

THE UNIVERSITY OF WESTERN ONTARIO
DEPARTMENT OF MATHEMATICS

Mathematics 1229A
Methods of Matrix Algebra

September - December 2019

INSTRUCTORS: (*Course Coordinator: V. Olds*)

001 - A. Ghorbanpour; 002 - X. Fu; 003 - V. Olds; 004 - M. Mollahajiaghaei;
530 & 531 (Brescia) – A. O’Hara; 550 & 551 (Huron) - M. Palaisti; 552 (Huron) - J. Rastegari;
570 & 571 & 572 (King's) - D. Meredith; 573 & 574 (King’s) - S. Kuzmin; 575 (King's) - R. Valluri
(*See Class Schedule and Instructor Contact Information on next page.*)

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.

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:

Saturday October 5 2019, 1:30 - 3:00 p.m. and **Saturday November 2 2019**, 1:30 - 3:00 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.

CLASS SCHEDULE:

Section	Campus	Instructor	Days & Times	Location
001	Main	A. Ghorbanpour	MWF 9:30	AHB 1R40
002	Main	X. Fu	MWF 12:30	HSB 40
003	Main	V. Olds	MWF 1:30	MC 110
004	Main	M. Mollahajiaghaei	MWF 8:30	AHB 1R40
530	Brescia UC	A. O'Hara	MTuTh 8:30	BR - 203
531	Brescia UC	A. O'Hara	MTuW 9:30	BR - 203
550	Huron UC	M. Palaisti	TuThF 12:30	HUC W 12
551	Huron UC	M. Palaisti	F 8:30 - 11:30	HUC W 12
552	Huron UC	J. Rastegari	W 6:30 - 9:30	HUC W 12
570	King's UC	D. Meredith	TuTh 10:00 - 11:30	KUC SA 150
571	King's UC	D. Meredith	TuTh 1:00 - 2:30	KUC SA 150
572	King's UC	D. Meredith	MW 1:00 - 2:30	KUC LH 101
573	King's UC	S. Kuzmin	MW 7:00 - 8:30	KUC SA 150
574	King's UC	S. Kuzmin	MW 8:30 - 10:00	KUC LH 100
575	King's UC	R. Valluri	MW 8:30 - 10:00	KUC W 168

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

V. Olds (003 & Course Coordinator): volds@uwo.ca, MC 103G, X86520

A. Ghorbanpour (001): aghorba@uwo.ca, MC 134

X. Fu (002): xfu82@uwo.ca, MC 120

M. Mollahajiaghaei (004): mmollaha@uwo.ca, MC 133

A. O'Hara (530 & 531): aohara@uwo.ca, BUC UH 209 (also main campus MC 113)

M. Palaisti (550 & 551): mpalaist@uwo.ca, HUC A 211

J. Rastegari (552): jrastega@uwo.ca, HUC Lucas Annex

D. Meredith (570 & 571 & 572): meredith@uwo.ca, KUC DL 120

S. Kuzmin (573 & 574): skuzmin@uwo.ca, KUC LH 205

R. Valluri (575): valluri@uwo.ca, KUC LH 205 (also main campus PAB 271)

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.

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 seek approval for the absence as soon as possible. Approval can be granted either through a self-reporting of absence or via the Dean's Office/Academic Counselling unit of your Home Faculty. For approval from Academic Counselling, you must provide valid medical or other supporting documentation *to your Dean's Office as soon as possible*. And in either case you must contact *your instructor immediately*, as soon as you know that you will be unable to complete the required work. 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. For further information, please consult the university's policy on academic consideration for student absences:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf.

If you miss the Final Exam, please contact your faculty's Academic Counselling Office as soon as you are able to do so. They will assess your eligibility to write the Special Exam (the name given by the university to a makeup Final Exam). You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (see http://www.registrar.uwo.ca/examinations/exam_schedule.html).

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://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/yourservices/>

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

WTS <http://www.uwo.ca/wts/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/>

Mathematics 1229A - Suggested Exercises - Fall 2019

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 and also complete solutions to all assigned questions are posted on the course web site.