

Linear Algebra: V63.0140-4

Instructor: Frank E. Curtis, PhD

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Textbook: David C. Lay, *Linear Algebra and Its Applications*, Third Edition

Lecture: Tuesdays and Thursdays, 6:20-8:00pm, Silver 504

Office Hours: Tuesdays and Thursdays, 2:00-3:00pm, Warren Weaver Hall, Room 424

Topics: systems of linear equations, matrix algebra, solutions of linear equations, vectors spaces, eigenpairs, transformations and projections, quadratic forms, etc.

Grading: The course grade will consist of homework (15%), two quizzes (15% each), a midterm (25%), and a final (30%). Homework will be assigned (almost) every Thursday, posted on Blackboard, and due at the beginning of the following Thursday's class. It must be submitted in class; it will NOT be accepted if placed in my mailbox or, for example, slid under my office door. Homework will not be accepted after class begins. Homework can be worked on with a partner, but must be written up individually. Quizzes will be given during class hours; the first will be given approximately a quarter of the way through the course and the second will be given approximately three-quarters of the way through the course. The date/location/time of the final will be confirmed later on in the semester.

Calculators: The nature of the course material is such that for homeworks, quizzes, and exams, you will be required to show your work in detail. Thus, calculators are a useful tool for checking your results on some homework problems, but they are certainly not necessary, and out of fairness they will not be allowed during quizzes and exams.

Class Attendance: You are responsible for knowing the material as we cover it. Class attendance is highly recommended, as is reading the chapters before class.

| Week | Lecture Dates | Reading | Topics |
|------|---------------|--------------|--|
| 1 | 9/2, 9/4 | 1.1-1.3 | linear equations, vector equations |
| 2 | 9/9, 9/11 | 1.4-1.7 | matrices, linear independence |
| 3 | 9/16, 9/18 | 1.8-1.9 | Linear transformations, applications |
| 4 | 9/23, 9/25 | 2.1-2.4 | inverses |
| 5 | 9/30, 10/2 | 2.5-2.8 | factorizations, iterative methods |
| 6 | 10/7, 10/9 | 3.1-3.3 | determinants |
| 7 | 10/14, 10/16 | | review and midterm |
| 8 | 10/21, 10/23 | 4.1-4.4 | vector spaces, bases, coordinate systems |
| 9 | 10/28, 10/30 | 4.5-4.8 | dimension, rank, change of basis |
| 10 | 11/4, 11/6 | 4.9-5.3 | eigenvalues, eigenvectors |
| 11 | 11/11, 11/13 | 5.4-5.6 | eigenvalue applications |
| 12 | 11/18, 11/20 | 6.1-6.3 | inner products, orthogonal projections |
| 13 | 11/25, 11/27 | 6.4-6.8, 7.1 | Gram-Schmidt process, symmetric matrices |
| 14 | 12/2, 12/4 | 7.2-7.3 | quadratic forms |
| 15 | 12/9, 12/11 | | review |
| 16 | 12/18(?) | | final exam |