

MAT 412 – Foundations of Calculus – Spring 2009

Course Description: Introduction to the foundations of calculus covering topics from the following: the real number system, functions, limits, sequences, infinite series, continuity, and uniform continuity. Students will develop their ability to think deductively, analyze mathematical statements, and apply mathematical ideas to the solution of new problems. Most importantly, they will learn to write proofs of mathematical statements related to the topics covered in this course.

Textbook: *Introduction to real analysis (3rd ed.)* by Bartle and Sherbert, ISBN 978-0471321484. We will cover Chapters 1–4 of the textbook.

Class Time and Location: MWF 11:40–12:35, Carnegie 306.

Instructor: Leonid Kovalev, lvkovale@syr.edu, 315.443.1487, AIM *leonid977*

Office Hours: held in **Carnegie 213C**

- Monday 3–4 pm
- Tuesday 11am–12 pm
- Wednesday 5–6 pm
- Thursday 12:30–1:30 pm
- Sunday 3–4pm
- At other times by appointment

Class webpage <http://web.syr.edu/~lvkovale/412> is where homework assignments and other announcements will be posted.

Grading: The grades will be based on weekly homework (25%), weekly quizzes (5%), three midterm exams (15% each), and final exam (25%). The grading scheme will be no stricter than: 93 for A, 90 for A-, 87 for B+, 83 for B, 80 for B-, 77 for C+, 73 for C, 70 for C-, 60 for D.

Homework will be collected weekly at the beginning of class, usually on Fridays, except for exam weeks. No late homework will be accepted. You are encouraged to discuss the homework problems with your classmates and to work together, but submitted assignments must be written up individually. One lowest homework score will be dropped.

Quizzes will be given on the same days when homework is collected, and will cover the same topics as homework. They will mostly consist of True/False questions. One lowest quiz score will be dropped.

Midterm Exams will be given in class on **February 13, March 27, and April 24**. The cumulative **Final Exam** is scheduled for **April 30, 2:45–4:45**. There will be no make-ups: a missed exam counts as zero unless you present a valid excuse from a physician or the Dean's office. If the absence is excused, your grade on the relevant portion of the final will be used to replace the missed exam.

Attendance and Participation: You are expected to attend and participate in class. If you miss a class, you are responsible for obtaining notes for that class from a student who attended. It is also your responsibility to find out about any announcements made in class.

Learning Goals:

- Understanding the nature and role of deductive reasoning in mathematics
- Ability to use and understand the usage of mathematical notation
- Ability to follow proofs and other mathematical discourse
- Ability to write rigorous proofs of mathematical statements

Disability-Related Accommodations. Students who are in need of disability-related academic accommodations must register with the Office of Disability Services (ODS), 804 University Avenue, Room 309, 315-443-4498. Students with authorized disability-related accommodations should provide a current Accommodation Authorization Letter from ODS to the instructor and review those accommodations with the instructor. Accommodations, such as exam administration, are not provided retroactively; therefore, planning for accommodations as early as possible is necessary. For further information, see the ODS website, <http://disabilityservices.syr.edu/>

Academic Integrity Statement. The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the Policy and know that it is their responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities. Serious sanctions can result from academic dishonesty of any sort. For more information and the complete policy, see <http://academicintegrity.syr.edu>