Math 250: Introductory Linear Algebra (see the syllabus on back)

Course: Math 250, Fall 1999, 01:640:25986:13

Meetings: 9/1 – 12/9, Monday and Thursday, 8:10-9:30 AM, WAL-210

Instructor: Chris Woodward, ctw@math.rutgers.edu, Asst. Prof. in Mathematics, Hill 336.

Office Hours: Thursday, Chem 207C, 11:20-12:20 or individually by e-mail. You can also e-mail questions to Lori or to me. If I think that other people might have the same question, I will forward the message and my response to the entire class, unless you ask me not to in the message.

Web Page: www.math.rutgers.edu/ ctw/250.html

Roster: Please e-mail me as soon as possible with a message that includes the following information. Please specify if you do not want this information made available to other member of the class: Your name, phone, dorm, possible major, year, and reason for taking 250. On Thursday 9/9 I would like you to bring a photo, labelled with your name, to help me recognize you.

Calculators: Calculators which perform row-reduction, calculate determinants etc. are not allowed. Other calculators may be used on exams.

Text: *Linear Algebra* (3rd edition), by Fraleigh and Beauregard, (Addison and Wesley, 1995). You are required to have this book for the class. I also recommend *Linear Algebra With Applications* by Otto Brettscher (Prentice-Hall, 1997).

Syllabus: See the back of this page.

Homework: Homework problems for each section are listed on the syllabus. Late homework will not be accepted. Homework assignments for the previous Thursday and Monday will usually be due on the following Thursday in class. Problems in bold should be turned in to be graded. You may be asked to present a problem to the class from time to time. Together with the first assignment I would like you to bring a photo, labelled with your name, to help me recognize you.

Examinations: There will be two 80-minute examinations given during the course and one 180-minute final examination. See the syllabus on the back for the dates and times of the exams.

Attendance: Attendance is required. After the first two absences, prior written excuses will be required. More than two inexcused absences may count against your grade.

Make-Up Exams: Absences on examinations must be cleared a week in advance, otherwise makeups will not be given. In the event of an unforseen emergency resulting in an absence for an examination, full documentation will be needed.

Final Grade: 40% for the final exam, 20% for each short exam, and 20% for quizzes and any graded homeworks. In the case of borderline grades, consistent attendence, consistent quiz scores, and improving grade trends will count favorably.

Preparation and Study: Before each class meeeting you are expected to read the sections in the book that will be covered. For each examination and quiz you are responsible for all material covered in the book, in lecture, and in the homework.

Math 250: Syllabus (from Fraleigh & Beauregard's *Linear Algebra*)

Date	**Lect.**	**Sect.**	**Topics**	**Problems**
Thurs 9/2	1	- 1.1	Introduction and Motivation Vectors in Euclidean Spaces	 1,3,8,11,15,23,27,39(f,h) + photo
Thurs 9/9	2	1.2	The Norm and the Dot Product	1,5,7,11,13,17,25,33,44
Monday 9/13	3	1.3	Matrices and Their Algebra	6,12,15,17,19,21(c,e)28,29,32,38,39
Thurs 9/16	4	1.4	Solving Systems of Linear Equations	1,5,7,11,12,13,19,21,24,27,29(a,c),31,35,40,43
Mon 9/20	5	1.4	Continued	
Thurs 9/23	6	1.5	Inverses of Square Matrices	1,5,9,11,13,16,24,26,29,30,33
Mon 9/27	7	1.6	Homogeneous Systems, Subspaces, and Bases	1,3,5,7,9,16,19,22,27,32,44,47
Thurs 9/30	8	2.1	Independence and Dimension	4,8,10,14,18,20,24,26,28,30,32,34,36,38
Mon 10/4	9	2.2	The Rank of a Matrix	2,6,10,11,12,14,18,20,22
Thurs 10/7	10	2.3	Linear Transformations of Euclidean Spaces	2,4,6,10,12,14,18,22,26,29,30,32,34
Mon 10/11	11	-	Review Chapters 1-2	
Thu 10/14		-	**EXAM 1 8:10-9:30**	
Mon 10/18	12	4.1	Areas, Volumes, and Cross Products	4,6,8,10,12,14,18,19,20,24,28,32,34,38,46,54
Thu 10/21	13	4.2	The Determinant of a Square Matrix	4,6,8,12,13,16,18,21,24,26,32
Mon 10/25	14	4.3	Computing Determinants and Cramer's Rule	2,6,8,10,12,14,18,20,26,28,30,35,36,38
Thu 10/28	15	3.1	Vector Spaces	1,3,5,7,9,11,13,16,21,23,25
Mon 11/1	16	3.2	Basic Concepts of Vector Spaces	1,2,3,5,9,11,13,17,18,20,22,24,27,32
Thu 11/4	17	3.3	Coordinatization of Vectors	1,3,7,11,21
Mon 11/8	18	3.4	Linear Transformations	1,3,6,7,8,16,19,21,36,39,43,44,48
Thu 11/11	19	5.1	Eigenvalues and Eigenvectors	1,3,5,9,13,17,20,24,25,26,30,38,41,44
Mon 11/15	20	5.1	Continued	
Thurs 11/18	21	5.2 5.3	Diagonalization Two Applications	1,5,9,10,11,15,16,17,18,25,26 -
Mon 11/22		-	**EXAM 2 8:10-9:30**	
Mon 11/29	22	6.1	Projections	2,4,6,10,12,14,16,20,23,24,28,29,30,34,36
Thu 12/2	23	6.2	The Gram-Schmidt Process	2,4,7,8,9,12,16,20,24,25,26,27,30
Mon 12/6	24	6.3	Orthogonal Matrices	2,4,6,10,12,14,16,19,20,22,24,26,30,32,34,40
Thu 12/9	25		Catch-Up as Needed	
Wed 12/15			**FINAL EXAM 8:00-11:00 am**	