Department of Mathematics & Statistics
Concordia University

MATH 203
Differential & Integral Calculus I
Fall 2020

Instructor*: _____

Email: _____

Office Hours: _____

*Students should get the above information from their instructor during class time. The instructor is the person to contact should there be any questions about the course.

Preface: Due to exceptional circumstances, this course will be taught and all assessments will be done completely ONLINE. Given the subject matter and nature of this course, **the midterm and the final exams will be given online through the Concordia Online Exams (COLE) platform with online proctoring.** For more details see the ADDENDUM at the end of this Course Outline.

Textbook: *Thomas' Calculus: Early Transcendentals, Single Variable, (ed. 14)* Books a la Carte edition plus MyLab Math, (Pearson). Options with or without the loose-leaf text (E-book only, including in MyLabMath) can be ordered.
The digital version of the textbook will be available at:
https://www.co-opbookstore.ca/service/textbooks/
The print version of the textbook will be available at:
https://www.bkstr.com/concordiastore/home
Note: Students should order textbooks as early as possible, especially for print versions in case books are backordered or there are any shipping delays.

Prerequisite: Math 201 or an equivalent Functions course.

Pre-test: A pre-test is posted on the Meta Moodle site of this course to help students determine if their prerequisite mathematical background is strong enough to take this course. Students are encouraged to go to the Meta site, click on README: About the Pre-test and then take the test itself to see where they stand.

Office Hours: Your professor will announce her/his office hours during which she/he will be also available to give a reasonable amount of help. Note, however, that if you missed a class it is not reasonable to expect your professor to cover the missed material for you.

Tutorials: The material in this course requires a lot of practice. The Department has therefore organized special ONLINE tutorial sessions conducted every week to provide additional support to

students outside the online lecture environment. These sessions are conducted by tutors who will help with solving problems on the topics learned in class that week, with particular emphasis on the material that students may have difficulties with in this course. Students are strongly encouraged to participate and be active at these problem-solving classes. Tutorials are an important resource to help students succeed in this course.

Math Help Centre: In addition to Tutorials, a Math Help Centre staffed by graduate students is available. The schedule of its operation and will be posted on the Department webpage (https://www.concordia.ca/artsci/math-stats/services/math-help-centre.html).

WeBWorK: Every student will be given access to an online system called **WeBWorK**. The system provides you with many exercises. Students will use this system to do online assignments (see **Assignments** below). In addition, before the midterm test and before the final exam, practice problems will be posted in WeBWorK to help you review the material of the course.

MyLab Math: Every student who purchases the the textbook will be given access to one more online system called **MyLab Math**. This system contains an e-version of the textbook, as well as a large number of various resources, like practice exercises, typical examples on different topics, often with solutions, video materials, etc., that help you master the course material.

Assignments: Students are expected to submit assignments online using **WeBWorK**. Late assignments **will not** be accepted. Assignments contribute 10% to the final grade. Working regularly on the assignments is essential for success in this course. Students are also strongly advised to do as many problems as their time permits from the list of recommended problems included in this outline, as well as work on the practice exercises in WeBWorK and in MyLab Math.

Midterm Test: There will be one **midterm test,** based on the material of weeks 1-6, which will contribute up to 35% to your final grade (see the **Grading Scheme** below). The test will be **common** for all sections of this course and will be held on **Sunday October 25, 2020, at 3:00 P.M.** Students who will not be able to write the test that day for a valid reason, e.g. religious (to be reported to the section's **instructor** in advance) or illness (***a valid medical note required***), may write an alternate midterm test on **Saturday October 31, 2020, at 10:00 A.M.**

It is the Department's policy that tests missed for any reason, including illness, cannot be made up. If you miss both the main and the alternate midterm **tests** for a valid reason supported by appropriate documentation, the final exam will count for 90% of your final grade, and the assignments will count for the remaining 10%. **Travel arrangements** are not considered a valid reason for missing the midterm test.

Final Exam: The final examination will be online two hours long and will cover all the material in the course.
NOTE: Students are responsible for finding out the date and time of the final exams once the schedule is posted by the Examinations Office. Conflicts or problems with the scheduling of the final exam must be reported directly to the Examinations Office, not to your instructor.

Grading Scheme: The final grade will be based on the higher of (a) or (b) below:
a) 10% for the assignments, 35% for the midterm test, 55% for the final exam.
b) 10% for the assignments, 15% for the midterm test, 75% for the final exam.

IMPORTANT: **PLEASE NOTE THAT THERE IS NO "100% FINAL EXAM" OPTION IN THIS COURSE**.

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Note: All of Chapter 1 is a review of material that is covered in prerequisite courses, and is important for this course. The material that is skipped in this review will be introduced briefly later in the course when needed. If you don't know this preliminary material thoroughly, it is particularly important that you learn it through the assignment questions and recommended problems. If you still feel you don't know it well enough after the first class or so (you should also try the quiz at the very end of this document) you may want to consider dropping the course and taking MATH 201 instead.

Weeks	Topics			Recommended Problems
1	1.1	Representations of Functions	p.11:	3, 5, 7, 9, 13, 21, 23, 27, 49, 51
	1.2	Combining Functions; Shifting & Scaling Graphs	p.18:	1, 3, 5, 7, 9, 15, 17, 19, 21, 23, 25
	1.3	Trigonometric Functions	p.27:	7, 9, 11, 15, 19, 25, 29, 37, 41, 47, 49
2	1.5	Exponential Functions	p.37:	3, 7, 9, 11, 13, 15, 21, 25, 27, 33
	1.6	Inverse Functions and Logarithms	p.49:	9, 17, 21, 29, 31, 41, 47, 53, 61, 63, 71
3	2.1	Rates of change and Tangent Lines	p.61:	1, 3, 5, 23, 25
	2.2	Limit of a Function and Limit Laws	p.71:	3, 5, 13, 15, 19, 25, 27, 35, 37, 55, 65
	2.4	One-Sided Limits	p.88:	3, 7, 9, 15, 17, 19, 33, 37
	2.6	Limits Involving Infinity; Asymptotes	p.112:	1, 9, 11, 21, 27, 35, 41, 69, 71, 87, 89
4	2.5	Continuity	p.100:	5, 13, 19, 29, 31, 41, 45, 49, 61
	3.1	Tangent Lines and the Derivatives	p.123:	5, 11, 17, 21, 25, 31, 33
	3.2	The Derivative as a Function	p.130:	3, 9, 11, 17, 23, 25, 55, 59
5	3.3	Differentiation rules	p.142:	5, 7, 11, 15, 21, 23, 29, 43, 47, 61
	3.4	The Derivative as a Rate of Change	p.150:	5, 7, 9, 13, 15, 19, 23
6	3.5	Derivatives of Trigonometric Functions	p.158:	3, 7, 11, 13, 19, 23, 31, 37
	3.6	The Chain Rule	p.166:	5, 7, 13, 21, 23, 31, 35, 37, 45, 63, 77
7	3.7	Implicit differentiation	p.172:	1, 5, 11, 15, 25, 27, 37, 39, 41
	3.8	Derivatives of Inverse Functions and Logs	p.183:	7, 11, 27, 31, 33, 37, 39, 51, 53, 89, 95
8	3.9	Inverse Trigonometric Functions (start with the review of inverse sin & cos, § 1.6)	p.189:	5, 9, 11, 17, 25, 29, 39, 43, 45
	3.10	Related rates	p.196:	7, 11, 13, 15, 17, 21, 23, 27, 31, 33, 39
	3.11	Linearization and Differentials	p.209:	5, 11, 17, 19, 23, 33, 39, 45, 49, 55, 59
9	4.1	Extreme Values of Functions on Intervals	p.227:	5, 17, 23, 31, 37, 39, 53, 63, 69, 89
10	4.2	Mean Value Theorem	p.235:	5, 11, 13, 21, 25, 27, 29, 61, 63, 65
	4.5	Indeterminate forms and L'Hôpital's Rule	p.262:	9, 11, 15, 17, 21, 43, 47, 51, 53, 61, 63
11	4.3	Monotonic Functions	p.241:	5, 7, 19, 27, 29, 54, 57, 61
	4.4	Concavity and Curve Sketching	p.251:	5, 9, 13, 17, 31, 37, 43, 63, 81, 85, 99
12	4.6	Applied Optimization	p.269:	3, 5, 7, 9, 11, 13, 15, 19, 29, 37, 39, 41
13		**REVIEW**		

Academic Integrity and the Academic Code of Conduct

This course is governed by Concordia University's policies on Academic Integrity and the Academic Code of Conduct as set forth in the Undergraduate Calendar and the Graduate Calendar. Students are expected to familiarize themselves with these policies and conduct themselves accordingly. "Concordia University has several resources available to students to better understand and uphold academic integrity. Concordia's website on academic integrity can be found at the following address, which also includes links to each Faculty and the School of Graduate Studies: concordia.ca/students/academic-integrity."

Content belonging to instructors shared in online courses, including, but not limited to, online lectures, course notes, and video recordings of classes remain the intellectual property of the faculty member. It may not be distributed, published or broadcast, in whole or in part, without the express permission of the faculty member. Students are also forbidden to use their own means of recording any elements of an online class or lecture without express permission of the instructor. Any unauthorized sharing of course content may constitute a breach of the Academic Code of Conduct and/or the Code of Rights and Responsibilities.

Disclaimer: In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in the course is subject to change.

Addendum:

This course will be taught and all assessments will be completely online. A midterm and/or a final online exam will be provided through the Concordia Online Exams (COLE) platform with online proctoring (also known as auto-proctoring). More information about the COLE system may be found at the COLE website.

Please note the following respect to online proctored exams:

- That the exam will take place during the exam period at the designated date and time set by the professor (midterm) or the Exams office (final). All exam times will be set to Eastern Standard/Daylight Time.
- That your image, voice and screen activity will be recorded throughout the duration of the exam.
- That you must show your Concordia University Identification card to validate your identity. Alternative government issued photo identification will be accepted, though it is not recommended. Only identification in English or French will be accepted.
- That any recording made will only be viewed by authorized university personnel (no external entity has authorization to review the recording).
- That you will be responsible for ensuring appropriate, properly functioning technology (webcam, a microphone, appropriate browser and an ability to download any necessary software, as well as a reliable internet connection with a minimum of a 3G connection).
- That you are very **strongly recommended** to enter the virtual test site found at the COLE website and become familiar with the software that will be used for your exam before starting the exam.
- That you will need a quiet place within which to take the exam. Earplugs or noise-cancelling headphones that are not connected to a device may also be used to allow you to focus for the duration of the exam.

Students who are unable to write an exam because they are unable to meet the above conditions and requirements are advised that they will need to drop the course. More information can be provided on the next offering of this course by consulting the Department. Students are advised that the drop deadline (DNE) for this course is September 21, 2020.

Students who require additional accommodations for their exams due to a documented disability should contact the Access Centre for Students with Disabilities as soon as possible (acsdinfo@concordia.ca).

If you face issues during the exam, you should inform your professor of those issues immediately. Please note that there are in-exam supports you should spend time getting to know. Visit the COLE website for more information.