MAT 240F - Algebra I

Course Information

Instructor:	Fiona Murnaghan
Office:	Bahen 6266
Phone:	978-8208
Office Hours:	Tuesday 5-6pm, Wednesday 5-5:30
Textbook:	*Linear Algebra*, Friedberg, Insel and Spence (*fourth edition*) (required)
Note:	Schaum's outline *Linear Algebra* (not required) may contain useful examples
Class Times:	Tuesday 1:10-3, **MP103**; Thursday 1:10-2, **MP202**
Tutorial:	Thursday 2:10-3:30, rooms TBA, starting September 18th
Course web page:	Go to www.math.toronto.edu and click on undergraduate courses; or go to www.math.toronto.edu/murnaghan and click on Mat 240.

Marking Scheme: There will be one term test and a final exam, as well as 7 to 9 problem sets. The course mark will be the maximum of the two numbers Mark 1 and Mark 2.

Mark 1:	25% problem sets, 15% term test, 60% final exam.
Mark 2:	25% problem sets, 30% term test, 45% final exam.

Note regarding missed term tests: A student who misses the term test without providing a valid reason (for example, a doctor's note) within one week of the test will receive a mark of 0 on the term test. There will be no make-up term test. If a student misses the term test for a valid reason, the course mark will be computed as follows: Problem sets: 35%, Final exam: 65%.

Problem set marks: Problem sets will be posted on the course web page. Problem sets will be marked by the TAs and should be handed in to the TA during the tutorial. The problem set mark will be computed as follows. The lowest mark will be dropped, and the percentages on the remaining problem sets will be averaged. All students (including those who join the course late) will receive a mark of 0 on each problem set not handed in. Students are expected to work independently on problem sets. If students hand in solutions which are so similar that one or more must have copied from someone else's solution, 50% of the marks will be deducted.

Tutorial: Starting on Thursday, September 18th, there will be weekly tutorials from 2:10-3:30. LOCATIONS TBA. Problem sets should be handed in during the tutorial.

Test date: The term test will be on Thursday, October 23, 2:10-4 pm. The test location will be posted on the course web page and announced in class.

Course Outline: This course is a theoretical approach to linear transformations on vector spaces over arbitrary fields. Topics include fields (including the real, rational and complex numbers, and integers modulo a prime); vector spaces over fields, subspaces, bases, dimension; linear transformations; matrices; change of basis; similarity; determinants; polynomials over fields; eigenvalues and eigenvectors of linear operators; characteristic polynomial, diagonalization, the Cayley-Hamilton theorem, and (if time permits) minimal polynomials.