MATH*1160 Syllabus Page (Fall 2016)

Tues/Thurs: 4 - 5:20 pm: ROZH 103 and ROZH 106 (for overload with live feed)
Instructor: Marcus Garvie
Office: MACN 552
Email: mgarvie@uoguelph.ca
Office Hours: Monday 9 - 11, Wednesday 10 - 11 (may change!)
Prerequisite: 4U Calculus and Vectors or 4U Advanced Functions
Restrictions: ENGG*1500, MATH*2150, MATH*2160
Credit Weight: 0.50
Academic Department: Mathematics & Statistics
Campus: main
Semester Offering: Fall
Teaching Assistants: Announced via email

1 Course Notes:

Students must buy the 'fillable' lecture notes for this course at the University Bookstore (cost about $30).
(No textbook required).

The following link is to a short 'Math Preparedness Booklet' that you should work through during (or before) the first week of classes:

http://www.uoguelph.ca/~mgarvie/Teaching/Booklet_1160_F16.pdf

2 What to bring to class

- The fillable lecture notes that you bought at the University Bookstore.
- Blank paper, pens/pencils.
- Scientific calculator.

3 Class Schedule:

See: http://www.uoguelph.ca/~mgarvie/Teaching/Class-schedule-1160-F16.pdf

4 Content Description:

This course provides an introduction to linear algebra in Euclidean space. Topics covered include: N-dimensional vectors, dot product, matrices and matrix operations, systems of linear equations and Gaussian elimination, linear independence, subspaces, basis and dimension, matrix inverse, matrix rank and determinant, eigenvalues, eigenvectors and diagonalization, orthogonalization and projections, linear transformations. Some fundamental proofs and applications of these topics will be included.

5 Learning Outcomes:

- Have a basic understanding of the algebra of matrices
- Understand how linear algebra is needed to work with systems of linear equations
- Be familiar with some applications of linear algebra
- Have a basic understanding of some theoretical linear algebra concepts, including proof
- Have gained some experience in using computer software to manipulate matrices

6 Homework (available when ready):

- Homework questions are based on lectures and are available here: http://www.uoguelph.ca/~mgarvie/Teaching/Homework-Problems-1160-F16.pdf.
- Homework solutions are available here (attempt the problems first!): http://www.uoguelph.ca/~mgarvie/Teaching/Homework-Solutions-1160-F16.pdf.
- Homework is not graded, but will be the basis for the Midterms and Final Exam, so you are strongly encouraged to do (as a minimum) the assigned questions.
- You should attempt questions as soon as the appropriate sections have been covered in class.

7 Tests and exam times:

Exams are based mainly on examples done in class and homework. A minor component (say, up to 15%) may involve MATLAB usage.

- 25% Midterm Exam 1: scheduled for Tuesday, October 18, in class
- 25% Midterm Exam 2: scheduled for Tuesday, November 15, in class
- 50% Final Exam (multiple-choice): December 16, 2:30-4:30pm, Room TBA

8 Teaching Assistants and Test Corrections

The teaching assistants (TAs) grade the midterms and provide 3 office hours per midterm for corrections and answering questions about grading (schedule announced via email). TAs sign the midterms they grade so you know who graded your midterms. If you have test corrections please see the TA who graded your test (NOT YOUR PROFESSOR !) to have your test score adjusted. If you find errors in grading and you miss the office hours offered by the TAs then email the TA to schedule an appointment. However, as the TAs are only paid for a limited number of hours, IF YOU MISS THE TA OFFICE HOURS THERE IS NO GUARANTEE THAT A TA WILL BE ABLE TO SEE YOU TO MAKE TEST CORRECTIONS. The final date beyond which corrections cannot be made will be announced via email. It is in your best interests to check through your tests in a timely manner with the solutions provided.

9 Picking up midterms

If you do not pick up your midterms when they are returned during class then it is your responsibility to come to an office hour to pick them up. However, ONCE THE FINAL EXAMINATION DATE HAS PASSED ALL MIDTERMS WILL BE SHREDDED.

10 The Math & Stats Learning Centre:

The Mathematics & Statistics Department operates a drop-in learning centre where you'll find a team of tutors that can help you understand and solve problems in Math*1160. The learning centre is located

on the third floor of the McLaughlin Library in the Science Commons. The hours of operation are as follows:

Monday	Tuesday	Wednesday	Thursday	Friday
9:30-15:30	10:00-16:00	9:30-15:30	10:00-16:00	9:30-14:30

11 Test preparation checklist:

Checklist.pdf

12 Tentative outlines for the midterms and final exam:

- Outline for midterm 1: Tentative outline of Midterm 1.pdf
- Outline for midterm 2: Tentative outline of Midterm 2.pdf
- Outline for final exam: Tentative outline of Final.pdf

13 For solutions to past tests go to:

http://www.uoguelph.ca/~mgarvie/Teaching/past-tests-1160.html

14 Tests and solutions for this year (announced when ready)

- Midterm 1:
- Midterm 1 Solution:
- Midterm 2:
- Midterm 2 Solution:

15 Texts recommended for background reading:

There are MANY books you can consult for background reading. For example:

- The following textbook is recommended: Bernard Kolman & David R. Hill: *Elementary Linear Algebra with Applications*, Pearson/Prentice Hall, 9th Edition, ISBN-13: 978-0-13-229654-0.
- etc., etc.

16 Attendance:

Formal attendance will not be taken. However, I *strongly* encourage you to attend class regularly. **IF YOU ARE UNABLE TO ATTEND CLASS IT IS YOUR RESPONSIBILITY TO FIND OUT WHAT YOU MISSED FROM YOUR CLASS MATES**. PLEASE DON'T EMAIL ME ASKING FOR NOTES.

17 Email Etiquette:

Although I try to respond to all email messages, please don't ask me math questions by email (come & see me instead - don't be shy!); ask for class notes; tell me that you are going to miss a lesson; or generally ask me a question that you can find out for yourself. Keep your messages to the point, polite, and clearly state your question, with name, student ID, and course details.

18 Exam policies:

- All exams are **closed book**. You may not use the textbook, crib sheets, notes, or any other outside material. Do not bring your own scratch paper.
- You are not allowed to use laptop computers or cell phones in the exam. Ordinary scientific (NOT) graphing calculators are permitted in exams.
- The Final Exam is cumulative, i.e., it covers the whole course material.

19 Academic consideration:

- There will be NO MAKE-UP MIDTERM EXAMS OR MAKE-UP QUIZ. If you miss a Midterm exam or Quiz due to serious illness of yourself or a death in your immediate family, or due to personal grounds, please contact me by email ASAP explaining the reason for missing the test. You do NOT need to get a doctor's note. If consideration is granted I will re-ajust the weight of assessed material, as described in the next section. For further details concerning Academic Consideration see https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml
- Athletes who compete away from the University of Guelph during one of the midterms can arrange for their coach to proctor their exam. Just get your coach to contact me and we will make the arrangements.
- If you miss the final exam due to catastrophic events such as serious illness of yourself or death of your immediate family, you will receive an "Incomplete" grade, then (depending on circumstance) you may be allowed to take a make-up exam to receive a letter grade. UNDER NO CIRCUMSTANCES WILL A FINAL EXAM BE RE-SCHEDULED AT A DIFFERENT TIME AND/OR DATE, with the possible exception of exams taken in SAS.

20 Procedure used to re-adjust the weight of assessed material:

If consideration is given to miss an exam (see item 19 above) the percentage of missed material is moved to the final. Please DO NOT ASK FOR ALTERNATE ARRANGEMENTS AS FOR REASONS OF FAIRNESS TO OTHER STUDENTS IT WILL NOT BE GRANTED:

- **Scenario 1:** Consideration is granted to miss one midterm
  Assessment procedure: the final exam will contribute 75% to your final grade.

- **Scenario 2:** Consideration is granted to miss both midterms (VERY UNLIKELY)
  Assessment procedure: the final exam will contribute 100% to your final grade.

21 Regulations regarding seeing your final exam:

If you wish to see your final exam you must submit your **written** request to the chair of the department by the 5th class day of of the new semester, see https://www.uoguelph.ca/registrar/calendars/undergraduate/2016-2017/c08/sec_d0e7603.shtml If you are granted permission to see your final exam you will be provided with: (a) your scantron ('bubble') sheet, (b) a copy of the exam paper, and (c) written solutions. The question booklet with your circled answers is shredded (we only refer to the question booklet if for some reason there is an error on the bubble sheet - see item 22 below).

22 Regulations regarding a grade-reassessment:

If you beleive that an error has been made in the determination of your final grade then you must **write** to the chair of the department (by the 10th class day of the new semester) requesting a grade re-assessment. This can lead to the grade staying the same, a grade increase, or a grade decrease. Please

note that this should not be used as a means of 'trying to get a few extra marks', but for situations where you have grounds for beleiving that mistakes have been made in the determination of your final grade. Remember also that your final exam is multiple choice and graded by a computer. Furthermore, THE CHOICES MADE ON THE BUBBLE SHEET TAKES PRECEDENCE OVER THE CHOICES CIRCLED IN THE QUESTION BOOKLET (we only refer to your circled choices in the question booklet if for some reason there is an error on the bubble sheet). For further information see https://www.uoguelph.ca/registrar/calendars/undergraduate/2016-2017/c08/c08-grdchg.shtml

23 Academic Accommodation of Religious Obligations

If you are unable to complete a course requirement due to religious obligations, please let the instructor know within the first two weeks of class. See the academic calendar for more information: https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-accomrelig.shtml

24 Academic Misconduct:

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor. The Academic Misconduct Policy is detailed in the Undergraduate Calendar: https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml.

25 Accessibility:

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Student Accessibilities Services (SAS) as soon as possible. For more information, contact SAS at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website http://www.uoguelph.ca/csd/.

26 Course Policy regarding use of electronic devices and recording of lectures:

Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

27 Drop date:

The last date to drop one-semester courses, without academic penalty, is Friday Nov 4, 2016. For regulations and procedures for Dropping Courses, see the Academic Calendar:

https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml.

28 Course Evaluation Information

Please see http://www.mathstat.uoguelph.ca/files/TeachevaluationformF10.pdf.

29 MATLAB Access:

To use MATLAB there are a few options:

- MATLAB is available on the machines in the data resource centre of the Library (1st Floor).
- There are machines for individual use (providing a class isn't running) in the New Science block (SCIE 1303, 1305).
- Use your own account at your own department if your department has the MATLAB license.
- Buy a Student Version of MATLAB.
- Install *Octave* system on your own PC, which is free software and emulates MATLAB. Caution: Most likely you can do all the (numerical) homework exercises, but I have not tested all the exercises yet. Visit the official web site of Octave at http://www.octave.org. To download Octave 2.1.73 for Windows go to http://sourceforge.net/project/showfiles.php?group_id=2888.

30 MATLAB Tutorials:

For a particularly simple introduction I recommend you work through the following tutorial:
http://www.uoguelph.ca/~mgarvie/Teaching/My_Matlab_tutorial.pdf.
For a more comprehensive tutorial see:
http://www.uoguelph.ca/~mgarvie/Teaching/primer.pdf.
For additional details, the official MATLAB manual is available from
http://www.mathworks.com/access/helpdesk/help/helpdesk.shtml.
There are also numerous online MATLAB tutorials.

Please email me if you have any comments or questions!