:05 and T 11:00-12:15 in Boyd 302.

Office hours (tentative): T 12:30-2, W 3-5, and F 12:30-2 in Boyd 447.

Required Textbook: *Multivariable Mathematics: Linear Algebra, Multivariable Calculus, and Manifolds*, by Shifrin. John Wiley & Sons, 2005, ISBN 047152638. (Up-to-date list of typos at `http://math.uga.edu/~shifrin/Multivariable_Errors.pdf`)

Subject matter: This is the second semester of a one-year course that gives an integrated treatment of multivariable calculus and linear algebra. Most of the focus will be on integral multivariable calculus; by using linear algebra we will be able to develop this in a more sophisticated way than is done in courses like MATH 2270, culminating in a version of Stokes' theorem which simultaneously generalizes the fundamental theorem of calculus and all of the theorems that one learns at the end of a typical multivariable calculus course. We will also develop more topics in linear algebra, most notably eigenvalues and diagonalization. We'll cover (in order) Chapters 7, 6, 8, and 9 of Shifrin's book, which respectively deal with:

- integration on $\mathbb{R}^n$;
- the implicit function theorem and manifolds;
- integration on manifolds and Stokes' theorem;
- eigenvalues, eigenvectors, and the spectral theorem.

Prerequisite: MATH 3500.

Homework (45% of your grade): As was the case last semester, we'll have weekly written homeworks due under my office door Thursday morning and online Webwork assignments due Sunday. These will be challenging, and are a central part of the course. You are encouraged to cooperate on the homework assignments, but the solutions that you hand in must be written up independently and represent your own understanding of how to solve the problems. You are also encouraged to come to my office hours to ask questions.

Midterms (2*15%=30% of your grade): There will be two in-class midterms. Tentative dates are February 14 and April 4. You will be allowed to bring one 3x5 index card with handwritten notes to the midterms and final.

Final (25% of your grade): The final will be comprehensive and is scheduled for 12-3 pm on Monday May 9. If you do better on the final than on one or both of the midterms, then I will replace your lowest midterm grade by the final grade (so that midterm will be dropped and the final will count 40% instead).

Make-ups: A medical excuse (confirmed by a medical professional) will be required for you to make up any exams that you miss without giving me advance warning. If your schedule requires you to miss an exam and you tell me about this in advance, then, at my discretion, we might find an alternative time for you to take it.

Academic honesty: As a University of Georgia student, you have agreed to abide by the Universitys academic honesty policy, "A Culture of Honesty," and the Student Honor Code. All academic work must meet the standards described in "A Culture of Honesty" found at `http://www.uga.edu/honesty`. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

Obligatory disclaimer: The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.