

## MAT 532 – Applied Linear Algebra – Fall 2015

**Instructor:** Leonid Kovalev

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**Office:** Carnegie 311C

**Office Hours:** Su, Mo, We 3-4, Tu 1-2, Th 11-12. You can also see me at other times by appointment, or whenever the office door is open.

**Phone:** 315.443.1487 (office), 315.200.5367 (cell).

**Course Description:** Algorithmic issues of solving linear systems, factorization of matrices, singular values, orthogonality. Applications to least squares approximation, differential equations, and others as time allows.

**Prerequisites:** MAT 331 or MAT 485.

**Textbook:** “Matrix Analysis and Applied Linear Algebra”, Carl D. Meyer, SIAM, ISBN 978-0898714548.

**Grading:** The grades will be based on homework (30%), 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.

**Midterm Exams** will be given in class on Monday, **September 21**, Friday, **October 16**, and Friday, **November 13**. The cumulative **Final Exam** is scheduled for Thursday, **December 17, 12:45–2:45**. 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 final exam grade will be used to replace the missed exam.

**Homework** will be assigned in almost every class, and due at the beginning of the following class. Some assignments may involve the use of Matlab (available at SU computer clusters), but no prior familiarity with software is expected.

### **Learning outcomes:**

- ✓ Students will be able to use and understand the usage of mathematical notation
- ✓ Students will be able to select an appropriate mathematical model for a given real world problem
- ✓ Students will be able to do hand calculations accurately and appropriately
- ✓ Students will be able to do calculations with the aid of appropriate software
- ✓ Students will be able to apprehend and enunciate the limitations of conclusions drawn from mathematical models

### **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 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.

- Ask questions: in class, during office hours, by email, and via instant messaging.
- Discussing problems with a classmate is very useful.
- Expect to work hard. Don't get discouraged if you find some of the material difficult. Be persistent and patient.

**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 or TDD: (315) 443-1371 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.

**Religious observances policy.** Syracuse University's 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 holy days 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 a religious observance provided they notify their instructors no later than the end of the second week of classes for regular session classes and by the submission deadline for flexibly formatted classes. Student deadlines are posted in MySlice under Student Services/Enrollment/My Religious Observances/Add a Notification.

**Academic Integrity.** Syracuse University's academic integrity policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The university policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same written work in more than one class without receiving written authorization in advance from both instructors. The presumptive penalty for a first instance of academic dishonesty by an undergraduate student is course failure, accompanied by a transcript notation indicating that the failure resulted from a violation of academic integrity policy. The presumptive penalty for a first instance of academic dishonesty by a graduate student is suspension or expulsion. SU students are required to read an online summary of the university's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice. For more information and the complete policy, see <http://academicintegrity.syr.edu>

Summary of AI Expectations <http://academicintegrity.syr.edu/know-the-code-sus-ai-expectations/>

Full Statement of AI Expectations <http://academicintegrity.syr.edu/full-statement-of-sus-ai-expectations/>

Academic Integrity Policy <http://academicintegrity.syr.edu/academic-integrity-policy/>