

MAT 1302 E MATHEMATICAL METHODS II

University of Ottawa, Fall 2013

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KED B07-B 613-562-5800 X 2029

LEC 1 Tuesday 17:30 - 19:00 STE B0138

LEC 2 Thursday 17:30 - 19:00 STE B0138

DGD 1 Monday 14:30 - 16:00 SCS E217

DGD 2 Thursday 16:00 - 17:30 STE G0103

Official Course Description

Solution of systems of linear equations. Matrix algebra. Determinants. Complex numbers, fundamental theorem of algebra. Eigenvalues and eigenvectors of real matrices. Introduction to vector spaces, linear independence, bases. Applications.

Prerequisites

One of Ontario 4U Mathematics of Data Management (MDM 4U), Ontario 4U Advanced Functions (MHF4U), MAT1318, MAT1339 or an equivalent. This course is intended primarily for students in the School of Management and the Faculty of Social Sciences. This course cannot be combined for credit with MAT1341.

Course Text

David C. Lay, Linear Algebra and its Applications, Fourth Edition, Pearson/Addison-Wesley, 2012. The textbook can be purchased at the University of Ottawa Bookstore or The Agora. Note that the course will be based on the 4th edition of the textbook, but the difference between the 3rd and the 4th editions is minor. Therefore the 3rd edition can also be used without any problem. Note that there are several packages for this text – with study guide, without (hard copy of the) study guide, etc. In class and in the DGDs, we will only explicitly refer to the textbook itself. The choice of whether or not the study guide is desired is up to each student. It contains extra explanations and detailed solutions of many of the exercises in the text. Therefore it could be a useful companion to the text. The CD that comes with the text contains an electronic version of the study guide. So a student need only decide whether or not (s)he wants a hard copy. The text has also been placed on 4 hour reserve at Morisset Library.

Syllabus

Questions on the midterm and final exams will be similar to the recommended exercises. Thus, students are strongly encouraged to work through enough of the recommended exercises until they have thoroughly mastered the material. Since it is very important to keep up with the pace of the course, students should work on the recommended exercises of every lecture before the following lecture. Section numbers and exercises refer to the course text. Note that the answers to odd-numbered exercises can be found at the back of the text. If you are having difficulty with the exercises, you can ask for help at the Math Help Centre or during the professor's office hours.

No calculators! Students are not allowed to bring and use formula sheets or calculators during exams.

Recommended Exercises. The numbers of the recommended exercises apply to both the 3rd and the 4th editions of the textbook.

Sec 1.1 : Practice Problem 3.

Sec 1.1 : 1, 3, 11, 13, 15, 19. Sec 1.2 : 1.

Sec 1.2 : 3, 5, 7, 9, 11, 13.

Sec 1.2 : 15, 17–21, 23–26.

Sec 1.3 : 1, 3, 5, 7, 9, 11, 13, 15, 17, 19.

Sec 1.4 : 1, 3, 5, 7, 9, 11, 13, 17, 19. Sec 1.6: 12, 13.

Sec 1.5 : 1, 3, 5, 7, 9, 11, 15, 17, 19, 21, 23.

Sec 1.7 : 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 22, 27, 33, 34, 35, 37.

Sec 2.1 : 1, 3, 7, 9, 11, 13.

Sec 2.1 : 15, 23, 27. Sec 2.2 : 1, 3, 5, 9, 13, 17.

Sec 2.1 : 17. Sec 2.2 : 18, 19, 20, 23, 29, 31, 32, 35. Sec 2.3 : 1, 3, 5, 7.

Sec 2.6 : 1, 3, 5, 7, 9.

Sec 2.8 : 7, 9, 11, 15, 17, 19, 21, 22. Sec 4.1 : 3, 9, 11, 13.

Sec 2.9 : 9, 11, 13, 15, 17, 19, 21, 23. Sec 4.2 : 1, 3, 5, 15, 17, 19.

Sec 3.1 : 1, 3, 5, 7, 9, 11, 13, 19, 21, 23, 37.

Sec 3.2: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 39.

Appendix B: see class notes.

Sec 5.1 : 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 26.

Sec 5.2 : 1, 3, 5, 7, 9, 11, 13, 15, 17, 19.

Sec 5.3 : 1, 3, 4, 7, 9, 11, 13, 15, 17, 19.

Sec 1.10 : 9.

Sec 4.9 : 1, 3, 5, 7, 9, 11, 13.

Final Grade

You must obtain a grade of at least 50% on the final exam in order to pass the course. If your grade on the final exam is less than 50%, then your

final grade will be equal to your grade on the final exam. If your grade on the final exam is at least 50%, then your **final grade** will be calculated as follows:

Assignments: 10% Midterms: 40% Final Exam: 50%

Your lowest assignment or midterm grade will be replaced by your score on the final exam if this is to your advantage. Note that this rule only applies when the assignment or the midterm has not been missed. There will be **two midterm exams**, scheduled during the usual class time, on October 10 and November 21. Each midterm has a weight of 20%. There will be a total of four assignments. Each assignment has a weight of 2.5%. The assignments will be posted on webpage or Virtual Campus.

Assignments, their solutions, midterm solutions, and your grades will be posted on the webpage or Virtual Campus. Midterm exams cannot be rescheduled. In the event of a justified absence (e.g., providing a doctor's note) the weight of the missed midterm will be transferred to the final exam. You must provide appropriate documentation as soon as possible. If you do not provide proper justification in a timely manner, you will receive a zero grade.

The Math Help Centre is an excellent resource to receive help regarding course material and practice exercises. It is located in Marion 021. From September 10 until November 30, except during the Study Week, the hours of operation of the Math Help Centre are:

MondayWednesday: 10:00-19:00 Thursday: 10:00-17:00 Friday: 10:00-15:00

During the Study Week (October 22-26) the Math Help Centre will be open on Wednesday, Thursday, and Friday from 10:00 a.m. until 3:00 p.m. It will be closed on Monday October 22 and Tuesday October 23. From December 3 to December 19 (inclusive), the Math Help Centre is open from 10:00 a.m. to 5:00 p.m. Monday to Friday.

Students are encouraged to discuss general strategies for approaching the homework problems with other students. However, you should solve the problems yourself and all written work should be your own. Copying from another student is cheating and will not be tolerated. In addition, be assured that it doesn't help you in the long run. Students found cheating will be reported to the university. Punishment can range from receiving a zero on the assignment, to failing the course, to being expelled from the university. Allowing another student to copy your work is just as serious as copying. So if you copy from another student, you are putting their university career on

the line too.

There is lots of help available to you (office hours, DGDs, and the math help centre) if you have difficulty with the homework and so there is no reason to cheat. Working through the homework yourself will greatly increase your understanding of the subject matter and will improve your performance on the midterms and final exam.