



Faculty of Science  
DEPARTMENT OF MATHEMATICS and STATISTICS  
Course Information Sheet

1. Course: MATH 221 – Linear Algebra for Scientists & Engineers FALL 2003  
Lecture/Time/Session: L06 and L14 TR 9:30 (Duration: 75 minutes) Room: ST 141  
Instructor(s): Dr. J. Sniatycki  
Office: MS 420 Phone: 220-3957 Office Hours: by appointment  
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 on page 198, of the 2003-2004 Calendar. It is a student's responsibility to ensure that they have the pre- and/or co-requisites for the course, and if they do not they will be withdrawn from the course without further notice.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 on pages 41-42 of the 2003-2004 Calendar. In determining the overall grade in the course, the following weights will be used:

Mid-term Test(s)	[1]	20%
Quiz(zes)	[Best 5 of 6]	30%
Final Exam		50%

A passing grade on any particular component of the course 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 on page 199, of the 2003-2004 Calendar. 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 2003-2004 University Calendar under the heading "Student Misconduct", pages 53-56.
7. **Dates and times of class exercises held outside of class hours** (evening test, Saturday laboratory examinations, week end field trips, etc.): There are no out-of-class-time activities.

SCUM: The Society for Calgary Undergraduate Mathematics is located in MS 337A. They sell exam packages, run final reviews, and can often assist with problems. The office is open from 10am-3pm Monday-Friday, and you are welcome to drop by. We look forward to meeting you!

# MATH 221 L06/14 Fall 2003

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

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

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

## Detailed Lecture Schedule

<b>Day</b>	<b>Date</b>	<b>Topic</b>	<b>Chapter</b>
Tuesday	Sep. 09	Linear equations	1.2.1-1.2.2
Thursday	Sep. 11	Gaussian elimination,	1.2.3
Tuesday	Sep. 16	Rank	1.2.4
Thursday	Sep. 18	Homogeneous systems	1.3
Tuesday	Sep. 23	Matrix algebra	1.1, 1.4.1-1.4.2
Thursday	Sep. 24	Matrix algebra	1.4.3-1.4.4
Tuesday	Sep. 30	Matrix inverses	1.5.1-1.5.2
Thursday	Oct. 02	Matrix inverses	1.5.3-1.5.5
Tuesday	Oct. 07	Determinants	2.1.1-2.1.2
Thursday	Oct. 09	Determinants	2.2.1-2.2.3
Tuesday	Oct. 14	Eigenvectors	2.3.2
Thursday	Oct. 16	Diagonalization	2.3.3
Tuesday	Oct. 21	Complex numbers	2.5.1-2.5.2
Thursday	Oct. 23	Complex algebra	2.5.3-2.5.5
Tuesday	Oct. 28	Polar form	2.5.6
Thursday	Oct. 30	Review	
Tuesday	Nov. 04	<b>MIDTERM</b>	
Thursday	Nov. 06	Geometric vectors	3.1
Tuesday	Nov. 11	<b>Reading day</b>	
Thursday	Nov. 13	Matrix form	3.1
Tuesday	Nov. 18	Dot product	3.2.1-3.2.3
Thursday	Nov. 20	Lines and planes	3.3.1-3.3.3
Tuesday	Nov. 25	Cross product	$\left\{ \begin{array}{l} 3.4 \text{ in First Edition} \\ 3.3.4 \text{ and } 3.5 \text{ in Second Ed.} \end{array} \right\}$
Thursday	Nov. 27	Transformations	
Tuesday	Dec. 02	Composition	$\left\{ \begin{array}{l} 3.5.1-3.5.3 \text{ in First Edition} \\ 3.4.1-3.4.3 \text{ in Second Ed.} \end{array} \right\}$
Thursday	Dec. 04	Review	

## Recommended Problems and Quizzes

Recommended problems, taken from the exercise sections of the text, should be solved by students before the following lab. Students are encouraged to do all problems from the relevant section of the text. 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.

<b>Date</b>	<b>Labs</b>	<b>Recommended Problems</b>			
Sep. 11		<b>1.2:</b> 1, 3, 4, 7, 8, 9, 12, 13.			
Sep. 18	Quiz 1	<b>1.2:</b> 6, 10, 14, <b>1.3:</b> 1, 2, 3, 4, 6, 7, 8.			
Sep. 24		<table border="0" style="border-collapse: collapse;"> <tr> <td style="font-size: 3em; vertical-align: middle;">{</td> <td style="padding-left: 10px;"> <b>1.1:</b> 4, 5, 6, 7, 8,  <b>1.4:</b> 1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 13, 15, 19, 20, 22, 24, 25.                 </td> <td style="font-size: 3em; vertical-align: middle;">}</td> </tr> </table>	{	<b>1.1:</b> 4, 5, 6, 7, 8, <b>1.4:</b> 1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 13, 15, 19, 20, 22, 24, 25.	}
{	<b>1.1:</b> 4, 5, 6, 7, 8, <b>1.4:</b> 1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 13, 15, 19, 20, 22, 24, 25.	}			
Oct. 02	Quiz 2	<b>1.5:</b> 1, 2, 4, 5, 6, 7, 8, 9, 12, 13, 15, 16, 18, 20, 22, 23 24, 28.			
Oct. 09		<b>2.1:</b> 1, 3, 5, 8, 11, 12, 14, 15, <b>2.2:</b> 4, 5, 6, 7, 8, 10, 11, 12 14, 15.			
Oct. 16	Quiz 3	<b>2.3:</b> 1, 2, 3, 4, 5, 6,			
Oct. 23		<b>2.3:</b> 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20.			
Oct. 30	Quiz 4	<b>2.5:</b> 1, 2, 3, 4, 5, 7, 8.			
Nov. 06		<b>2.5:</b> 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23 24, 25, 26.			
Nov. 13	Quiz 5	<b>3.1:</b> 1, 2, 3, 4, 5, 10.			
Nov. 20		<b>3.2:</b> 1, 2, 3, 4, 7, 8, 9, 10, 16, <b>3.3:</b> 2, 3, 4, 6, 7, 8, 9, 10.			
Nov. 27	Quiz 6	<table border="0" style="border-collapse: collapse;"> <tr> <td style="font-size: 3em; vertical-align: middle;">{</td> <td style="padding-left: 10px;"> <b>3.4:</b> 1, 2, 4, 5, 6, 7, 8, 9, 10, 12, 13, 18, 19 in First Ed.  <b>3.3:</b> 11, 12, 13, 14, 15, 16, <b>3.5:</b> 1, 3, 4, 5, 6, in Second Ed.                 </td> <td style="font-size: 3em; vertical-align: middle;">}</td> </tr> </table>	{	<b>3.4:</b> 1, 2, 4, 5, 6, 7, 8, 9, 10, 12, 13, 18, 19 in First Ed. <b>3.3:</b> 11, 12, 13, 14, 15, 16, <b>3.5:</b> 1, 3, 4, 5, 6, in Second Ed.	}
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Dec. 04		<table border="0" style="border-collapse: collapse;"> <tr> <td style="font-size: 3em; vertical-align: middle;">{</td> <td style="padding-left: 10px;"> <b>3.5:</b> 2, 3, 6, 7, 9, 12, 13, 14, 15, 16, 21, 24 in First Ed.  <b>3.4:</b> 2, 3, 6, 7, 9, 12, 13, 14, 15, 16, 21, 24 in Second Ed.                 </td> <td style="font-size: 3em; vertical-align: middle;">}</td> </tr> </table>	{	<b>3.5:</b> 2, 3, 6, 7, 9, 12, 13, 14, 15, 16, 21, 24 in First Ed. <b>3.4:</b> 2, 3, 6, 7, 9, 12, 13, 14, 15, 16, 21, 24 in Second Ed.	}
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