Multivariable Calculus
Math 211, Fall 2016

Instructor: Lars Ruthotto

Times.
TuTh 4:00 PM – 5:15 PM, Math & Science Center, Room W201

First day of classes: August 25, 2016
Last day of classes: December 6, 2016
Recess: October 11 (Fall break), November 24 2016 (Thanksgiving)

Office hours.
TuWedTh 1:00 – 2:00 pm and by appointment (lruthotto@emory.edu)

Prerequisites.
The prerequisite for this course is a standard year-long single variable calculus sequence, e.g. Math 111 and Math 112. Students need a strong foundation in these courses to succeed.

Topics covered.
Vectors and 3-space; dot and cross product of vectors; differentiating and integrating functions of several variables; optimization; vector fields; line integrals; Fundamental theorem of line integrals; Green’s theorem; divergence and curl of vector fields.

Textbook.

Detailed Syllabus.

1. Vectors, dot and cross product, equations of lines, planes, and quadric surfaces. (§12.1-12.6)
2. Vector functions (§13.1-13.3)
3. Partial derivatives (§ 14.1 – 14.5)
4. Optimization: Directional derivatives, gradients, max/min, Lagrange Multipliers (§14.6 – 14.8)
5. Double integrals (§15.1 – 15.5)
6. Triple integrals (§15.7 – 15.9)
7. Vector fields, line integrals, Green’s theorem, curl and divergence, Stokes’ theorems (§16.1 – 16.5)

Grades.
There will be 2 midterm, 5-6 quizzes, 5-6 homework assignments, and a final exam.

The final grade will be determined as:
10% Quizzes 50% Midterms 10% Homework 30% Final Exam

Midterms.
The in-class midterms will be given on October 8, 2016 and November 10, 2016. in the list of topics above. Makeup midterms will be given only in extreme situations.

Quizzes.
There will be 5-6 short quizzes given throughout the semester. The lowest quiz grade will be dropped. There will be no makeup quizzes.
**Homework.**

Solutions, results, and analysis should be submitted as a single document. Please submit your homework electronically via Canvas (preferred) or you can give me a printed copy.

Your submission will be evaluated for accuracy (including partial credits). In addition, its form will be evaluated, which will make up 20% of the points. For maximal points, your solution needs to be well structured, clearly written (i.e., both in terms of language and readability), complete (i.e., self-contained with detailed explanations and references to theorems in the book and/or lecture where needed), and as brief as possible (i.e., not containing unnecessary steps).

Important notes:
- Homework projects are expected to be submitted at 8:30 am on the specified due dates
- Homework turned in late, but before 4:00 pm on the due date, will receive a 20% deduction
- Homework turned in after 4:00 pm on the due date, but before the beginning of the next class period, will receive a 50% deduction
- Homework turned in later than the next class period following the due date will not be accepted.

Exceptions to this policy will be granted only in extreme situations.

**Practice Exercises.**

A list of suggested problems from the book for each section we cover and additional practice problems will be available through blackboard. You are not required but strongly recommended to do all of these problems. You may want to work collaboratively on the problems and I will be glad to discuss on the problems in my office hours. The problems should be helpful in preparing for the tests.

**Final Exam.**

The Final Exam is *cumulative* and will be on December 12, 2016 from 6:30 – 9 pm

**Class Attendance.**

Attendance is not required, but strongly encouraged.

If you miss a class, then you should get a copy of the notes from one of your classmates. If you come to class, please do not disturb your fellow students and avoid using phones, computers, or leaving in the middle of a lecture.

**Accommodations.**

If would like to request classroom accommodations, please see me after class or during office hours to discuss arrangements.

**Honor Code.**

The Honor Code applies to all work submitted for courses in Emory College. Students who violate the Honor Code may be subject to a written mark on their record, failure of the course, suspension, permanent dismissal, or a combination of these and other sanctions. The Honor Code may be reviewed online at: [http://catalog.college.emory.edu/academic/policy/honor_code.html](http://catalog.college.emory.edu/academic/policy/honor_code.html).