## Basic Information

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|---|---|
| **Course** | MATH 1115 Mathematics for Commerce (3ch) |
| **Lectures** | MWF 12:35–13:25, McCain Auditorium 2 (Ondaatje Theatre) |
| **Instructor** | Svenja Huntemann, svenja.huntemann@dal.ca, Chase 122 |
| **Office Hours** | MW 2-3pm and THF 11am-12pm or by appointment |
| **Course Website** | On Brightspace |

## Course Description

An introduction to matrices, linear programming, mathematics of finance, probability and differential calculus. All topics are taught with an emphasis on applications to business. This course cannot be used to partially satisfy the BSc Mathematics requirement.

## Prerequisites

Nova Scotia Advanced Mathematics 11 or 12 or equivalent.

## Course Objectives/Learning Outcomes

The overarching goal of this course is for students to be able to interpret word problems and solve them using a broad range of mathematical techniques. The idea is to develop a broad mathematical toolbox with skills and knowledge that can be applied to many different real world problems.

- Chapter 5 Mathematics of Finance:
  Students will learn the time value of money under compound interest and be able to solve several real-world problems such as determining the monthly payment on a car or a mortgage, or determining the final payment required to pay off a loan.
- Chapter 6 Matrix Algebra:
  Students will learn how to solve systems of linear equations using several methods.
- Chapter 7 Linear Programming:
  Students will learn how to obtain the best outcome (i.e. maximum profit or lowest cost) for linear mathematical models with built-in restraints. For example, we will be able to determine which products a company should produce in order to make the most effective use of their assets.
- Chapter 10 Limits and Continuity:
  Students will learn the basic building blocks of calculus in order to define and use the derivative. This chapter is mostly building a foundation for the material in Chapters 11 and 13.
- Chapter 11 Differentiation:
  Differentiation is the process of finding the derivative of a function. The derivative is

one of the most fundamental concepts in mathematics. Students will be able to take the derivative of a wide variety of functions.

- Chapter 13 Curve Sketching:
  Although the chapter is called curve sketching, we will only touch on curve sketching. The primary goal for us in this chapter will be to solve max/min word problems using the derivative. We will solve a wide range of problems and will often be looking to maximize profit or minimize cost.
- Chapter 8 Introduction to Probability and Statistics:
  Students will learn the basic principles of counting and probability and will be able to solve probability problems involving cards, dice, the choosing of committee members, and much more.

## Textbook

E. Haeussler, R. Paul, and R. Wood: *Introductory Mathematical Analysis for Business, Economics, and the Life and Social Sciences*, Second Custom Edition for Dalhousie University

## Assessment Overview

There are two marking schemes for this course. Your final grade will be the higher one of the two calculated using scheme 1 and scheme 2.

**Scheme 1**

| Component | Weight | Dates |
|---|---|---|
| Assignments | 15% | Weekly |
| Test I | 20% | February 9, 2018 |
| Test II | 20% | March 14, 2018 |
| Final Exam | 45% | Exam period |

**Scheme 2**

| Component | Weight | Dates |
|---|---|---|
| Assignments | 15% | Weekly |
| Final Exam | 85% | Winter exam period |

Note that it is uncommon that scheme 2 applies for the final grade. This is mainly given as an option for students not performing to their abilities throughout the term due to exceptional circumstances.

Percentage grades will be rounded to the nearest percentage point and then converted into letter grades as follows (from Section 17.1 in the Undergraduate Calendar):

| | | | | | |
|---|---|---|---|---|---|
| 90-100% | 85-89% | 80-84% | 77-79% | 73-76% | 70-72% |
| A+ | A | A- | B+ | B | B- |
| 65-69% | 60-64% | 55-59% | 50-54% | 0-50% | |
| C+ | C | C- | D | F | |

## Detailed Assessment Description

**Assignments**
There will be 12 assignments throughout the term (one for each week), the best 10 of which are counted, each worth 1.5% of your grade, for a total of 15%. Assignments will be done through WeBWorK. The links for each assignment can be found on Brightspace.

**Tests and Final Exam**
The tests will take place on February 9, 2018 and March 14, 2018, 6:30-8:30pm. They are each worth 20%. The tests will be cumulative, but the second test will have an emphasis on material covered since the first test. Test I will be up to and including section 6.3, Test II up to and including 10.3. You are responsible for material covered in class, the assignments, and the corresponding sections of the textbook.

The final exam will be during the exam period (April 12-26, 2018) and will be scheduled by the registrar's office. The exam will be approximately 2.5 hours long, and worth 45% of your grade. It will be cumulative.

## Important academic dates

| | |
|---|---|
| Jan 8, 2018 | First class |
| Jan 19, 2018 | Last day to add this class |
| Feb 2, 2018 | Munro Day - no class or office hours |
| Feb 5, 2018 | Last day to drop without a "W" grade |
| Feb 19-23, 2018 | Study Break |
| Mar 12, 2018 | Last day to drop with a "W" |
| Mar 30, 2018 | Good Friday - no class or office hours |
| April 10, 2018 | Last class |
| April 12-26, 2018 | Exam Period |

Note in particular that on April 10, 2018 we will have class despite being it being a Tuesday.

## Preliminary Schedule

The following is a preliminary schedule for the class. This might change throughout the term, but we will try to stick closely to it.

| Wk | Days | Monday | Wednesday | Friday |
|---|---|---|---|---|
| 1 | Jan 8, 10, 12 | Syllabus & Intro | 4.1-4.2 | 4.3-4.4 |
| 2 | Jan 15, 17, 19 | 5.1 | 5.2 | 5.3 |
| 3 | Jan 22, 24, 26 | 5.4 | 5.5 | 5.6 |
| 4 | Jan 29, 31, Feb 2 | 6.1-6.2 | 6.3 | Munro Day<br>NO CLASS |
| 5 | Feb 5, 7, 9 | Review | 6.4 | 6.4, 6.6<br>TEST I 6:30-8:30 |
| 6 | Feb 12, 14, 16 | 7.1-7.2 | 7.2 | Buffer |
| | | Study break | | |
| 7 | Feb 26, 28, Mar 2 | 7.4 | 7.4 | 7.4 |
| 8 | Mar 5, 7, 9 | 10.1-10.2 | 10.2-10.3 | Review |
| 9 | Mar 12, 14, 16 | 11.1-11.2 | 11.2-11.3<br>TEST II 6:30-8:30 | 11.3-11.4 |
| 10 | Mar 19, 21, 23 | 11.4 | 11.5 | 13.1 |
| 11 | Mar 26, 28, 30 | 13.2 | 13.6 | Good Friday<br>NO CLASS |
| 12 | Apr 2, 4, 6 | 8.1-8.2 | 8.3-8.4 | Buffer |
| 13 | Apr 9, 10 | Review | Tuesday!<br>Review | |

## Policies

**Tests and exam**

Only non-programmable, non-graphing scientific calculators will be allowed during the tests and the exam.

Late assignments are marked as zero points if no extension was previously granted.

If you miss one of the tests without my prior permission or an excuse, then it will count as 0. If you have my prior permission or an excuse, you will write a different test at a later point with everyone else who is rewriting. If you also miss this test with my permission, the weight of the test is added to your exam.

If you miss the final exam without my prior permission or an excuse, then it will count as 0. If you have my prior permission or an excuse, you will write a different exam at a later point

with everyone else who is rewriting. If you also miss this exam, you will be given a grade of 0.

**Arriving late/leaving early**
If you have to arrive late, or leave early, please try to distract the class as little as possible.

**Laptops and cell phones**
Laptops should only be used for taking notes, ideally not at all since they are distracting to your classmates and yourself. Cell phones should be out of sight at all times. If you need to answer an important call, please leave the classroom to do so.

**Extra help**
If you need extra help, please come see me during my office hours, or visit the Learning Centre on the first floor of the Chase building during the class specific hours. The Learning Centre schedule can be found here: https://www.dal.ca/faculty/science/math-stats/about/learning-centre.html
Note that I will not answer mathematical questions by email.

**Intellectual Honesty**
If you receive help from a tutor or use other resources (online, other books,...) for your assignments, please inform me of this in writing before the deadline of the corresponding assignment. More information (which I expect you to read and understand) about intellectual honesty and how to avoid plagiarism and cheating can be found here:
http://www.dal.ca/dept/university_secretariat/academic-integrity.html