

MAT 532 — APPLIED LINEAR ALGEBRA FALL 2013

Instructor: Professor Graham Leuschke

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Lecture: TR 12:30–1:50, Carnegie 311

Office hours: MW 10:30–12:00, TR 2:30–4:00, by appointment, and any time my door is open

Text: *Applied Linear Algebra*, by Peter J. Olver and Chehrzad Shakiban.

Pearson Prentice Hall, ISBN 0-13-147382-4

Text website: www.math.umn.edu/~olver/ala.html

Course webpage: leuschke.org/teaching/MAT-532-fall-2013/

Course Description: Factorization of matrices, eigenvalues and eigenvectors, orthogonality, optimization problems. Applications of matrices to such topics as least-squares approximation, fast Fourier transform, difference and differential equations, linear programming, networks, game theory.

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 six chapters of the text, with some omissions, and if time allows we will cover part of Chapter 8 as well.. Hopefully much of chapters 1 and 2 can be reviewed quickly.

Prerequisite: MAT 331, MAT 485, or graduate standing.

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 weekly. You are free to work with other people in the class, but should turn in your solutions in your own handwriting.

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

Exam 1: Thursday 3 October

Exam 2: Thursday 31 October

Any changes to this schedule will be announced in class and on the course webpage.

Final exam: Tuesday 10 December, 5:15pm–7:15pm (“exam period 6”). The final will be cumulative, with an emphasis on the last third of the course.

Course web page: From time to time, interesting or useful information will appear on [the course web page](#). You should make a habit of checking it regularly (and remind me if I forget to update it).

Students with Disabilities: If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), 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/.

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