

Math 317 Theory of Linear Algebra Spring 2005

Text: Andrilli & Hecker, Elementary Linear Algebra, 3rd Ed.

Class hours and room: MTRF, 10:00 – 10:50 am; Carver 008.

Instructor: R.J.Gregorac (Office: Carver 486, Phone: 294-8167)

Office Hours: MTRF 11:00 – 11:50, M 2-3 (Others by appointment)

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Course content: This course emphasizes the reading and writing of mathematical proofs in addition to the content of linear algebra. Linear Algebra topics include vectors & matrices, systems of linear equations, determinants, eigenvalues/eigenvectors, vector spaces, linear transformations, orthogonality and inner product spaces. Most of Chapters 1–7 of the text will be covered.

Tentative Course Schedule and Homework Problems

Chapters	Topics	Hrs.	Homework problems
Ch. 1	Vectors and Matrices	5-6	1.1 1ab, 3ab, 4ab, 5ab, 6ab, 7acf 1.2 1ab, 5, 6, 7, 10, 11c 1.3 5, 6a, 7, 8a, 9, 10a 1.4 1, 2ABCDE, 3ac, 4, 6ab, 8, 10, 11 1.5 1abjk, 2ad, 3ac, 7a, 11(2), 18, 20(AA^T only)
Ch. 2	Systems of Linear Equations	5-6	2.1 1aeg, 2ad, 10 2.2 1, 2ade, 3, 5abc, 6a, 7ab, 9, 11, 12, 13 2.3 2, 3, 4, 8ab, 9ab, 10ab, 15 2.4 1a, 3abe, 4abc, 15a(1), 16, 18, 19
	Exam 1 (Feb. 7)	1	Chapters 1 and 2.
Ch. 3	Determinants and Eigenvalues	5-6	3.1 1abefj, 2ac, 3ac, 5ab, 7 3.2 2abc, 3a, 4a, 5, 7 3.3 2ad, 4a, 5b, 6ab, 7a, 8a, 9abc 3.4 1ac, 2ac, 3abc, 4abcd, 6, 7a, 10, 13, 16, 18, 19, 20
Ch. 4	Finite-Dimensional Vector Spaces	10-12	4.1: 3, 5-8, 12a 14a, 18 4.2 1bcdef, 2abf, 3acd, 4, 6, 7, 11, 15, 18 4.3 1abc, 2ab, 3b, 4, 6, 7, 21, 24 4.4 1,2ab,3abc,5,11ac,12,19,21 4.5 1a, 2, 3, 4bce, 5abc, 7, 12, 13 4.6: 1ab, 2, 3, 4ab, 5, 6, 7a, 18 4.7 1abefhi; 2abc, 14 (assume nonsingular)
	Exam 2 (Mar. 8)	1	Chapters 3 and 4.
Ch. 5	Linear Transformations	9-10	5.1 1abcfehgijl, 2, 7, 14, 16, 23, 31 5.2 2abcd, 3abc, 7a, 9a, 15, 17, 21 5.3 1, 2ac,3abcd, 4ab, 5, 7, 8, 13, 16 5.5 2bcd, 7, 10, 14
Ch. 6	Orthogonality	5-6	6.1 1abcd, 2ac, 3, 4ac, 5a, 11, 12 6.2 2, 4abc, 5, 11, 12
	Exam 3 (Apr. 12)	1	Chapters 5 and 6.
Ch. 7	Inner Product Spaces	3	7.1 1abc, 3abcd, 5, 6a, 8 7.5 1, 2, 5a, 6, 7a, 10, 14, 19, 20, 23

Grading policy: Final course grade will be solely based on the performance on exams and homework. The weights are:

three hourly examinations (100 points each)
final examination (125 points) and
homework and/or quizzes(140 points).

The following grading scale will be used:

D-/D+: 49-59%, C-/C+: 60 - 71%, B-/B+: 72 - 84%, A-/A: 85 - 100 %.

About exams: The hourly in-class exams will be given:

Exam 1: Monday, February 7

Exam 2: Tuesday, March 8

Exam 3: Tuesday, April 12.

If you need to miss an exam due to a foreseeable approved excuse (e.g. athletic trip) you need to arrange this with me preferably one week ahead, but at least one class period before the exam. For unforeseen excuses, (e.g. illness), you need to notify me of the reason for missing the exam as soon as possible. Students missing an exam with an approved excuse will have the results from their comprehensive final weighted more heavily in determination of their final grade, with an emphasis on the material pertaining to the missed test. Approved excuses include University sanctioned activities, any illness serious enough to require a visit to a doctor, or inclement weather sufficient to close the public schools. No make-up exams will be given.

Homework credit: Homework will be assigned daily from the set of homework problems listed on the syllabus. The assignments given the previous week will be collected at the beginning of class each Tuesday. One proof and one computational problem will be graded. Approximately 12 weekly assignments will be collected; the 10 best scores will be used. Assignments may be submitted early; they will not be accepted late.

About homework problems: These problems will be your measure of how well you mastered the lecture and how up-to-date you are in the course. Always read the section of the text on which problems are assigned unless noted otherwise. When you submit them have them stapled into a packet in order. You are encouraged to study together and to ask questions about the homework that is not to be graded at the beginning of each lecture.

Disability policy: Please address any special needs or special accommodations with me at the beginning of the semester or as soon as you become aware of your needs. (No accommodations will be made retroactively.) Those seeking accommodations based on disabilities should obtain a Student Academic Accommodation Request (SAAR) form from the Disability Resources (DR) office (515-294-6624). DR is located on the main floor of the Student Services Building, Room 1076.

Together let's have an interesting semester!