

**MAT 532 — APPLIED LINEAR ALGEBRA  
SPRING 2019**

Instructor: Professor Graham Leuschke

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Lecture: TR 2:00–3:20, Carnegie 119

Office hours: 11:00-12:00 MW;

by appointment, and any time my door is open

Text: *Matrix Analysis and Applied Linear Algebra*, Carl D. Meyer

Text website: [www.MatrixAnalysis.com](http://www.MatrixAnalysis.com)

**Course Description:** Factorization of matrices, eigenvalues and eigenvectors, orthogonality, optimization problems. Applications of matrices to such topics as least-squares approximation, difference and differential equations, and others as time allows.

How much we can cover will depend to some extent on the backgrounds of the students. A certain amount of theory will be necessary beyond what is covered in MAT 331 or 485, but it will be in the service of the applications. Furthermore, we will pay attention to computational issues and practical limitations that would normally be ignored in a pure linear algebra course.

I expect to cover the first five chapters of the text, with some omissions. Hopefully much of chapters 1–3 can be reviewed quickly.

**Prerequisite:** MAT 331 or MAT 485.

**Grading:** I will use the following scheme to compute your grade:

Homework: 25%

Hour exams: 2@ 25% each

Final exam: 25%

**Homework:** Homework will generally be assigned and collected in every class meeting. You are free to work with other people in the class, but should turn in your solutions in your own handwriting. Some assignments may involve the use of Matlab (available at SU computer clusters), but no prior familiarity with software is expected.

**Hour exams:** There will be two hour-long exams during the semester, given in lecture.

Exam 1: Thursday 28 February

Exam 2: Thursday 18 April

Any changes to this schedule will be announced in class.

**Final exam:** Friday 3 May 2019, 10:15am–12:15pm. This is the only time the final will be given. It will be cumulative.

**Students with Disabilities:** If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), [disabilityservices.syr.edu](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. You are also welcome to contact me privately to discuss your academic needs although I cannot arrange for disability-related accommodations.

**Academic Integrity:** 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 [academicintegrity.syr.edu/](http://academicintegrity.syr.edu/).

**Religious Observances Policy:** Syracuse University's religious observances policy, found at [http://supolicies.syr.edu/emp\\_ben/religious\\_observance.htm](http://supolicies.syr.edu/emp_ben/religious_observance.htm), 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 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.

**Ground Rules:** It is absolutely essential that everyone in this class behave respectfully to others, both in and out of the classroom. If you ever feel uncomfortable with comments from another student or from me, please let me know as soon as possible and we will find a solution. *I absolutely do not tolerate bullying or bigotry of any kind in my classroom.* Slurs or derogatory language (racial, ethnic, gender, religious, sexual orientation, or other) will result in you being asked to leave class immediately and will be resolved according to the University guidelines for resolution of discrimination and harassment.