

MATH*1160 Syllabus Page (Fall 2021)

Section 01:

Instructor: Marcus Garvie

Suggested Schedule: M/W/Fr: 11:30am - 12:20pm, ONLINE

Office: N/A

Email: <mailto:mgarvie@uoguelph.ca>

Office Hours: TBA

Section 02:

Instructor: Daniel Kraus

Suggested Schedule: M/W/Fr: 11:30am - 12:20pm, ONLINE

Office: N/A

Email: <mailto:dkraus@uoguelph.ca>

Office Hours: TBA

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: Winter

Teaching Assistants: Announced via email

(Note: all times in this outline correspond to the Eastern Time Zone).

1 Course notes:

- **Workbook for this course:** Students must buy the 'fillable' lecture notes for this course at the University Bookstore (cost about \$25). You can either order the Workbook from the bookstore website (sent in a couple of days) or go to the bookstore and buy it in person. (No textbook required).
- **Math Preparedness Booklet:** you should work through this booklet during (or before) the first week of class. It is found under the Contents section in Courselink.
- **In-class Discoveries:** these are investigations that you do during the online lectures (just pause the video), and can be found under the Contents section in Courselink.

2 Online lectures

All lectures will be fully online as asynchronous (pre-recorded) video recording on YouTube. Links to the lectures for each week are posted on Courselink at the start of each week (Sunday noon). It is the students' responsibility to keep up with lectures according to the schedule. Lectures mimic the M/W/Fr 50 minute cycle, but the actual duration of lectures may vary.

3 What you will need during online lectures

- The fillable lecture notes that you bought at the University Bookstore.
- Discoveries (see Contents section of Courselink)
- Blank paper, pens/pencils.
- Scientific calculator.

4 Class schedule:

Found in the Contents section of Courselink.

5 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.

6 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 (MATLAB) to manipulate matrices

7 Homework:

Both the homework problems and solutions are found in the Contents section of Courselink and will (along with class examples) be the basis for the tests and final take-home exam questions. *For every examination question type there will be a similar question in the homework questions!* For this reason it is very important that you do the homework and follow up with your TA or instructor if you have problems.

8 Tests and final take-home exam:

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

All exams are multiple-choice (MC) with the following schedule and percentage weight of the final grade:

EXAM	% GRADE	POSTED	DUE
MC Test 1	20	October 8, noon	6pm (same day)
MC Test 2	20	October 29, noon	6pm (same day)
MC Test 3	20	November 19, noon	6pm (same day)
MC Take-home final	40	December 14, noon	December 17, noon

(Times correspond to the Eastern Time Zone.)

Exams will be sent by email as a PDF document, and uploaded to Courselink. The format of questions is exactly as detailed on the practice tests linked from Courselink. The syllabus for the tests and the take-home final is posted on Courselink. Answers, instead of being entered onto a Scantron ('bubble') sheet, will be entered on 'blank' quizzes accessed from Courselink. When available, access the quizzes from the 'Quizzes' section on the main Courselink page. The exams will be open book. A single attempt is permitted, which means once you have submitted a 'quiz' the exam is done and a second attempt cannot be made. When a student takes any exam they are assumed to have agreed to the following statement:

"On my honour as a student, I have neither given nor received aid on this assignment."

Solutions to the Tests will be posted on Courselink when available.

9 Procedure for dropping the lowest test grade and zero test grades

(i) if there are 3 non-zero test grades then the lowest test grade is 'dropped', i.e. the grade on the dropped test is the average of the other two (equivalently, the two remaining tests are now worth 30% instead of 20%)

(ii) if you score zero on a test (unlikely!) the weight of that test goes to the Take-home final. So the Take-home final can have weights 40, 60, 80, or 100 %. See 'Academic consideration' below for what happens if you miss a test.

10 Teaching Assistants and Office hours

TAs and instructors provide virtual (online) office hours using Microsoft Teams or Zoom. When available, a list of TAs along with their schedule and Teams or Zoom links will be provided below.

Please only join the office hours that correspond to your last name: details - TBA.

11 The Math & Stats Learning Center:

The Mathematics & Statistics Department operates a drop-in learning center where you'll find a team of tutors that can help you understand and solve problems in Math*1030. **The learning center is operating virtually. Access is via Courselink, then clicking on Resources.** 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

(Times correspond to the Eastern Time Zone.)

See <https://mathstat.uoguelph.ca/tutoring>

12 Test preparation checklist:

Found in the Contents section of Courselink.

13 Syllabus for the tests and final take-home exam:

Found in the Contents section of Courselink.

14 Practice tests and solutions:

Found in the Contents section of Courselink.

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

Found in the Contents section of Courselink.

16 Texts recommended for background reading:

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

- Bernard Kolman & David R. Hill: *Elementary Linear Algebra with Applications*, Pearson/Prentice Hall, 9th Edition, ISBN-13: 978-0-13-229654-0.
- Also, see the links in the Workbook to four open-access textbooks in Linear Algebra.

17 Email Etiquette:

Although we try to respond to all email messages, please don't ask for class notes; tell us that you are going to miss a lecture; or generally ask us 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 Academic consideration:

- There will be NO MAKE-UP TESTS. If you miss a test due to serious illness of yourself or a death in your immediate family, or due to personal grounds, please contact us by email ASAP explaining the reason for missing the test. You do NOT need to get a doctor's note. If consideration is granted we will readjust the weight of assessed material, as described in the next section. HOWEVER, ONCE YOU HAVE TAKEN AN EXAM NO ACCOMMODATIONS CAN BE GRANTED (it is general University of Guelph procedure to NOT grant accommodations retrospectively). For further details concerning Academic Consideration see
- <https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-consideration-appeals-petitions/>
- UNDER NO CIRCUMSTANCES WILL ANY EXAM BE RE-SCHEDULED AT A DIFFERENT TIME AND/OR DATE, with the possible exception of exams taken through SAS.
- If you miss the Take-home final 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 determined by an independent committee) you may be allowed to take a deferred exam to receive a letter grade. If you miss the Take-home final you should (a) inform me by email, and (b) contact your program counsellor for advice.

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

If consideration is given for missing a test (see item 18 above) the percentage of missed material is moved to the Take-home 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** test
Assessment procedure: the Take-home final will contribute **60%** to your final grade.
- **Scenario 2:** Consideration is granted to miss **two** tests (UNLIKELY)
Assessment procedure: the Take-home final will contribute **80%** to your final grade.
- **Scenario 3:** Consideration is granted to miss **three** tests (VERY UNLIKELY)
Assessment procedure: the Take-home final will contribute **100%** to your final grade.

20 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 the new semester, see

<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/examinations/>

If you are granted permission to see your final exam you will be provided with: (a) your electronic answers, (b) a copy of the exam paper, and (c) written solutions.

21 Regulations regarding a grade-reassessment:

If you believe 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 believing 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. For further information see

<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/grade-reassessment/>

22 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://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-accommodation-religious-obligations/>

23 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://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/academic-misconduct/>

24 Web-sites that facilitate cheating

The use of web-sites like Chegg.com and Coursehero.com to get help on online tests is cheating and academic misconduct. All tests have non-removable copyright statements on them and we are actively working with these sites to identify students who upload tests to them. You have been warned!

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 Drop date:

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses

<https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures/dropping-courses/>

Graduate Calendar - Registration Changes

<https://calendar.uoguelph.ca/graduate-calendar/general-regulations/registration/registration-changes/>

Associate Diploma Calendar - Dropping Courses

<https://calendar.uoguelph.ca/associate-diploma/associate-diploma-regulations-procedures/dropping-courses/>

27 Course Evaluation Information

Please see

https://mathstat.uoguelph.ca/sites/uoguelph.ca.mathstat/files/public/TeachevaluationformW16_1.pdf.

28 Strike Action

In the unlikely event of strike action by faculty, staff, or TAs that makes it difficult or impossible to administer a test, the test will be cancelled and the weight re-distributed to the final take-home exam.

29 Mental Health Services

One in five students in Canada experiences some sort of mental health issue at some point in their academic career. If you find yourself facing a mental health crisis, or just need to talk to someone, please consider taking advantage of one of the following resources available to University of Guelph students:

- **Counselling Services (x53244)** is located at Health Services (J.T. Powell Building) and offers individual and group counselling sessions by appointment or walk-in.
- **Student Support Network** is located in Raithby House (across from the cannon and offers confidential, peer-based, drop-in support.
- **Good2Talk (1-866-925-5454)** is a free, 24/7 student hotline that provides professional counselling and referrals for mental health, addictions and well-being.
- **Here 24/7 (1-844-437-3247)** specializes in assessment, referral and appointment booking and is available 24/7 for crisis support.

You are not alone and you will not be judged for asking for help.

30 MATLAB:

The Workbook provides a gentle introduction in using computer software (MATLAB) to manipulate matrices. To use MATLAB there are a few options:

- MATLAB is available on the machines in the data resource center 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*, which is free software and emulates MATLAB. Octave is compatible with Linux, MacOS and Windows. Caution: Most likely you can do all the (numerical) homework exercises, but we have not tested all the exercises yet. To download Octave go to <https://www.gnu.org/software/octave/download.html>

31 MATLAB Tutorials:

For a particularly simple introduction we recommend you work through the 1st tutorial linked from the Contents section of CourseLink. There is also a more comprehensive tutorial at the same location. 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.

32 Online Behaviour:

Inappropriate online behaviour will not be tolerated. Examples of inappropriate online behaviour include:

- Posting inflammatory messages about your instructor or fellow students
- Using obscene or offensive language online
- Copying or presenting someone else's work as your own

- Adapting information from the Internet without using proper citations or references
- Buying or selling term papers or assignments
- Posting or selling course materials to course notes websites
- Having someone else complete your quiz or completing a quiz for/with another student
- Stating false claims about lost quiz answers or other assignment submissions
- Threatening or harassing a student or instructor online
- Discriminating against fellow students, instructors and/or TAs
- Using the course website to promote profit-driven products or services
- Attempting to compromise the security or functionality of the learning management system
- Sharing your user name and password
- Recording lectures without the permission of the instructor

DISCLAIMERS:

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings and academic schedules. Any such changes will be announced via CourseLink and/or class email. All University-wide decisions will be posted on the COVID-19 website <https://news.uoguelph.ca/2019-novel-coronavirus-information/> and circulated by email.

The University will not normally require verification of illness (doctor's notes) for the Fall 2021 semester courses. However, requests for Academic Consideration may still require medical documentation as appropriate.

By enrolling in a course, unless explicitly stated and brought forward to their instructor, it is assumed that students agree to the possibility of being recorded during lecture, seminar or other “live” course activities, whether delivery is in-class or online/remote.

If a student prefers not to be distinguishable during a recording, they may:

1. turn off their camera
2. mute their microphone
3. edit their name (e.g., initials only) upon entry to each session
4. use the chat function to pose questions.

Students who express to their instructor that they, or a reference to their name or person, do not wish to be recorded may discuss possible alternatives or accommodations with their instructor.

Please email us if you have any comments or questions!