

THE UNIVERSITY OF WESTERN ONTARIO
DEPARTMENT OF MATHEMATICS

Mathematics 1229A
Methods of Matrix Algebra

Summer Evening 2017

INSTRUCTOR: V. Olds, volds@uwo.ca, MC 103G, 519 661-2111 X86520

TEXTBOOK:

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

(A used copy of the previous printing of this custom text, ISBN: 0176630929, or of the hardcover full text, First Canadian Edition ISBN-13: 978-0-17-644076-3, is also acceptable.)

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.

LECTURE SCHEDULE:

There are 11 classes, 7:00 - 9:30 p.m. on Mondays and Wednesdays, from May 8 through June 14, with no class Monday May 22 (the Victoria Day holiday). Each class corresponds to *at least* one full week of classes during a regular fall or winter term, so *a lot* of material will be covered in each class. The accelerated pace of the Summer Evening format (and the loss of a lecture) means that the course will be **very** intense. Students must be prepared to work hard at this course, starting from the very first class.

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. All students are expected to be aware of information, and make use of materials, posted on the course web site. The Lecture Notes from the Online version of the course are also posted on the web site, as an additional resource.

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. A schedule of Help Centres will be posted on the course web site. 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 Online Quizzes, 2 Term Tests, and a Final Exam.

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

Thursday May 25 2017, 5:30 - 7:00 p.m. and **Thursday June 8 2017**, 5:30 - 7:00 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, and will be held at the end of the last week of the course. The precise date and time of this exam will be decided and announced within the first 2 weeks of the course.

Calculation of Final Grade:

Each Term Test will count for 20%, the Final Exam will count for 40% and the Online Quizzes 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.

ABOUT THE QUIZZES: See Quiz Schedule posted on the course web site.

Each quiz consists of 8 multiple choice questions, generated at random from a test bank of relevant questions. Each quiz is available for several days, from 12:05 a.m. EDT on the first day until 11:55 p.m. EDT on the last day. During this quiz window, the student may make up to 2 quiz attempts. If a second attempt is made, the *higher* of the 2 results will be used as the mark for that quiz. Note that since each quiz attempt is randomly generated from the question bank, the questions on a second quiz attempt are unlikely to be identical to questions on the first attempt. The best 5 of the student's 6 quizzes will each count for 2% in the final grade.

Although there is no time limit on a quiz attempt, it is *strongly* recommended that students be aware of the time they spend on a quiz and make a concerted effort to complete the quiz within 30 minutes. This amount of time is considered more than generous and allows *more* time per question than on the tests/exam. A student who has trouble completing quizzes in this time may have difficulty completing the exams.

MAKEUPS:

Any request to reschedule any test or exam must be made through your Dean's Office. Requests for makeup quizzes should be made to the instructor. (NO makeups will be allowed for Quiz 6.) All such requests should include the reason(s) for the request. The granting of such requests is wholly at the discretion of the instructor and/or Academic Counsellor. If needed, makeups for each of the 2 term tests will be held 5:00 - 6:30 p.m. on the **Monday** after the scheduled test.

ABOUT THE HOMEWORK:

To aid students in preparing for the assignments, quizzes and examinations, a list of assigned problems from the text is provided. (For some sections, additional exercises not from the text are also provided.) These problems are representative of the level of understanding expected of students in this course. Solutions to these assigned problems are posted on the course web site. It is expected that **all** of these problems will be completed, and the solutions reviewed, to ensure sufficient understanding of each unit. These homework exercises are not submitted for grading and do not count in the final grade.

Note that simply reading the solutions **does not** constitute *doing* the homework. Solutions are provided to assist you in determining where you have made mistakes and/or how to approach the problem. But you *cannot learn math without doing the problems for yourself*.

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

Student Development Services	www.sdc.uwo.ca
Learning Skills Services	http://sdc.uwo.ca/learning/

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

Academic Calendar www.westerncalendar.uwo.ca

ITS 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/>

Mathematics 1229A - Suggested Exercises - Summer Evening 2017

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