Course Syllabus: Math 1410 A&B
Elementary Linear Algebra
Department of Mathematics and Computer Science
University of Lethbridge, Spring 2017

Course instructor:	Sean Fitzpatrick	**Office:**	C540
Tutorial instructor:	Jeff Bleaney	**Office:**	C548
Course website:	via moodle.uleth.ca		
Office hours and contact information:		Available on Moodle	
Lectures:	1410A: TR 1:40-2:55 pm in D634		
	1410B: TR 10:50 am - 12:05 pm in D634		
Tutorials:	Monday; see Moodle for times.		

Course Description

This is a first course in linear algebra. The focus of the course is primarily computational rather than theoretical: although you will be expected to develop a conceptual understanding of the material (and produce the occasional short proof), mastery of procedures is sufficient to succeed in this course. Topics covered include complex numbers, vector geometry, systems of linear equations, matrices, determinants, vectors in $\mathbb{R}^n$, and eigenvalues and eigenvectors.

Course Objectives

A students in this course will be expected to:

- Find solutions to problems requiring multiple steps, such as constructing and labelling a diagram, deriving equations, and interpreting results of computations.

- Develop a working knowledge of the basic algebraic techniques of linear algebra, including elementary row operations, matrix algebra, and manipulation of determinants.

- Understand the significance of concepts such as rank, span, and linear independence.

- Interpret and apply definitions and theorems, and write logical arguments using complete sentences.

Required Textbook:

This course is being run entirely on open courseware. I have assembled and edited (and written parts of) a textbook using materials from several different open-source textbooks. The e-book is available as a free PDF document on our Moodle page, and can also be accessed at http://www.cs.uleth.ca/ fitzpat/Textbooks/Texts.html. If you want a hard copy of the textbook, you can print it yourself*, or ask the Bookstore to do it for you. The Bookstore makes the text available as a print-on-demand coursepack; most requests are processed by the next day.

    *If you choose to print the book yourself, be sure to download the black-and-white version of the PDF for black-and-white printing.

Evaluation

Your grade will be determined according to the following table (see below for explanations of each component):

Component	Tutorials	Written Assignments	Online Assignments	Term Tests	Final
Weight	10	10	10	30	40

Tutorials:

Tutorial attendance is required, and worth 10% of your grade. Practice problems for tutorial will be posted in advance on Moodle. You will have time in each tutorial to discuss these problems with your classmates and the tutorial instructor; you will then be asked to write up and submit a solution to a similar problem. (This is not a quiz. You will be free to use your notes, talk to classmates, and ask for help in order to complete your work.) Your submitted solution will be used to record your attendance, and you will receive feedback on your work. Most reasonable attempts at solving a problem will receive full credit, even if there are some mistakes. There will be a total of 11 tutorials; the tutorial grade will be "best 10 out of 11," so you can miss once without penalty.

Written Assignments:

There will be five written assignments, in which you will be asked to submit solutions to several problems. The problems on the written assignments will sometimes be of a theoretical nature, and in general will be more challenging. The following policies are in effect for assignments:

- You can, and *should* ask for help. I am available during both office hours and tutorials, and there is an online discussion forum where I will answer questions. There are also regular Math Help Sessions.

- Late assignments are not accepted without **prior** permission. I may consider reasonable requests for an extension, provided that you make your request in advance of the due date, and you do not have a history of such requests. Any request made after the due date will not be granted.

- You will have the option of doing either individual or group assignments. When working in a group, it is advised that you continually question each other's work. Do not accept a solution until everyone in your group is convinced that it is correct.

- Copying is considered plagiarism and is serious academic misconduct with serious consequences. The minimum penalty is a zero on the assignment and a letter to the Dean's Office explaining the offence.

Online Assignments:

There will be weekly online homework assignments. Each assignment is accessed via Moodle. The online homework questions are graded automatically by the computer, and in most cases you will be allowed an unlimited number of attempts to correctly answer each problem. Online homework will also be graded on a "best 10 out of 11" basis.

Tests:

There will two term tests written in class on **Tuesday, February 7th**, and **Tuesday, March 14th**. There will be no makeup tests. In the case of an **excused absence** for one of the tests, the weight of that test will be added to the final exam.

Final exam:

The final exam will be **cumulative**, but will be weighted more towards the material covered after the second term test. Details will be provided towards the end of the semester. Please be advised that I will be requesting a **common exam** for the two sections of Math 1410. Common exams are not scheduled until mid-way through the semester. Students are expected to be available for the **entire** examination period, so plan your travel accordingly.

Letter grade conversions:

The percentage grades earned in this class will be converted to letter grades according to the following table:

Letter grade:	A$^+$	A	A$^-$	B$^+$	B	B$^-$	C$^+$	C	C$^-$	D$^+$	D	F
Minimum % required:	95	85	80	77	73	70	67	63	60	55	50	0

Course policies

Lectures:

In an effort to devote more class time to examples and exercises, we will be experimenting with providing some of the class content online. I will prepare "screencast" videos (consisting of live annotation of lecture slides, with audio) to introduce course content. For the classes to be beneficial, you will need to watch these videos **before** coming to class. This is a new format for me, so we'll evaluate things after a couple of weeks to see how it's working.

Course schedule:

I will update Moodle every week to indicate the sections of the textbook being covered in class, along with the corresponding suggested homework. Please check Moodle regularly.

Participation:

Class participation is encouraged, but not required. We will have a class discussion forum at piazza.com available through Moodle for online participation. Piazza is a Q & A forum that supports mathematical notation and allows you to post anonymously, in case you're worried about posting a bad question or wrong answer.

Homework:

The easiest way to master the material in Math 1410 is to do as many exercises as you can. In addition to the assignments, you will find many exercises in the course textbook. Working in groups is highly recommended, and if there are problems that you don't understand, you should see me sooner rather than later. Doing a little bit of work on a regular basis is easier and more effective than trying to cram before the exams. (The online homework and tutorials are designed to keep you on pace.) You are also encouraged to use the online forum to ask questions.

Communication:

Communication between students and myself can take place in several ways:

- Announcements on Moodle. Any updates and reminders will be posted on Moodle. These announcements will be sent to your uleth.ca email address by default, so be sure to monitor that account. It is also highly recommended that you log into Moodle on a regular basis to keep up to date on the course.

- In person, during office hours. (Recommended, especially if you are having trouble with a concept.)

- Online discussion forum, via Piazza.com.

- Email. You are welcome to email me with questions about the course, and I will do my best to answer as soon as I can. I do, however, have a few email etiquette rules:

  - Please use **only** your University of Lethbridge email address.
  - The subject line should reference this course, and your message should contain your full name.
  - Questions about how to solve a particular homework problem should be directed to the discussion forum rather than email: the discussion forum can properly display math symbols, and it's usually the case that several students will have the same question.
  - Questions that can be answered by reading this syllabus (e.g. "When's the test?") will usually not be answered in a timely fashion, and the replies will generally be grumpy/sarcastic in nature.

Calculators:

For term tests you will be allowed to use a simple **five function** calculator. (That is, you can use a calculator that is limited to addition, subtraction, multiplication, division, and percentages.) Scientific and graphing calculators are **not** permitted. As long as this rule is followed for both tests, the same simple calculator will be allowed for the final exam.

Special arrangements:

If you are a student who has registered for accommodations with the Accommodated Learning Centre, please ensure that I am informed of the necessary arrangements as soon as possible, and please feel free to meet with me if there are any adjustments I can make to improve your learning experience.

Academic honesty:

Students are expected to be familiar with, and abide by, the rules laid out in the Academic Calendar regarding academic honesty, cheating, etc. and the penalties assessed for disregarding those rules.