

Mathematics 205 A&B - Linear Algebra - Winter 2006

Instructor: Caleb Shor, 205 Hathorn, cshor@bates.edu, x6403.

Office Hours: M 12-1, W 11-12, R 3-4, and by appointment.

Text: Linear Algebra and its Applications, 3rd Edition Update, by David C. Lay. (ISBN 0-321-28713-4)

Course Webpage: <http://abacus.bates.edu/~cshor/winter06/ma205/>

In-Class Exams: Friday, February 3 and Friday, March 10.

Final Exam: Monday, April 10, at 3:45pm.

Note: If you have a conflict with an exam, notify me at least one week beforehand so that we can arrange for you to take it at an earlier date.

Homework: Homework is assigned daily and discussed during the following class. Homework will generally be collected on Fridays. The homework must be submitted to me in class or in my office by 5pm. Assignments and due-dates may be found on the course website.

Since the course material is continually building upon itself, it is very important to keep up with the homework. I strongly encourage you to work with other students on the homework assignments, as it can be quite valuable. However, you must write up the solutions on your own.

Exams: Note the dates of the in-class exams and the final exam above. The in-class exams will not be cumulative. The final exam will be cumulative, but it will focus more on material covered after the in-class exams.

Review Materials: Pre-exam review sheets, copies of old exams and quizzes, and other study tools are online at <http://abacus.bates.edu/~etowne/mathresources.html>

Grading: Grading for this course is given by:

Homework	25%
Exam 1	22.5%
Exam 2	22.5%
Final Exam	30%

Course schedule:

Week starting	Sections covered
Jan 2 (WF only)	1.1: Systems of Linear Equations 1.2: Row Reduction and Echelon Forms
Jan 9	1.3: Vector Equations 1.4: The Matrix Equation $A\mathbf{x} = \mathbf{b}$ 1.5: Solution Sets of Linear Systems
Jan 16 (WF only)	1.7: Linear Independence 1.8: Linear Transformations
Jan 23	1.9: The Matrix of a Linear Transformation 2.1: Matrix Operations 2.2: Inverse of a Matrix
Jan 30	2.3: Characterizations of Invertible Matrices 2.8: Subspaces of \mathbb{R}^n Exam 1, Friday, February 3
Feb 6	2.9: Dimension and Rank 4.1: Vector Spaces and Subspaces 4.2: Null Spaces, Column Spaces, Linear Transformations
Feb 13	4.3: Linearly Independent Sets; Bases 4.4: Coordinate Systems 4.5: Dimension of a Vector Space
Feb 20	Break Week
Feb 27	4.6: Rank 3.1: Introduction to Determinants 3.2: Properties of Determinants
Mar 6	5.1: Eigenvectors and Eigenvalues 5.2: The Characteristic Equation Exam 2, Friday, March 10
Mar 13	5.3: Diagonalization 5.4: Eigenvectors and Linear Transformations 6.1: Inner Product, Length, Orthogonality
Mar 20	6.2: Orthogonal Sets 6.3: Orthogonal Projections 6.4: Gram-Schmidt Process
Mar 27	6.5: Least-Squares Problems 7.1: Diagonalization of Symmetric Matrices 7.2: Quadratic Forms
Apr 3 (M only)	TBD
Apr 10 (M)	Final Exam, 3:45PM, Monday, April 10