

Faculty of Science Course Syllabus
Department of Mathematics & Statistics

MATH 1010
Differential and Integral Calculus II
Summer B 2020 (Distance)

Instructors: Dr. Abdullah Al-Shaghay
a.alshaghay@dal.ca
Office Hours (held in Collaborate Ultra) Weeks 1-3: Tuesday and Thursday 10:00 am – 12:00 pm (ADT) or by appointment.
Pronouns: He/Him/His

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Office Hours (held in Collaborate Ultra) Weeks 4-7: Wednesday: 9:00 am – 10:00 am (ADT)- Thursday: 3:00 pm – 4:00 pm (ADT)- Friday 10:00 am-12:00 pm (ADT) or by appointment.
Pronouns: She/Her/Hers

Course Delivery: This course will be delivered asynchronously. Students can access course materials and complete course requirements at the time of day that best suits them during the term. The course will be delivered in seven modules; one for each week of the course. Each module will contain pre-recorded lecture videos, accompanying homework sets, and a module test. All course material will be made available and accessible through the course Brightspace page. Instructors will host live office hours each week as well and TA support is offered throughout the entire course.

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

By the end of this course, students will be able to:

- 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 behavior.
- Understand power series as well as the extent to which functions can be represented by Taylor/MacLaurin series.

Course Materials

- **Pre-Recorded Videos:** Lecture-style presentations of the sections in the textbook and course notes recorded using Panopto accessed through Brightspace.
- **Textbook:** *Single Variable Calculus – Early Transcendentals, Eighth Edition, by James Stewart*. If you have access to another calculus textbook, that will work as well. The main intent of the textbook is to have access to references and practice problems covered by the course topics.
- **Brightspace:** This course will operate entirely 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 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.

Additional Resources

- **Course Notes** (By Dr. Rob Noble): A summary of the textbook sections. The notes are available under Content on Brightspace.
- **Discussion Board:** The link and detailed instructions will be announced later in the course as an announcement.
- **TA Online Support:** The link and TA schedule will be announced later on Brightspace.
- **Online Learning Centre:** The schedule will be announced later on Brightspace through an announcement. The virtual Learning Centre will be accessed via the following link:
<https://ca.bbccollab.com/guest/be68509dfd6c46e0a063575ddb21743d>

Course Assessment

Each textbook section we cover will have an associated homework assignment and each module will have a unit test. That is a total of 23 homework assignments and 6 unit tests.

Component	Weight (% of final grade)	Frequency
Homework Assignments	25%	One per course topic
Unit Tests	75%	One per week

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

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

Course Policies

- The course BrightSpace page will be used to make all course announcements. It is the responsibility of the student to make sure that they are keeping up to date and informed. Your email address that

you have provided may also be used to contact you. It is the responsibility of the student to check their email regularly.

- Students are expected to take responsibility for progressing through the online course material (completing assignments, watching lecture videos, taking weekly tests, etc.) in a timely fashion. They should follow the posted schedule/timeline. Homework and test extensions will not be granted after the due dates have passed.
- Students need to complete each assignment and test on time to insure they build up the necessary skills for the upcoming modules.
- Students are expected to only submit their own work reflecting their personal and individual effort. Any violation may result in disciplinary measures initiated by the instructors.
- All opening/available times and all closing/due times announced in the course will refer to ADT (Atlantic time zone). Please make sure you are aware of how this time zone translates to your time zone.
- Discussion Board posts will be used throughout the course for asking and answering questions. Students are expected to engage with the course community using these discussion boards accessible through BrightSpace.

Course Content

Date	Focus Topics
Week 1 (July 6- July 12)	6.1- Areas between Curves, 7.1- Integration by Parts, 7.2-Trigonometric Integrals, 7.3-Trigonometric Substitution
Week 2 (July 13- July 19)	7.4-Integration by Partial Fraction Decomposition, 7.5-Strategy for Integration, 7.7- Approximate Integration, 7.8-Improper Integrals
Week 3 (July 20-July 26)	8.1-Arc Length, 10.1-Parametric Curves, 10.2- Calculus with Parametric Curves, 10.3-Polar Coordinates, 10.4-Areas and Lengths in Polar Coordinates
July 21	Last day to drop a course without "W"
Week 4 (July 27- August 2)	Review of sections 6.1-10.4, 11.1-Sequences, 11.2-Series
Week 5 (August 3-August 9)	11.3-The Integral Test and Estimates of Sums, 11.4 The Comparison Tests, 11.5 Alternating Series
August 3	Natal Day - University closed
August 6	Last day to drop a course with "W"

Week 6 (August 10-August 16)	11.6 Absolute Convergence and the Ratio and Root Tests, 11.7 Strategies for Testing Series
Week 7 (August 17-August 24)	11.8 Power Series, 11.9 Representations of Functions as Power Series, 11.10 Taylor and Maclaurin Series

University Policies and Statements

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

Missed or Late Academic Requirements due to Student Absence

As per Senate decision instructors must not require medical notes of students who must miss an academic requirement, including a final exam, for courses offered during spring or summer sessions 2020 (until Aug 31, 2020).

Information on regular policy, including the use of the Student Declaration of Absence can be found here:

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

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

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 Students 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>