

MAT 702 – Functional Analysis – Spring 2014

Instructor: Leonid Kovalev

Email: lvkovale@syr.edu

Office: Carnegie 213C.

Office Hours: Mo 11-12, Tu 4-5, We 11-12, Th 12:30-1:30, Su 3-4.

At other times, you can see me by appointment (make an appointment online using the form at lvkovale.expressions.syr.edu) or whenever the office door is open.

Phone: 315-443-1487 (office), 315-200-5367 (cell).

Course Description: Norms, seminorms, and inner products on linear spaces. Standard theorems on linear functionals and operations. Dual spaces and weak topologies, classical spaces and their duals. Applications. *Prerequisites:* MAT 631, 661, 701.

Textbook: *A Course in Functional Analysis (2nd ed.)* by John B. Conway, ISBN 9780387972459.

Grading: The grades will be based on homework (30%), two midterm exams (20% each), and final exam (30%).

Homework will be assigned in almost every class, due at the beginning of the following class. Two lowest homework scores will be dropped.

Midterm Exams will be given in class on **February 18** and **April 8**. The time and place of the cumulative **Final Exam** will be announced in class. 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:

- Students will understand the nature and role of deductive reasoning in mathematics
- Students will be able to use and understand the usage of mathematical notation
- Students will be able to follow proofs and other mathematical discourse
- Students will be able to write rigorous proofs of mathematical statements

Tips for success in this course:

- It is absolutely essential that you understand how to solve all the assigned problems. Once you understand how to solve a problem, write your solution down neatly (better yet, in LaTeX) and in full detail with explanations that make your reasoning clear.
- Don't fall behind. If you are having difficulties keeping up with the material, see me immediately to discuss the problem.
- Take advantage of office hours (or of instant messaging for quick questions).
- Discussing problems with a classmate is very useful.
- Questions in class are encouraged.

Students with disabilities. If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), <http://disabilityservices.syr.edu>, located in Room 309 of 804 University Avenue, or call (315) 443-4498 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

Related link: <http://disabilityservices.syr.edu/faculty-staff/syllabus-statement/>

Religious observances policy. SU religious observances policy recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to are religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice (Student Services -> Enrollment -> My Religious Observances) from the first day of class until the end of the second week of class.

Related link: http://supolicies.syr.edu/studs/religious_observance.htm

Academic Integrity. Syracuse University sets high standards for academic integrity. Those standards are supported and enforced by students, including those who serve as academic integrity hearing panel members and hearing officers. The presumptive sanction for a first offense is course failure, accompanied by the transcript notation "Violation of the Academic Integrity Policy". The standard sanction for a first offense by graduate students is suspension or expulsion. Students should review the Office of Academic Integrity online resource "Twenty Questions and Answers About the Syracuse University Academic Integrity Policy" and confer with instructors about course-specific citation methods, permitted collaboration (if any), and rules for examinations. The Policy also governs the veracity of signatures on attendance sheets and other verification of participation in class activities. Additional guidance for students can be found in the Office of Academic Integrity resource: "What does academic integrity mean?"

Related links: <http://academicintegrity.syr.edu/academic-integrity-policy/>

<http://academicintegrity.syr.edu/faculty-resources/>

<http://academicintegrity.syr.edu/what-does-academic-integrity-mean/>