

Faculty of Science Course Syllabus

Department of Mathematics and Statistics

MATH 1010

Differential & Integral Calculus II

Fall 2016

Basic Information

Instructor: Dr. Karl Dilcher, Chase 325, dilcher@mathstat.dal.ca

Lectures: MWF 11:35 – 12:25, LSC 240

Office hours: MWF 10:00 – 11:00 (subject to change)

Course Description

A continuation of the study of calculus with topics including: Riemann sums, techniques of integration, elementary differential equations and applications, parametric equations and polar coordinates, sequences and series, Taylor series.

Course Prerequisites

MATH 1000.03, or MATH 1215.03 with a grade of B or better.

Course Objectives/Learning Outcomes

- Understand the significance and various methods of evaluation of integrals.
- Understand how to utilize parametric representations of plane curves.
- Be able to compute areas and arc lengths associated with general parametric curves and specifically for curves defined by both cartesian and polar coordinates.
- Understand the significance of sequences, series and their associated convergence behaviour.
- Understand power series as well as the extent to which functions can be represented by Taylor/MacLaurin series.

Course Materials

- Textbook: Single Variable Calculus – Early Transcendentals, Eighth Edition, by James Stewart.
- Brightspace: This course has a major presence on Brightspace. To access your Math 1010 course on Brightspace you may login to: <https://dal.brightspace.com>. Alternatively, you can select the *Brightspace* link that appears on the Dalhousie homepage (<http://www.dal.ca>). It is important that you familiarize yourself with the systems requirement for proper access to Brightspace.

Resources

- Math & Stats Student Resource Centre (Room 119, first floor of the Chase Building). A calculus tutor will be available on weekdays and evenings on a first come, first served basis, free of charge. There are large tables where you can work together (on Math or Stats only, please). To see the current schedule, please visit the Resource Centre's webpage <http://www.dal.ca/faculty/science/math-stats/about/learning-centre.html>.
- The use of office hours, to talk with your instructor, is encouraged.

Course Assessment

The Final Grade will be computed as the maximum of the grades obtained from the following two schemes:

Scheme I:

Component	Weight (% of final grade)	Date
Midterm Exam	25%	November 1, 2016 (7:00 – 9:00 pm)
Final Exam	50%	(Scheduled by Registrar)
Online Assignments	25%	~3 per week

Scheme II:

Component	Weight (% of final grade)	Date
Final Exam	100%	(Scheduled by Registrar)

Warning: It is fairly uncommon that the final exam score will exceed the score based on Scheme I, so it is strongly recommended that you prepare yourself to be graded on the first scheme; the second scheme is included in order to accommodate students who fail to perform up to their ability on the midterm and the quizzes due to circumstances beyond their control.

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

A+: (90–100)	A: (85–89)	A-: (80–84)
B+: (77–79)	B: (73–76)	B-: (70–72)
C+: (65–69)	C: (60–64)	C-: (55–59)
D: (50–54)	F: (<50)	

Course Policies

- Missed exams can be made up for documented illness or upon receipt of equivalent proof of inability to write at the scheduled time.
- On exams, we recommend that answers be left in unsimplified form.
- Calculators will NOT be allowed during the midterm or the final exam. In fact, only writing utensils (pencils, lead, erasers, pens, white-out) will be allowed.
- Information about the course may be given during class. It is your responsibility to know what occurs during classes.

Course Content

The material to be covered consists of portions of Chapters 6 – 8, 10, and 11 of the textbook. Specifically, we will try to stick to the following lecture schedule:

Date	Topic
September 7 – 9	§6.1 Areas Between Curves §7.1 Integration by Parts
September 12 – 16	§7.2 Trigonometric Integrals §7.3 Trigonometric Substitution
September 19 – 23	§7.3 Trigonometric Substitution (Cont'd) §7.4 Integration of Rational Functions by Partial Fractions
September 26 – 30	§7.4 Integration of Rational Functions by Partial Fractions (Cont'd) §7.5 Strategy for Integration
October 3 – 7	§7.7 Approximate Integration §7.8 Improper Integrals
October 7 (Fri.)	Last day to drop without a “W”
October 10 (Mon.)	Thanksgiving – No class
October 12 – 14	§8.1 Arc Length §10.1 Curves Defined by Parametric Equations
October 17 – 21	§10.2 Calculus with Parametric Curves §10.3 Polar Coordinates
October 24 – 28	§10.4 Areas and Lengths in Polar Coordinates §11.1 Sequences
October 31 – Nov. 4	§11.2 Series §11.3 The Integral Test and Estimates of Sums
November 1 (Tues.)	Midterm 7:00–9:00 pm, Dunn 117 (up to and including §10.3)
November 7 – 11	Study Break – No Classes
November 14 (Mon.)	Last day to drop with a “W”
November 14 – 18	§11.4 The Comparison Tests §11.5 Alternating Series §11.6 Absolute Convergence and the Ratio and Root Tests
November 21 – 25	§11.6 Absolute Convergence and the Ratio and Root Tests (Cont'd) §11.7 Strategies for Testing Series §11.8 Power Series
November 28 – Dec. 2	§11.9 Representations of Functions as Power Series §11.10 Taylor and Maclaurin Series
December 5	§11.10 Taylor and Maclaurin Series (Cont'd) Brief review

ACCOMMODATION POLICY FOR STUDENTS

Students may request accommodation as a result of barriers related to disability, religious obligation, or any characteristic protected under Canadian Human Rights legislation. The full text of Dalhousie's Student Accommodation Policy can be accessed here: www.dal.ca/dept/university_secretariat/policies/academic/student-accommodation-policy-wef-sep--1--2014.html Students who require accommodation for classroom participation or the writing of tests and exams should make their request to the Advising and Access Services Centre (AASC) prior to or at the outset of the regular academic year. More information and the Request for Accommodation form are available at www.dal.ca/access.

ACADEMIC INTEGRITY

Academic integrity, with its embodied values, is seen as a foundation of Dalhousie University. It is the responsibility of all students to be familiar with behaviours and practices associated with academic integrity. Instructors are required to forward any suspected cases of plagiarism or other forms of academic cheating to the Academic Integrity Officer for their Faculty. The Academic Integrity website (academicintegrity.dal.ca) provides students and faculty with information on plagiarism and other forms of academic dishonesty, and has resources to help students succeed honestly. The full text of Dalhousie's Policy on Intellectual Honesty and Faculty Discipline Procedures is available here: www.dal.ca/dept/university_secretariat/academic-integrity/academic-policies.html

STUDENT CODE OF CONDUCT

Dalhousie University has a student code of conduct, and it is expected that students will adhere to the code during their participation in lectures and other activities associated with this course. In general:

“The University treats students as adults free to organize their own personal lives, behaviour and associations subject only to the law, and to University regulations that are necessary to protect

- the integrity and proper functioning of the academic and non academic programs and activities of the University or its faculties, schools or departments;
- the peaceful and safe enjoyment of University facilities by other members of the University and the public;
- the freedom of members of the University to participate reasonably in the programs of the University and in activities on the University's premises;
- the property of the University or its members.”

The full text of the code can be found here: www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html.

SERVICES AVAILABLE TO STUDENTS

The following campus services are available to help students develop skills in library research, scientific writing, and effective study habits. The services are available to all Dalhousie students and, unless noted otherwise, are free.

Service	Support Provided	Location	Contact
General Academic Advising	Help with -understanding degree requirements and academic regulations -choosing your major -achieving your educational or career goals -dealing with academic or other difficulties	Killam Library Ground floor Rm G28 Bissett Centre for Academic Success	In person: Killam Library Rm G28 By appointment: -e-mail: advising@dal.ca -Phone: (902) 494-3077 -Book online through MyDal
Dalhousie Libraries	Help to find books and articles for assignments Help with citing sources in the text of your paper and preparation of bibliography	Killam Library Ground floor Librarian offices	In person: Service Point (Ground floor) By appointment: Identify your subject librarian (URL below) and contact by email or phone to arrange a time: dal.beta.libguides.com/sb.php?subject_id=34328 .
Studying for Success (SFS)	Help to develop essential study skills through small group workshops or one-on-one coaching sessions Match to a tutor for help in course-specific content (for a reasonable fee)	Killam Library 3rd floor Coordinator Rm 3104 Study Coaches Rm 3103	To make an appointment: -Visit main office (Killam Library main floor, Rm G28) -Call (902) 494-3077 -email Coordinator at: sfs@dal.ca or -Simply drop in to see us during posted office hours All information can be found on our website: www.dal.ca/sfs
Writing Centre	Meet with coach/tutor to discuss writing assignments (e.g., lab report, research paper, thesis, poster) -Learn to integrate source material into your own work appropriately -Learn about disciplinary writing from a peer or staff member in your field	Killam Library Ground floor Learning Commons & Rm G25	To make an appointment: -Visit the Centre (Rm G25) and book an appointment -Call (902) 494-1963 -email writingcentre@dal.ca -Book online through MyDal We are open six days a week See our website: writingcentre.dal.ca