# University of Ottawa

## Department of Mathematics and Statistics

### MAT 1341: Introduction to Linear Algebra

**Winter 2010**

**Professor:** Erhard Neher, Department of Mathematics and Statistics, 585 King Edward, office 207C, email: `neher@uottawa.ca`.

**Regular Office hours:** Tuesday, 2:30-4pm (preliminary) in my office. If it is not possible to see me during my regular office hours, please talk to me after class or send me an email to set up an appointment. Special office hours before the tests will be announced later.

**Prerequisites:** MAT1339 or MAT1340 or Ontario 4U Calculus and Vectors (MCV4U), or an equivalent. This course cannot be combined for credit with MAT1302. *You must have one of these to take the course.*

**Course webpage:** Virtual campus of the University of Ottawa.

**Lectures:** Tuesday, 13:00 - 14:30 and Thursday, 11:30 - 13:00, both in ARS 026.

**Study break:** February 14-21, 2010. There will be no lectures or a DGD during the study break.

**DGD = Problem sessions:**

DGD 1, Monday, 08:30 - 10:00 in DMS 1140;
DGD 2, Monday, 14:30 - 16:00 in MCD 121;
DGD 3, Monday, 14:30 - 16:00, in CBY B012.

The DGD is an integral part of the course and *participation is mandatory.* The TA will present solutions to problems from the textbook, similar to the assigned homework problems and the problems on the tests. Because of space reasons, you must go to the DGD for which you are registered.

**Textbook:** "Linear Algebra with Applications", 6th edition (McGraw-Hill Ryerson). All assigned exercises are taken from the textbook and have solutions in the back of the book. This is *not* the textbook used in the past for this course, although both textbooks are from the same author.

**Course outline:** We will cover the topics stated in the official course description (see the calendar or the course web page). In the textbook, these are *approximately* the following sections: 1.1–1.6, 2.1–2.4, 2.6, 3.1–3.5, 4.1–4.5, 5.1–5.4, 6.1–6.4, 8.1, Appendix A. We will cover the material in the following order (approximatively):

Week 1 (Jan 5 and 7): 1.1, 1.2
Week 2 (Jan 12 and 14): 1.3 - 1.6, 2.1
Week 3 (Jan. 19 and 21): 2.2, 2.3
Week 4 (Jan. 26 and 28): 2.4, 2.6
Week 5 (Feb. 2 and 4): 2.6, 3.1
Week 6: Test 1 (Feb 9), 3.2
Week 7 (Feb. 23 and 25): 3.3 + Appendix C (complex numbers)
Week 8 (March 2 and 4): 3.4, 3.5, 4.1, 4.2, 4.3
Week 9 (March 9 and 11): 4.4, 4.5, 5.1
Week 10 (March 16 and 18): 5.2, 5.4
Week 11: 5.3, 8.1 Test 2 (March 25)
Week 12 (March 30 and April 1): 6.1, 6.2

Week 13 (April 6 and 8): 6.3, 6.4

I may not cover all the material of a section as it is given in the book. You will of course only be responsible for the material covered in class.

**Homework assignments:** There will be 4 homework assignments, due on the following Tuesdays,

**January 19, February 2, March 2, March 18**

The homework will be announced on the course web site one week before the due date. The homework has to be handed **before the beginning of the class – late homework will not be accepted**. You must use the two cover sheets provided on the posted assignment.

**Tests during the term:** There will be two tests,

- **Test 1: Tuesday, February 9, 13:00–14:30,**
- **Test 2: Thursday, March 25, 13:00–14:30.**

The tests will be written in ARS 026, LPR 155 (test 1) and ARS 026, FTX 147A (test 2). The precise distribution of students will be announced later. The tests and the final exam will be a mixture of multiple choice questions, short answer questions (no partial marks) and long answer questions.

Missed tests **cannot** be written at another time. If a test is missed *because of a valid reason*, approved by me, the weight of a missed tests will be added to the weight of the final exam in the calculation of the course mark. An example of a valid reason is illness, proven by a medical certificate.

All tests and the final exam are closed-book exams. **Calculators are not allowed.** You must present your student card during the test.

The marked test will be given back about one week later in the problem session. Unclaimed tests will be kept by me and can be claimed later during the term. All unclaimed assignments and tests will be shredded 6 months after the end of term. The marks of the tests and homework will be entered into grade book in Virtual Campus.

**Final Grade:** If your score on the final exam is less than 50%, your final grade = grade of the final exam, i.e., F if the grade of the final exam is less than 40%, E if the grade of the final exam lies between 40% and 50%. If the grade of the final exam is above 50%, the final grade will be the weighted average calculated as follows:

**15% homework, 30% in-term tests, 55% final exam.**

Each of the two tests will contribute 15%.

**Resources:** Here's a short list of resources you can make use of this term to succeed in MAT 1341:

- **My office hours** (see above) and the **DGD**.
- The **Mathematics Help Centre** offers help on a one-to-one basis. It is located in Marion Hall, room 021, and open Monday to Thursday 10:00-19:00 and Friday, 10-15, starting in the second week of the term. You do not need an appointment; however the service is on a first-come-first-served basis. **Don't wait until the last minute before a test to come for help!** Make some hours available in your schedule to come regularly to ask questions! Tips on how to make best use of the Help Centre are posted on the course web site.
- The **Linear Algebra test bank** is a collection of multiple choice questions. It can be accessed by every student registered in this course via the Centre for Mediated Teaching and Learning.

**Applications of linear algebra** If you want to know more about the applications of linear algebra, visit the web site "Linear Algebra close to Earth" at

`http://aix1.uottawa.ca/~jkhoury/linearmain.htm`