UNIVERSITY OF
CALGARY

Faculty of Science
DEPARTMENT OF MATHEMATICS and STATISTICS
Course Information Sheets

1. Course: MATH 221 – Linear Algebra for Scientists & Engineers   FALL 2004
   Lecture/Time/Session: L06/L14   TR   9:30 (Duration: 75 minutes)   Room: ST 141
   Instructor(s):   Dr. J. Sniatycki
   Office: MS 420   Phone: 220-3957

2. Prerequisite(s):   A grade of 70% or higher in Mathematics 30 or Pure Mathematics 30.
   Co-requisite(s):   None
   NOTE: The Faculty of Science policy on pre- or co-requisite checking is outlined in the current University
   Calendar (see www.ucalgary.ca/pubs/calendar) Faculty of Science, section 5C.. **It is the students'
   responsibility to ensure that they have the pre- and/or co-requisites for the course, and if they do not
   they will be withdrawn from the course without further notice.**

3. **Fee Policy**: After the last day to drop/add courses, there will be no refund of tuition fees if a
   student withdraws from a course, courses or the session.

4. **The University policy on grading and related matters** is described in the current
   University Calendar, Academic Standings. In determining the overall grade in the course,
   the following weights will be used:

Mid-term Test	[1]	20%
Quizzes	[6]	30%
Final Exam		50%

   A passing grade on any particular component of the courses is essential to passing the
   course as a whole. There will be a final examination scheduled by the Registrar's Office.
   The use of aids such as open book, etc. is not permitted.

5. **Missed Components of Term Work**. The regulations of the Faculty of Science pertaining
   to this matter are outlined in the current University Calendar, Faculty of Science, section
   6A. It is the student's responsibility to familiarize herself/himself with these regulations.

6. **Academic misconduct** (cheating, plagiarism, or any other form) is a very serious offence
   that will be dealt with rigorously in all cases. A single offence may lead to disciplinary
   probation or suspension or expulsion. The Faculty of Science follows a zero tolerance
   policy regarding dishonesty. Please read the sections of the current University Calendar.

7. **Dates and times of class exercises held outside of class hours** (evening test, Saturday
   laboratory examinations, week end field trips, etc.):There will be no out-of-class-time
   activities.

MATH 221 L06/14 Fall 2004

Instructor: Jędrzej Śniatycki, MS 420. Office hours: by appointment.

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

Quizzes: There will be 6 quizzes given in labs. Credit of 30% will be given for 5 best quizzes.

Detailed Lecture Schedule

Day	Date	Topic	Chapter
Thursday	Sep. 09	Linear equations	1.2.1-1.2.2
Tuesday	Sep. 14	Gaussian elimination,	1.2.3
Thursday	Sep. 16	Rank	1.2.4
Tuesday	Sep. 21	Homogeneous systems	1.3
Thursday	Sep. 23	Matrix algebra	1.1, 1.4.1-1.4.2
Tuesday	Sep. 28	Matrix algebra	1.4.3-1.4.4
Thursday	Sep. 30	Matrix inverses	1.5.1-1.5.2
Tuesday	Oct. 05	Matrix inverses	1.5.3-1.5.5
Thursday	Oct. 07	Determinants	2.1.1-2.1.2
Tuesday	Oct. 12	Determinants	2.2.1-2.2.3
Thursday	Oct. 14	Eigenvectors	2.3.2
Tuesday	Oct. 19	Diagonalization	2.3.3
Thursday	Oct. 21	Diagonalization	2.3.3
Tuesday	Oct. 26	Complex numbers	2.5.1-2.5.2
Thursday	Oct. 28	Complex algebra	2.5.3-2.5.5
Tuesday	Nov. 02	Polar form	2.5.6
Thursday	Nov. 04	Review	
Tuesday	Nov. 09	**MIDTERM (in class)**	
Thursday	Nov. 11	**Reading day**	
Tuesday	Nov. 16	Geometric vectors	3.1
Thursday	Nov. 18	Matrix form	3.1
Tuesday	Nov. 23	Dot product	3.2.1-3.2.3
Thursday	Nov. 25	Lines and planes	3.3.1-3.3.3
Tuesday	Nov. 30	Cross product	3.3.4 and 3.5
Thursday	Dec. 02	Transformations	3.4.1-3.4.3
Tuesday	Dec. 07	Composition	3.4.4-3.4.5
Thursday	Dec. 09	Review	

Labs, Recommended Problems and Quizzes

Labs will begin in the second week of classes, September 13-17. Recommended problems, taken from the exercise sections of the text, should be attempted by students **before** the following lab. During each lab, the Instructor will answer questions about recommended problems, solve some problems on the blackboard and administers the quizz, if one is scheduled.

Students are ecouraged to do all the problems in the relevant section of the text.

Lab date		Recommended problems for the following week
		1.2: 1, 3, 4, 7, 8, 9, 12, 13
Sep. 16		**1.2:** 6, 10, 14, **1.3:** 1, 2, 3, 4, 6, 7, 8.
Sep. 23	Quiz 1	$\left\{\begin{array}{l}\textbf{1.1}: 4, 5, 6, 7, 8,\\ \textbf{1.4}: 1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 13, 15, 19, 20, 22, 24, 25.\end{array}\right\}$
Sep. 30		**1.5**: 1, 2, 4, 5, 6, 7, 8, 9, 12, 13, 15, 16, 18, 20, 22, 23 24, 28.
Oct. 07	Quiz 2	**2.1**: 1, 3, 5, 8, 11, 12, 14, 15, **2.2**: 4, 5, 6, 7, 8, 10, 11, 12 14, 15.
Oct. 14		**2.3**: 1, 2, 3, 4, 5, 6,
Oct. 21	Quiz 3	**2.3**: 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20.
Oct. 28		**2.5**: 1, 2, 3, 4, 5, 7, 8.
Nov. 04	Quiz 4	**2.5**: 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23 24, 25, 26.
Nov. 18		**3.1**: 1, 2, 3, 4, 5, 10.
Nov. 25	Quiz 5	$\left\{\begin{array}{l}\textbf{3.2}: 1, 2, 3, 4, 7, 8, 9, 10, 16, \textbf{3.5}: 1, 3, 4, 5, 6,\\ \textbf{3.3}: 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16.\end{array}\right\}$
Dec. 02		**3.4:** 2, 3, 6, 7, 9, 12, 13, 14, 15, 16, 21, 24
Dec. 09	Quiz 6	