Mathematics 2050 **Fall 2017**

Linear Algebra I

Course Website: www.math.mun.ca/˜ou

Instructor: Dr. C.H. Ou, Office HH-3014, Phone 864-8779, Email: ou@mun.ca

Office Hours: Tuesday 10:00am–1:00pm, Thursday 10:00am–1:00pm.

Lectures: Section 1, Slot 04 (MWF 11:00–11:50am), Classroom C2045 .

Text: Linear Algebra: Pure & Applied, by Edgar G. Goodaire
Publisher: World Scientific Publishing (Jan. 1 2013)
ISBN-10: 9814508365, ISBN-13: 978-9814508360
or
Course Notes: Linear Algebra I, by Edgar G. Goodaire
Publisher: Kendall Hunt (2012)

Evaluation: 10% assignments, 30% Term Tests, 60% Final Examination.

Attendance: Attendance may be taken at all lectures.
Students are needed to attend all lectures.

Sep 6 First day of lectures.
Oct. 9 Thanksgiving. No Classes.
Oct 13 **TERM TEST #1.** (held in the classroom).
Nov 10 **TERM TEST #2.** (held in the classroom).
Dec 1 Last day of lectures.
Dec 6 Exams Begin
Dec 15 Exams End

Outline of the Course:

Unit 1: Euclidean n-space

- Vectors and arrows; vector operations; linear combinations
- The span of vectors; the standard basis; linear dependence and independence
- The dot product; lengths and angles; some inequalities
- The equation of a plane; the cross product
- The equation of a line; projections and distances

Unit 2: Matrices and linear equations

- Matrix addition and scalar multiplication; matrix multiplication
- Systems of linear equations; row echelon form
- Homogeneous systems and linear independence
- The inverse of a matrix
- Elementary matrices and LU factorization

Unit 3: Determinants

- Properties of determinants; minors and cofactors
- Using elementary row operations to find determinants

Unit 4: The equation $Ax = \lambda x$

- Eigenvalues and eigenvectors; complex numbers
- Similarity and diagonalization for 2×2 matrices

Evaluation: 10% Assignments, 15% Midterm 1, 15% Midterm 2, 60% Final Exam

Assignments:

- Homework assignments will be announced in class and posted to the course webpage. They must be handed in no later than 5:00pm on the due date. They may be submitted in class or placed in the marking box.

- In general, late assignments will not be marked. If you require accommodation for an exceptional reason, such as severe illness or bereavement, please discuss this with me.

Examinations:

- Two in-class midterm examinations will be given, worth a total of 30% of your final mark.

- The final exam is a 2.5-hour comprehensive test during the formal examination period at the end of the semester. It will cover the entire course and determine 60% of your final mark.

Missed Exams:

- If you must miss an exam for an acceptable reason, you are responsible for providing me with appropriate documentation. For foreseeable circumstances, you must notify me in advance of the exam. In any circumstances, you must notify me no later than 48 hours after the exam.

- No makeup midterms will be allowed; in the event of an excused absence for a midterm exam, the grading scheme will be adjusted to 15% for the other midterm and 75% for the final exam.

- If you miss the final exam for unacceptable reasons, you will receive a final exam mark of zero. Deferred final examinations will be administered by the department.

Academic Misconduct:

- All students are expected to be familiar with University Regulation 6.12 in the MUN Calendar, and these regulations apply to all aspects of the evaluation in this course.

- No notes, textbooks, or other aids are permitted during any examination. No electronic devices (including calculators and cell phones) are allowed at your desk or on your person during any examination. Possession of such a device will be considered an academic offense and shall be reported as such.

Supplementary Exams: Students who have a passing term grade but a final mark of between 45–49F (inclusive) may apply to write a supplementary exam. If you pass the supplementary exam, your final mark will be recalculated using the supplementary exam grade in place of the original final exam grade; however, your new final mark cannot exceed your term grade.