

Faculty of Science Course Syllabus

Department of Mathematics and Statistics

Math 1010

Differential & Integral Calculus II

Winter 2019

Instructors

Lecture Section	Instructor	E-mail Address	Office Location
1	Rob Noble	rnoble@mathstat.dal.ca	CHASE 205
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3	Alan Surovell	surovell@mathstat.dal.ca	CHASE 201

Lectures

Lecture Section	Days	Time	Location
1	MWF	1:35 PM – 2:25 PM	CHEMISTRY 125
2	MWF	11:35 AM – 12:25 PM	SIR JAMES DUNN 117
3	MWF	12:35 PM – 1:25 PM	LSC-PSYCHOLOGY P5260

Tutorials

1 hour per week, commencing the week of January 14, 2019.

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/d2l/login>. Alternatively, you can select the OWL 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.

You will need at various times to gain information from different areas of BrightSpace. Most importantly:

1. The course outline as well as a link to the online assignments can be found under **Content**.
 2. Your grades can be found under **Progress**.
- Webwork: Your online assignments will appear in webwork, accessed through links appearing under **Content** in BrightSpace.

Resources

- Dr. Noble's course notes will be available on BrightSpace.
- 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>.

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
Tutorial Quizzes	15%	Weekly
Midterm Exam	25%	February 27, 2019 (6:30 PM – 8:30 PM)
Final Exam	50%	(Scheduled by Registrar)
Online Assignments	10%	~3 per week

Scheme II:

Component	Weight (% of final grade)	Date
Tutorial Quizzes	15%	Weekly
Final Exam	75%	(Scheduled by Registrar)
Online Assignments	10%	~3 per week

Warning: 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 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 quizzes or exams can be made up for documented illness or upon receipt of equivalent proof of inability to write at the scheduled time.
- If the university is closed on a particular day of a given week, due to holiday, then **all** tutorials for that week will be cancelled.
- On exams, we recommend that answers be left in unsimplified form.
- Calculators will **NOT** be allowed during tutorial quizzes, the midterm or the final examination. 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 the responsibility of the students to ensure that they are made aware of what occurs during classes.

Course Content

The material to be covered consists of the contents of Dr. Noble's course notes which are based on portions of Chapters 6 – 8, 10, and 11 of the text book. Specifically, we will try to stick to the following lecture schedule:

Date	Topic
January 7 – 11	§6.1 Areas Between Curves §7.1 Integration by Parts
January 14 – 18	§7.2 Trigonometric Integrals §7.3 Trigonometric Substitution
January 21 – 25	§7.3 Trigonometric Substitution (Con't) §7.4 Integration of Rational Functions by Partial Fractions
January 28, 30	§7.4 Integration of Rational Functions by Partial Fractions (Con't) §7.5 Strategy for Integration
February 1	Munro Day – No Class
February 4	Last Day to Drop Without a “W”
February 4 – 8	§7.5 Strategy for Integration (Con't) §7.7 Approximate Integration §7.8 Improper Integrals
February 11 – 15	§7.8 Improper Integrals (Con't) §8.1 Arc Length §10.1 Curves Defined by Parametric Equations
February 18 – 22	Study Break – No Classes

Date	Topic
February 25, 27	§10.2 Calculus with Parametric Curves §10.3 Polar Coordinates
February 27	Midterm: 6:30 PM – 8:30 PM (up to and including §10.1)
March 1	§10.3 Polar Coordinates (Con't)
March 2	Midterm Make-up Exam: 1:30 PM – 3:30 PM
March 4 – 8	§10.4 Areas and Lengths in Polar Coordinates §11.1 Sequences
March 11	Last Day to Drop With a “W”
March 11 – 15	§11.2 Series §11.3 The Integral Test and Estimates of Sums
March 18 – 22	§11.4 The Comparison Tests §11.5 Alternating Series §11.6 Absolute Convergence and the Ratio and Root Tests
March 25 – 29	§11.6 Absolute Convergence and the Ratio and Root Tests (Con't) §11.7 Strategies for Testing Series §11.8 Power Series
April 1 – 5	§11.9 Representations of Functions as Power Series §11.10 Taylor and Maclaurin Series
April 8	Final Exam Review / “Catch-up” Time

*Classes on April 8 follow a Friday schedule.

University Policies and Statements

This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate.

Academic Integrity

At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity.

Information:

https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Advising and Access Services Centre is Dalhousie’s centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia).

Information:

https://www.dal.ca/campus_life/academic-support/accessibility.html

Student Code Of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don’t follow this community expectation. When appropriate,

violations of the code can be resolved in a reasonable and informal manner-perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution.

Code:

https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Diversity and Inclusion - Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness.

Statement:

<http://www.dal.ca/cultureofrespect.html>

Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel and support. Visit or e-mail the Indigenous Student Centre (1321 Edward St) (elders@dal.ca).

Information:

https://www.dal.ca/campus_life/communities/indigenous.html

Important Dates in the Academic Year (including add/drop dates)

https://www.dal.ca/academics/important_dates.html

University Grading Practices

https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html

Missed or Late Academic Requirements due to Student Absence (policy)

https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html

Student Resources and Support

Advising

General Advising: https://www.dal.ca/campus_life/academic-support/advising.html

Science Program Advisors: <https://www.dal.ca/faculty/science/current-students/academic-advising.html>

Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html

Black Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html

International Centre: https://www.dal.ca/campus_life/international-centre/current-students.html

Academic supports

Library: <https://libraries.dal.ca/>

Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html

Studying for Success: https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html

Copyright Office: <https://libraries.dal.ca/services/copyright-office.html>

Fair Dealing Guidelines <https://libraries.dal.ca/services/copyright-office/fair-dealing.html>

Other supports and services

Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness/services-support/student-health-and-wellness.html

Student Advocacy: <https://dsu.ca/dsas>

Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html

Safety

Biosafety: <https://www.dal.ca/dept/safety/programs-services/biosafety.html>

Chemical Safety: <https://www.dal.ca/dept/safety/programs-services/chemical-safety.html>

Radiation Safety: <https://www.dal.ca/dept/safety/programs-services/radiation-safety.html>

Scent-Free Program

<https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html>