MATH 361: ADVANCED CALCULUS  
UNIVERSITY OF PENNSYLVANIA  
SPRING 2015

Instructor: Dr. Camelia Pop  
Office: David Rittenhouse Laboratory 4N53  
Lectures: Tuesday-Thursday 1:30 - 3 pm, David Rittenhouse Laboratory 4C6  
Office Hours: Tuesday and Thursday 12-1:30 pm and by appointment  
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Office phone: (215) 898-8475  

Teaching assistant: Jin Woo Jang  
Office: David Rittenhouse Laboratory 3C13  
Lab: Monday, Wednesday 6:30-8:30 pm, David Rittenhouse Laboratory 4C8  
Office Hours: Thursday 3:30-5:30 pm, Friday 3-5 pm  
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More reading resources: Walter Rudin, Principles of Mathematical Analysis  
Robert Strichartz, The Way of Analysis

Our goal will be to cover the chapters 5-7 of the textbook. Chapter 5 is concerned with properties of the space of continuous functions, and we will study in more depth power series. Chapter 6 contains a generalization of the notion of differentiability of functions defined on $\mathbb{R}$ with values in $\mathbb{R}$, to functions defined on $\mathbb{R}^n$ with values in $\mathbb{R}^m$. In chapter 7 we will study the Inverse Function Theorem and the Implicit Function Theorem. Time permitting, we will cover topics related to the integration of functions in Chapter 8.

I will assume that you have a strong understanding of the topology of metric spaces (sequences, completeness, compactness, connectedness, continuity). This is the basis and chapters 1-4 in the textbook.

1. Exams, homework and quizzes. We will have two midterm exams and one final exam. The final exam is cumulative and covers all of the material listed in the syllabus. The final exam will count for 30% of your final course grade. There will be two closed book midterm exams. The first exam will be on Thursday, September 25, and the second will be on Thursday, October 30. Both exams will take place in class during our regular lectures. You are not allowed to use any calculators, cell phones, etc. during the midterm and final exams but you can prepare and use one 8.5 by 11 sheet of paper (both sides) with notes of your choice. The midterm exams will count as 25% of your final grade.

The homework problems will be assigned every week. The list of problems will be available every Thursday evening on Canvas, and it will be dropped in your TA’s mailbox the following week on Friday by 5 pm. You are responsible for writing up neatly and legibly solutions to the problems from the homework assignment. Your TA will grade two problems at random from each assignment. We will not accept any late homework. The homework will count as 10% of your final grade.

There will be a quiz in lab every two weeks. The quiz will be announced in advance and it will count as 10% of your final grade.
2. Summary of the grading scheme and important dates.

The grading scheme:
- 30% Final exam;
- 25% Midterm exam 1;
- 25% Midterm exam 2;
- 10% Homework;
- 10% Quizzes and participation.

Important dates:
- Midterm exam 1: Tuesday, February 17;
- Drop period ends: Friday, February 20;
- Midterm exam 2: Tuesday, March 24;
- Last day to withdraw from class: Friday, March 27;
- Final exam: TBD.


(a) There will be no make-up midterms, homework, or quizzes. Missing quizzes and homework will receive a score of zero. Missed midterms will be handled on a case-by-case basis, but you need to contact me as soon as possible if you suspect you may have a conflict with the midterm or if you are ill.

(b) Quizzes are given every two weeks in lab unless your TA tells you otherwise in advance. We will drop the two lowest quiz scores.

(c) We will not drop any homework scores, and late homework will not be accepted, so begin early to guarantee that you have something to turn in every week. More importantly, starting your homework early will help you learn the material!

(d) Collaboration is encouraged on the homework. However, your write-up should be your own. To keep yourself honest, a good rule of thumb is to take a few notes on scratch paper when you discuss the problem with your friends, and work on your write-up later on your own. Please list the names of the students you worked with on your homework assignment.

(e) If you suspect that a problem on an exam was graded incorrectly, you must submit a written explanation of your concern, along with your original exam, to my mailbox in the math office within one week of the date the exam was returned. The problem will be regraded by the same person who graded it initially (me, or your TA). Your score may go up or down as a result of the regrade.

(f) If you suspect that a homework or quiz problem was graded incorrectly you must discuss the issue with your TA within one week of the date the assignment was returned. It is your responsibility to check Canvas each week to make sure your homework, quiz and exam scores were recorded correctly, and point out any errors within one week of the date grades were posted.

4. Get help. Before its too late, please seek out help. One definition of too late is after you receive a low exam 1 score. Each lecture will cover about one section of material. If you miss a class, then you will find it hard to catch up. Waiting until the weekend to catch up might be impractical.

(a) Ask lots of questions in lab. Take advantage of lab, don’t just show up to take the quiz.

(b) Instructor’s office hours

(c) TA’s office hours

(d) Learning Resource Center, offered by the Weingarten Learning Resources Center, in Stouffer Commons, Suite 300, 3702 Spruce Street, Philadelphia PA 19104, tel: (215) 573-9235.

(e) The Tutoring Center [http://www.vpul.upenn.edu/tutoring/index.php](http://www.vpul.upenn.edu/tutoring/index.php)

(f) Math Department Approved Tutors [http://www.math.upenn.edu/ugrad/tutors.html](http://www.math.upenn.edu/ugrad/tutors.html)