Math 1215 - Calculus for the Life and Social Sciences

1 Course Outline

Text: Calculus for the Life Sciences: Modelling the dynamics of life, second Canadian edition by Fredrick Adler and Miroslav Lorvić.

This course is meant to provide the basic mathematical tools required for work in the life sciences. All of the main topics from integral and differential calculus will be covered, but with an emphasis on modelling systems from the life and social sciences.

2 General Information

Section 1

Instructor TBA
Times Monday, Wednesday, Friday at 8:35 – 9:25
Location MCCAIN ARTS SS AUD-1
Web Page Dalhousie's Online Learning System
Office hours TBA
Office Chase 125

Section 2

Instructor David Iron
Times Monday, Wednesday, Friday at 10:35 – 11:25
Location Chemistry 125
Web Page Dalhousie's Online Learning System
Office hours TBA
Office Chase 322

Section 2

Instructor Sarah Chisholm
Times Monday, Wednesday, Friday at 8:35 – 9:25
Location Dunn 304
Web Page Dalhousie's Online Learning System
Office hours TBA
Office Chase 122

3 Calculators

Basic or scientific calculators are allowed for tests and exams, however they will not be needed. Answers may be left in unsimplified form. No phones, tablets, graphing or programmable calculators are allowed for the test or exam.

4 Evaluation and Grading

All homework assignments, solutions, and handouts will be available from the course website on OWL. If you have any problems downloading or viewing/printing any of these documents please contact me by e-mail.

Weekly Quizzes Each week there will be an on line quiz found on the course webpage. The problems will be based on book problems listed on the web page. The lowest quiz grade will be ignored. The quizzes will be worth 15% of the final grade.

Projects There will be two projects during the semester where you will have the opportunity to work out an application of the theory in this course to a real-life situation. You will generally have two weeks to complete each project. If you choose, you are permitted to work on the projects in groups of at most 2. Pairs will hand in one assignment with both names clearly labelled and receive the same grade. The projects together will be worth 20% of your final grade.

Midterm Test The midterm test will be held on Friday October 19 from 7-8:30.

Final Exam The final exam will be 3 hours long and written. The time for this exam is set by the registrar during the official Dalhousie exam period from December 6 until December 16, 2018. If you plan to travel for Christmas, please buy your airline tickets after the registrar has announced the exam schedule, or plan to leave after December 16. There will not be any opportunities to write the exam early.

Quizzes 15%

Projects 20%

Midterm Test 25%

Final Exam 40%

5   Grading Scheme

The grading scheme is as follows:

A+	A	A-	B+	B	B-	C+	C	C-	D	F
$[90, 100]$	$[85, 90)$	$[80, 85)$	$[77, 80)$	$[73, 77)$	$[70, 73)$	$[65, 70)$	$[60, 65)$	$[55, 60)$	$[50, 55)$	$[0, 50)$

6   Important Dates

September 21 Project 1 is available
October 5 Project 1 is due
October 19 Midterm Test
November 20 Project 3 is available
December 4 Project 3 is due

7   Course Topics and Approximate Dates

week 1 Discrete dynamical systems - sections 3.1-3.4
week 2 Rates of change, limits - sections 4.1-4.3
week 3 Differentiation - sections 4.4-4.5, 5.1
week 4 More derivatives - sections 5.2,5.3,5.4
week 5 Implicit derivatives, higher order derivatives and Taylor polynomials - sections 5.5,5.6,5.7
week 6 Max/Min, L'Hopital's rule, Stability of Discrete-time dynamical systems Graphing 6.1,6.4,6.7
week 7 Midterm Review and Graphing - section 6.5
week 8 Logistic equation, Differential equations, Anti-derivatives - sections 6.8, 7.1, 7.2
week 9 Definite Integrals, Area - sections 7.3,7.4
week 10 Techniques of Integration - section 7.5
week 11 Differential Equations, Equilibria, Stability - sections 8.1, 8.2, 8.3
week 12 Separable Differential Equations, Systems - sections 8.4, 8.5
week 13 Review for Exam

8   Special Accommodations

Students may request accommodation as a result of barriers related to disability, religious obligation, or any characteristic under the Nova Scotia Human Rights Act. Students who require academic accommodation for either classroom participation or the writing of tests, quizzes and exams should make their request to the Office of Student Accessibility & Accommodation (OSAA) prior to or at the outset of each academic term (with the exception of X/Y courses). Please see www.studentaccessibility.dal.ca for more information and to obtain Form A - Request for Accommodation. A note taker may be required to assist a classmate. There is an honorarium of $75/course/term. If you are interested, please contact OSAA at 494-2836 for more information.

9   Final Notes

- The university policy states that all cases of academic misconduct must be handled through official channels. I have no latitude in this matter. Please read the paragraphs on academic honesty on page 21-26 in the Calendar.
- Transitions are challenging. Students moving from high school to university experience high levels of stress especially in terms of their studies. The Writing Centre, works to develop writing skills that meet university expectations in one-on-one sessions, in small groups, and in classes. Their url is

    `http://www.dal.ca/campus_life/student_services/academic-support/writing-and-study-skills.html`

    Tutoring information and academic skills program information may be found at

    `http://www.dal.ca/campus_life/student_services/academic-support/study-skills-and-tutoring.html`