

HURON UNIVERSITY COLLEGE
FACULTY OF ARTS AND SOCIAL SCIENCE

Mathematics 1229A
Methods of Matrix Algebra

September - December 2018

INSTRUCTORS:

550 (Huron) - Javad Rastegari
551 (Huron) - Mohsen Mollahajiaghaei
(Course Coordinator: Vicki Olds)

CLASS SCHEDULE:

Section	Instructor	Days & Times	Location
550	J. Rastegari	MWF 11:30- 12:30	HUC - V 214
551	M. Mollahajiaghaei	Tu 8:30 - 11:30	HUC - V 214

INSTRUCTOR CONTACT INFORMATION: (any changes/updates will be posted in the course OWL web site)

J. Rastegari (550): jrastega@uwo.ca, HUC-V126
M. Mollahajiaghaei (551): mmollaha@uwo.ca, HUC-Benson 3
V. Olds (Course Coordinator): volds@uwo.ca, MC 103G, X86520

Note: Any email sent to an instructor (and especially to the course coordinator) **MUST say Math 1229A in the subject line.** Any email without this, and/or any email sent from other than a UWO email address, may be deleted unread.

INSTRUCTOR OFFICE HOURS: (any changes/updates will be posted in the course OWL web site)

J. Rastegari (550): HUC-V126; Friday 12:30-2:30
M. Mollahajiaghaei (551): HUC-Benson 3; Monday 2:30-4:30

TEXTBOOK:

Custom Edition of *Elementary Linear Algebra* by S. Venit, W. Bishop and J. Brown, published by Nelson Education Ltd., ISBN: 0176559299.

PREREQUISITES:

One or more of Ontario Secondary School MCF3M, MCR3U, or equivalent.

ANTIREQUISITES:

Applied Mathematics 1411A/B, 2811B, Mathematics 1600A/B, 2120A/B, 2155F/G, 2211A/B, the former 2155A/B.

COURSE OUTLINE:

Vectors in \mathbb{R}^m ; Equations of lines and planes; Linear Equations; Solution of Linear Systems; Matrix Algebra; Matrix Multiplication and Inverses; Determinants.

LEARNING OBJECTIVES:

By the end of this course students will learn how to work with vectors, matrices and determinants, and apply them to solve a system of linear equations. The course starts with basic vector operations, such as dot product and cross product, as well as equations of lines and planes. Systems of linear equations will be the main theme for the rest of the course. Throughout the course, students will learn three different methods for solving systems of linear equations: Row reduction method used in Gaussian elimination and Gauss-Jordan elimination; Inverse matrix method; and the Cramer's rule that is based on determinants.

COURSE WEB SITE:

Various supplemental materials, such as required extra homework problems, practice tests, and solutions to the homework exercises, are posted on the course OWL web site. In addition, there are forums on which students may post questions. Important information will be posted on the NEWS forum and/or on the class page on the web site. All students are expected to be aware of information, and make use of materials, posted on the course web site. As well, some class sections use the online quizzes on the web site as the class work component of the grade.

WHAT IS EXPECTED OF THE STUDENT?

Students should attend all classes, make a serious effort to understand all course material, and do all the assigned homework. The student must assume responsibility for any missed classes. It is up to the student to seek out help when needed. The student is responsible for being aware of all relevant information posted on the OWL web site.

Please contact your course instructor if you require material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x82147 for any specific question regarding an accommodation.

EVALUATION OF STUDENT PERFORMANCE:

Students will be assessed on the basis of "Class Work", 2 Term Tests, and a Final Exam. The means of assessing the Class Work component will be determined by the instructor of each section, and may be for participation, quizzes, assignments, etc. For each class, information about how the Class Work component will be assessed, and details of the timing, will be announced in class and also posted on the appropriate "class page" on the OWL web site. (*Some sections will use Online Quizzes in OWL.*)

The 2 Term Tests, each 90 minutes in length, will be held on:

Friday October 19 2018, 7:00 - 8:30 p.m. and **Friday November 16 2018, 7:00 - 8:30 p.m.**

Locations of these tests will be announced in class and/or on the course web site.

The Final Exam will be 3 hours in length, covering all of the course material. This exam will be scheduled by the Registrar's Office during the December Exam Period.

Calculation of Final Grade:

Each Term Test will count for 20%, the Final Exam will count for 40% and the Class Work component will count for 10%. The remaining 10% weight will be assigned to whichever of the 3 tests/exams is the student's best mark.

Notes:

1. The Term Tests and Exam will all have some multiple choice questions and some written answer questions.
2. **NO calculators or other electronic devices or any other aids are allowed on tests and exams.**
3. See Absence / Missed Work policy on next page.

SENATE POLICY ON PREREQUISITES:

Prerequisite checking is the **student's responsibility**. Unless you have either the prerequisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

STATEMENT ON ACADEMIC OFFENCES:

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

ABSENCE / MISSED WORK:

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation *to your Dean's Office as soon as possible* and contact *your instructor immediately*. It is the student's responsibility to make alternative arrangements with his or her instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately. For further information concerning UWO's Policy on Accommodation for Medical Illness please refer to this policy at: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf

A student requiring academic accommodation due to illness should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record's Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here: https://studentservices.uwo.ca/secure/medical_document.pdf

A makeup will be held for each term test as well as for the final exam. Only students with prior permission from their instructor will be allowed to write the makeup for a test. Only students with a Recommendation for Special Exam from their Dean's Office will be allowed to write a makeup for the Final Exam. Any student who misses a portion of the Class Work component of the grade for any legitimate reason should contact your instructor as soon as possible. Supporting documentation may be required. In the case of missed Class Work, or if a student is unable to write the scheduled makeup for a Term Test due to a documented prolonged or recurring absence or other legitimate conflict, your instructor will decide whether to accommodate by rescheduling or by reweighting that component of the grade.

SUPPORT SERVICES

Office of the Registrar

UWO	http://www.registrar.uwo.ca
Brescia	http://www.brescia.uwo.ca/academics/registrar-services
Huron	http://www.huronuc.on.ca/CurrentStudents/StudentLifeandSupportServices/AcademicResources
King's	http://www.kings.uwo.ca/academics/academic-deans-office/

Student Development Services <http://www.sdc.uwo.ca/>

Learning Skills Services <http://sdc.uwo.ca/learning/>

USC <http://westernusc.ca/services/>

Academic Calendar <http://www.westerncalendar.uwo.ca/>

ITS <http://www.uwo.ca/its/helpdesk>

Students who are in emotional/mental distress should refer to Mental Health @ Western via the link given below for a complete list of the options about how to obtain help: <http://www.uwo.ca/uwocom/mentalhealth/>

TENTATIVE SCHEDULE OF CLASSES

Week	Dates	Text Sections
Week 1	Sept. 6 – 12	Section 1.1 (3 hrs.)
Week 2	Sept. 13– 19	Sections 1.2 (2 hrs.), 1.3 (1 hr.)
Week 3	Sept. 20 – 26	Section 1.3 (2 hrs.), Extra Ch. 1
Week 4	Sept. 27 - Oct. 3	Sections 2.1 (1 hr.), 2.2 (2 hrs.)
Week 5	Oct. 4 – 17	Section 2.3 (3 hrs.)
Week 6	Oct. 18 – 24	Review, Section 3.1 (2 hrs.)
Week 7	Oct. 25 – Oct. 31	Sections 3.1 (2 hrs.), 3.2 (1 hr.)
Week 8	Nov. 1 – 7	Sections 3.2 (1 hr.), 3.3 (2 hrs.)
Week 9	Nov. 8 – 14	Sections 3.3 (1 hr.), 4.1 (2 hrs.)
Week 10	Nov. 15 – 21	Review, Sections 4.1 (1 hr.), 4.2 (1 hr.)
Week 11	Nov. 22 – 28	Sections 4.2 (2 hr.), 4.3 (1 hrs)
Week 12	Nov. 29 - Dec. 5	Section 4.3 (2 hrs.), Review
Week 13	Dec. 6 – 7	Review

Mathematics 1229A - Suggested Exercises - Fall 2018

Section	Page	Problems
§1.1	11	1 - 27, 37.
§1.2	20	1 - 9, 13 - 23, 34.
§1.3	29	1 - 21, 25, 27, 29.
		Extra Chapter 1 Problem Sheet. (Posted on course web site.)
§2.1	48	1 - 13, 16 - 25.
§2.2	55	1 - 15.
§2.3	69	1 - 17, 19, 21, 23 - 26, 37.
§2.2	56	19 - 24 (use Gauss-Jordan).
§3.1	96	1 - 7, 9 - 14, 17 - 27, 35 - 38.
§3.2	107	1 - 7, 9 - 19, 21, 23, 25, 30 - 33.
§3.3	116	1 - 6, 9 - 21.
§4.1	151	1 - 22, 27 - 29, 34.
§4.2	163	1 - 19, 25, 26.
§4.3	172	1, 3, 5, 7, 9, 11, 13.

Notes:

- Page numbers and text references refer to the custom-published text and are the same in the full Venit, Bishop and Brown (1st ed.) text.
- Any changes to this list will be announced on the NEWS and/or Homework forums in OWL.
- Answers to all assigned questions, and complete solutions for many, are posted on the course web site.



The Appendix to Course Outlines is posted on the OWL course site.