

MATH 211 L09.  
T. Th. 11:00-12:15

Winter 2010

**Instructor:** Jędrzej Śniatycki, MS 320. Office hours (**by appointment**):

**Text:** Keith Nicholson, Elementary Linear Algebra, McGraw-Hill, Second Edition.

**Assignments:** 10 webwork homework assignments. Each webwork assignment counts for 1% of the final grade.

**Quizzes:** Three 30 min. quizzes written in the labs. Each quiz counts for 8% of the final grade.

**Quiz 1: Matrices and Linear Equations**, Oct. 4-5.

**Quiz 2. Determinants and Matrix Inversion**, Oct. 25 -26.

**Quiz 3: Complex Numbers**, Nov. 29 - 30.

**Midterm test:** One 75-minute term tests written during the lecture time on Tuesday, November 9. The test is on the material covered till Tuesday, October 26, It will cover the material of Chapter 1 and Sections 1, 2. and 3 in Chapter 2. The Midterm will count for 16% of the final grade.

**Final Exam (3 hours)** scheduled by the Registrar. Credit: 50%

**Detailed Lecture Schedule**

**September**

<b>Day</b>	<b>Date</b>	<b>Section</b>	<b>Topics</b>
Tuesday	Sept. 14	Sec. <b>1.2</b>	System of linear equations
Thursday	Sept. 16	Sec. <b>1.2</b>	Gaussian elimination, Rank
Tuesday	Sept. 21	Sec. <b>1.3</b>	Homogeneous systems
Thursday	Sept. 23	Sec. <b>1.1 &amp; 1.4.1-2</b>	Matrices
Tuesday	Sept. 28	Sec. <b>1.4.3-1.4.4</b>	Matrices and linear equations
Thursday	Sept. 30	Sec. <b>1.5.1 - 1.5.2</b>	Matrix Inverses

## October

Day	Date	Section	Topics
Tuesday	Oct. 5	Sec. <b>1.5.4 - 1.5.5</b>	Matrix inversion
Thursday	Oct. 7	Sec. <b>1.6.1 - 1.6.2</b>	Elementary matrices
Tuesday	Oct. 12	Sec. <b>2.1 &amp; 2.2.1</b>	Determinants
Thursday	Oct. 14	Sec. <b>2.2.2 - 2.2.3</b>	Adjoint of a matrix - Cramer's rule
Tuesday	Oct. 19	Sec. <b>2.3.1</b>	Population dynamics
Thursday	Oct. 21	Sec. <b>2.3.1 - 2.3.2</b>	Eigenvalues and eigenvectors
Tuesday	Oct. 26	Sec. <b>2.3.3</b>	Diagonalization
Thursday	Oct. 28	Sec. <b>2.5.1 - 2.5.3</b>	Complex numbers

## November-December

Day	Date	Section	Topics
Tuesday	Nov. 2	Sec. <b>2.5.4 - 2.5.5</b>	Complex algebra
Thursday	Nov. 4	Sec. <b>2.5.6</b>	Polar Form
Tuesday	Nov. 9	<b>Sec. 3.1</b>	Geometric vectors
Thursday	Nov. 11	<b>Reading Day</b>	<b>no class</b>
Tuesday	Nov. 16		<b>MIDTERM (in class)</b>
Thursday	Nov. 18	Sec. <b>3.2</b>	Dot product - Projections
Tuesday	Nov. 23	Sec. <b>3.3.1 - 3.3.2</b>	Lines
Thursday	Nov. 25	Sec. <b>3.3.3</b>	Planes
Tuesday	Nov. 30	Sec. <b>3.3.4 - 3.5</b>	Cross product
Thursday	Dec. 2	Sec. <b>3.4.1 - 3.4.2</b>	Transformations
Tuesday	Dec. 7	Sec. <b>3.4.3</b>	Effect on the unit square
Thursday	Dec. 9	Sec. <b>3.4.4 - 3.4.5</b>	Composition and inverse

## Webwork Assignments

#	Assignment Name	Open	Due
1	Gaussian Elimination	Monday, Sept. 13	Wednesday, Sept. 29
2	Matrix Multiplication	Monday, Sept. 20	Wednesday, Oct. 06
3	Matrix Inversion	Monday, Sept. 27	Wednesday, Oct. 13
4	Elementary Matrices	Monday, Oct. 04	Wednesday, Oct. 27
5	Determinants	Monday, Oct. 11	Wednesday, Oct. 27
6	Diagonalization	Monday, Oct. 18	Wednesday, Nov. 10
7	Complex Numbers	Monday, Oct. 25	Wednesday, Nov. 10
8	Vectors and Lines	Monday, Nov. 08	Wednesday, Dec. 01
9	Lines and Planes	Monday, Nov. 15	Wednesday, Dec. 08
10	Transformations	Monday, Nov. 29	Wednesday, Dec. 15

### Detailed Lab Schedule:

Dates	Webwork Problems	Topics to do in class
Sep. 13-14	No Labs	
Sep. 20-21	Assignment 1: Gaussian elimination	A complete analysis of systems of 2 equations with 2 unknowns, text pp.19-20.
Sep. 27-28	Assignment 2: Matrix multiplication	Discuss assignment problems
Oct. 4-5	<b>Quiz 1: Matrices and Linear Equations</b>	
Oct. 12	Assignment 3 Matrix inversion open: Sept. 27 - Oct. 13	Return marked quiz Discuss solutions Discuss assignment problems
Oct. 18-19	Assignment 3: Matrix inversion Assignment 4: Elementary matrices Assignment 5: Determinants	Return marked quiz Discuss solutions Discuss assignment problems
Oct. 25 -26	<b>Quiz 2. Determinants and Matrix Inversion</b>	
Nov. 1 - 2	Assignment 6: Diagonalization Assignment 7: Complex numbers	Return marked quiz Discuss solutions Discuss assignment problems
Nov. 8 - 9		Review for Midterm
Nov 15 -16	Assignment 8 Vectors and lines open: Nov.8 - Dec. 01	Discuss assignment problems
Nov. 22-23	Assignment 9 Lines and planes open: Nov. 15 - Dec 08	Discuss assignment problems
Nov. 29 - 30	<b>Quiz 3: Complex Numbers</b>	
April 12-13	Assignment 10 Transformations open: Nov. 29 - Dec. 15	Return marked quiz Discuss solutions Discuss assignment problems