

MATH 350 GENERAL INFORMATION SECTION 01

Contact

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Class Meeting: MTh2: 10:20–11:40, SERC-220

Office hours: MTh 12:00- 1:00, or by arrangement. In my office.

Final Exam: TBA

Text: Linear Algebra. Spence, Insel, & Friedberg, Prentice-Hall. (ISBN # 0-13-008451-4)

Section Web page: <http://www.math.rutgers.edu/~vasconce/courses/>

General Web page: <http://www.math.rutgers.edu/courses/350/>

Text Webpage: <http://cwx.prenhall.com/bookbind/pubbooks/spence/>

SPECIAL ANNOUNCEMENTS

ABOUT THE CLASS

Course Catalogue Description. 01:640:350 LINEAR ALGEBRA (01).

Continuation of 01:640:250. Abstract vector spaces and linear transformations, inner product spaces, diagonalization, and canonical forms. Possible additional topics: systems of ordinary differential equations and numerical techniques.

Prerequisites: CALC4, 01:640:250, and 300, or permission of department.

Exams: There will be two mid-term exams and a cumulative final. The final will count 200 points. Each midterm will count 100. They will be closed book exams and student-prepared formula sheets will not be permitted. There will be several quizzes for a total count of 100. Missing one exam will result as immediate failure for the class.

Quizzes and Homework: Homework problems are assigned for each section. Students are expected to work on the problems for a particular lecture prior to the class devoted to that material. Homework will not be collected. However, there will

be several quizzes consisting of two or three problems similar to the homework problems. The quizzes will count 100 points toward the term grade.

Make-up exams/quizzes policy: There will be no make-up quizzes or exams, except in case of documented emergency.

Attendance: I will record attendance each class, but it will not count for the final grade.

In summary, here are the components of the term grade with their maximum possible points:

Component Points

Hour Exams 200

Final 200

Quizzes 100

MATH 350: Linear Algebra: Topics of Individual Lectures.

This is a tentative syllabus. The actual topics covered in class may change a little.

Please note that the official day of the midterms will be announced in class.

| Lecture | Reading | Topics |
|---------|---------------------|---|
| 1 | 1.1, 1.2, 1.3 | Vector Spaces, Subspaces |
| 2 | 1.3, 1.4 | Systems of Linear Equations, Linear Dep/Indep |
| 3 | 1.5, 1.6 | Bases, Dimension |
| 4 | 1.6 | Bases (cont.) |
| 5 | 2.1 | Linear Transformations |
| 6 | 2.2 | Matrix Representations |
| 7 | 2.3 | Matrix Algebra |
| 8 | 2.4 | Invertibility and Isomorphisms |
| 9 | 2.5 | Change of Coordinates |
| 10 | 3.1, 3.2 | Elementary Matrices and Rank of a Matrix |
| 11 | Midterm Exam #1 | TBA |
| 12 | 3.3 | Systems of Linear Equations (I) |
| 13 | 3.4 | Systems of Linear Equations (II) |
| 14 | 4.1 | Multilinear Algebra, Determinants |
| 15 | 4.2 | Properties of Determinants |
| 16 | 5.1 | Eigenvalues and Eigenvectors |
| 17 | 5.2 | Diagonalization of a Matrix |
| 18 | 5.4 | Invariant Subspaces |
| 19 | 6.1 | Inner Products |
| 20 | 6.2 | Orthogonalization |
| 21 | Midterm Exam # 2 | TBA |
| 22 | 6.3 | Adjoint of a Linear Operator |
| 23 | 6.4 | Normal and Self-Adjoint Operators |
| 24 | 6.5 | Unitary and Orthogonal Operators |
| 25 | 6.6 | The Spectral Theorem |
| 26 | 7.1 | Jordan Canonical Form (I) |
| 27 | 7.2 | Jordan Canonical Form (II) |
| 28 | Catch up and review | |
| | Final Exam | TBA |