



UNIVERSITY OF
CALGARY

Faculty of Science
DEPARTMENT OF MATHEMATICS AND STATISTICS

Course Information Sheet

Course:	MATH 411	Winter 2009
Lecture/Time/Session	L01 M W F	13:00 SA 145
Instructor/e-mail:	Elena Braverman	maelena@math.ucalgary.ca
T01	MS 431	Elena Braverman
T02	ST061	Seyedeh Hosseini
Office/Phone/Hours:	MS 444, 220-3956	
Office Hours:	MWF 14:05-14:45, M 17:05-18:30, W 10:00-11:30	
Course's homepage:	www.math.ucalgary.ca/~maelena/411.html	
Prerequisites:	MATH 311 and one of MATH 353, AMAT 309, MATH 331	

1. 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:

Quizzes	[best 4 of 5]	30 %
Mid-term exam	[one]	20 %
Final exam		50 %

A passing grade on the final exam is necessary to pass the course. There will be a three-hour final examination scheduled by the Registrar's Office. The use of a calculator will be allowed on all tests.

2. The mid-term test will be in class on Friday **February 27**, 2009. There will be five quizzes of approximately 40 minutes durations which will be held on **January 29, February 12, March 12, March 26, April 9**. The best four marks will be used in the assessment.
3. **Recommended textbook:** K. Hoffman and R. Kunze, Linear Algebra, Second edition, or S. Lipschutz and M. Lipson, Schaum's Outline of Linear Algebra.
4. **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.
5. **Note:** The Faculty of Science policy on pre- and co-requisite checking is outlined in the current University Calendar (see www.ucalgary.ca/pubs/calendar), Faculty of Science, section 5C. It is students' responsibility to ensure that they have the prerequisites for the course and if they do not, they will be withdrawn from the course without notice. There are no co-requisites to this course.
6. **Fee policy:** After the last day to drop/add courses (January 23, Friday), there will be no refund of tuition fees if a student withdraws from a course, courses or the session.

7. **Academic Accommodations:** It is student's responsibility to request academic accommodations. A student with a documented disability who may require academic accommodation must register with the Disability Resource Centre to be eligible for formal academic accommodation. DRC registered students are required to discuss their needs with the instructor no later than fourteen (14) days after the start of the course.
8. **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 see: <http://www.ucalgary.ca/honesty>

MATHEMATICS 411

“Linear Spaces with Applications”

Calendar Description: H(3-1T)

Linear operators and matrices. Jordan forms. Eigenvalue problems. Quadratic forms. Applications.

Syllabus

Dates	Topics	Tests
12.01-16.01	Fields, algebras, vector spaces over a field	
19.01-23.01	Linear transformations, matrix representations	
26.01-28.01	Linear functionals	Quiz # 1
30.01-2.02	Polynomials	
4.02-6.02	Characteristic polynomials, similarity	
9.02-13.02	Invariant subspaces, primary decomposition	Quiz # 2
23.02-6.03	Jordan Forms	Midterm
6.03-9.03	Inner product spaces	
11.03-13.03	Adjoint operators	Quiz # 3
16.03-18.03	Unitary, normal operators	
20.03-27.03	Bilinear, quadratic forms	Quiz # 4
30.03-3.04	LU , QR decompositions	
6.04-17.04	SVD, pseudoinverse	Quiz # 5

No classes February 16-20 (reading week), April 10 (Good Friday).