MATH-4200-01 Mathematical Analysis I

Fall 2016

Instructor: Professor Fengyan Li  
Amos Eaton 332, lif@rpi.edu, 276-3201

Lectures: 10:00am-11:50am, Mondays and Thursdays, Lally 104
Office Hours: 3:00pm-4:00pm Tuesdays and Thursdays

URL: http://homepages.rpi.edu/~lif/F16/MATH4200.html

Reference Texts:  
Introduction to Analysis, Maxwell Rosenlicht, Dover  
Principles of Mathematical Analysis, Walter Rudin, McGraw-Hill  
The Way of Analysis, Robert S. Strichartz, Jones & Bartlett Learning

Prerequisite: MATH 1020 and MATH 4090 or permission of the instructor

About the Course:

Topics: number systems, basic set theory and topology of R or C, limits, continuity, differentiation, Riemann integration, numerical and function sequences and series

Objectives and Learning Outcomes:

The students will
- be able to rigorously prove basic results from mathematical axioms, definitions etc;
- be able to write coherent and concise mathematical proofs;
- demonstrate their understanding of how the results in calculus follow from the principles of mathematical analysis;
- demonstrate their ability to use tools from mathematical analysis in providing rigorous solutions for problems from calculus and its applications;
- be able to choose the appropriate techniques from mathematical analysis to generate mathematical proofs.

Homework Assignments and Exams:

Homework: Homework will be assigned regularly, collected and graded. The work you hand in is expected to be neatly written, mathematically making sense, and well-organized.

You are strongly encouraged to discuss homework problems with other students and work in groups. However, the work you turn in must be written by yourself and represent your own understanding on the subjects. It is strictly forbidden to copy any part of the homework solutions from others. Such behavior will be considered the highest breach of academic integrity. Any
violation will result in **no grade for the entire** homework set, and can land you in the office of the Dean of Students.

It is important for you to at least look at the problems and start thinking about them on the day they are assigned. Some problems can be hard, and you may need to take time to figure out how to solve them. **No late homework will be accepted.**

**Exams:** There are two exams for this course. The second exam, though mainly covering materials since the first exam, may refer to previous materials, which you are responsible to know. The exams are tentatively scheduled on October 13 and December 5, 2016. The instructor reserves the right to change the date(s) when needed. No books, notes, any electronic or other devices are permitted.

**What if you have questions on the grading?** Questions or concerns regarding the grading of assignments and exams must be discussed with the instructor **on the day** when the reports are returned.

**Grading:** Your grade for this course is determined by your performance in homework assignments (50%) and exams (50%=24 (Exam 1) + 26 (Exam 2) %).

The grade cutoffs will be no stricter than

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**Academic Integrity:**

Student-teacher relationships are based on mutual trust. Acts that violate this trust undermine the educational process. The Rensselaer Handbook defines various forms of academic dishonesty and you should make yourself familiar with them. The penalties for cheating in this course include no grade to the assignments or exams, and students being reported to the office of Dean of Students.

**Other Policies:**

**On Attendance:** Attendance is expected. Those who have to miss a class due to unforeseen reasons are responsible for finding out what is discussed or announced in class. Please show up on time for lecture. If you have to leave a lecture early, do so during the class break if possible.

**On Email Correspondence:** Any email to the instructor is expected to consist of at least the greeting, the text of the email, and the name of the sender.