Faculty of Science

Department of Mathematics

Land Acknowledgement

Toronto is in the 'Dish With One Spoon Territory'. The Dish With One Spoon is a treaty between the Anishinaabe, Mississaugas and Haudenosaunee that bound them to share the territory and protect the land. Subsequent Indigenous Nations and peoples, Europeans and all newcomers have been invited into this treaty in the spirit of peace, friendship and respect.

Course Management Form

MTH140 Calculus I (Fall 2022)

Instructor: Francis Duah **Sections**: 1 - 5, 30 **email:** f.duah@ryerson.ca **Office Hours:** Mondays, 2:00 pm - 3:00 pm, **Office Location: ENG214**	**Instructor:** Changping Wang **Sections**: 6 -11 **email:** cpwang@ryerson.ca **Office Hours:** Thursdays 12:30 pm – 2:00 pm **Office Location:VIC703**
Instructor: Majed Alqasas **Sections**: 12 - 17 **email:** malqasas@ryerson.ca **Office Hours:** Mondays, 8:00 am – 10:00 am **Office Location: VIC703**	**Instructor:** Majed Alqasas **Sections**: 18 - 23 **email:** malqasas@ryerson.ca **Office Hours:** Mondays, 8:00 am – 10:00 am **Office Location: VIC703**
Instructor: Leul Fisseha **Sections**: 24 - 29 **email:** lfisseha@ryerson.ca **Office Hours:** Thursdays, 10:30 am – 12:30 pm **Office Location: VIC703**	

Notes • On your schedules, your lecture times will be listed as "section xx1" and your lab times will be listed as "section xx2" where xx is your section number. So "section 012" is Section 1, lab time, while "section 121" is Section 12, lecture time.

Course Website	The MTH140 course shell in D2L (at my.ryerson.ca).
Prerequisites	None
Calendar Description	Limits, continuity, differentiability, rules of differentiation. Absolute and relative extrema, inflection points, asymptotes, curve sketching. Applied max/min problems, related rates. Definite and indefinite integrals, Fundamental Theorem of Integral Calculus. Areas, volumes. Transcendental functions (trigonometric, logarithmic, hyperbolic and their inverses).
Compulsory Textbook	Calculus, Volume 1, by Strang, Herman, et al (2016) Print ISBN-13: 978-1-93816802-4 Digital ISBN-13: 978-1-947172-13-5 Download Link: https://openstax.org/details/books/calculus-volume-1 . This digital edition is free. Some print copies are **available for purchase** at the Ryerson Campus Store. Möbius also offers Calculus, Volume 1 (Strang, Herman, the textbook above) at a cost of $25 and is strongly encouraged for students who want to have access to the textbook with **dynamic and algorithmic questions**. This means that you get **different but similar exercises** each time you access practice exercises, practice exam papers, practice quizzes, and when doing the check point activities in the textbook. Thus, there are in-text interactive activities and tasks based on the compulsory textbook and you get immediate feedback without the need to consult your instructor. Lab Tests questions will be modelled on the end of chapter questions of the textbook and Möbius offers the tools for practice. Please, you may sign up at: https://torontomu.mobius.cloud/class/TLDAE There is an option to defer payment for 14 days.
Recommended Reference and Resources (Optional)	APEX Calculus Gregory Hartman, Ph.D., Sean Fitzpatrick, Ph.D. (Editor), Alex Jordan, Ph.D. (Editor), Carly Vollet, M.S. (Editor). Online Link: https://opentext.uleth.ca/apex-calculus/apex-calculus.html
	1. Calculus Early Transcendentals: Differential & Multi-Variable Calculus for Social Sciences Petra Menz and Nicola Mulberry Online Link: https://www.sfu.ca/math-coursenotes/Math%20157%20Course%20Notes/frontmatter-1.html 2. Calculus Early Transcendentals: Integral & Multi-Variable Calculus for Social Sciences by Dr. Petra Menz, Nicola Mulberry https://www.sfu.ca/math-coursenotes/Math%20158%20Course%20Notes/book-1.html

Course Organization	Four hours of lectures and two lab hours per week.

Labs (Tutorials)

Labs start the week of Sep 12-16, 2022. During in-person tutorials, the TA will work through Lab/Tutorial Questions. It is important to attend the tutorials as you can ask questions during the session.

TA ID	TA	Sections
T2201	Deus, DedIan	1
T2202	Deonarine, Matthew	2, 5, 19, 21
T2203	You, Vivija Ping	3
T2204	Azari, Peyman	4, 7, 16 & 23
T2205	Chaudhary, Ketan	6 & 28
T2206	Rahimi, Sina	8, 10 & 11
T2207	Hatami, Faezeh	9
T2208	Bushra, Raja	12
T2209	Sharifi, Forough	13
T2210	Mandic, Lazar	14
T2211	Kanapathyshan, Krishna	15
T2212	Dehghan-Kooshkghazi, Arash	17 & 20
T2213	Alipourjeddi, Narges	18
T2214	Kundu, Shubham	22
T2215	Trivedi, Soham	24
T2216	Pimentel, Holden	25
T2217	Muhammad, Areebah	26
T2218	Wu, Pengfei	27
T2219	Torabi, Hadis	29

Course Objectives

1. To develop a facility with the concepts and techniques of differential and integral calculus.
2. To provide a strong foundation in calculus as preparation for subsequent courses in mathematics and engineering.
3. To improve the student's analytic thinking and problem-solving ability.
4. Apply engineering mathematics and computations to solve mathematical models.

Learning Objectives	At the end of this course the successful student will be able to: 1. Recognize and describe terminologies and concepts related to university-level mathematics. (1b) 2. Recall and state first principles and theories in university-level mathematics. (1b) 3. Understand mathematical models used to describe engineering systems. (2b) 4. Make valid assumptions based on available information. (2b) 5. Apply mathematics and computations to solve mathematical models. (2b) Note: Numbers in parentheses refer to the graduate attributes required by the Canadian Engineering Accreditation Board. For more information, see: http://www.ryerson.ca/feas/about/qa/gradattributes.html.

Course Evaluation

1. Test 0, Friday, Sept. 6, 6:00pm – Thursday, Sep 11, 11:59 pm, Online Bitbolide,

2. Optional Proficiency Test, Sunday, Sept. 18, 9:00am – Saturday, Sep 25, 11:59 Online Bitbolide (see below for the importance of this tests).

3. Ten (10) - weekly Online Multiple-Choice Quizzes

4. Lab Tests - In-person, Paper and Pen. Schedule of these tests available in D2L.

5. Midterm Test, 120 minutes: Friday, Oct. 21, at 6:30 pm, In-person, Paper and Pen.

6. Final Exam 120 minutes, during EXAM WEEK, In-person, Paper and Pen.

Your final grade is calculated as a weighted average of

Assessment Components and Weightings	
Test 0 via ***Bitbolide***	1%
Online Quizzes via ***Bitbolide***	14%
Lab Tests[1]	10%
Midterm Test	35%
Final Exam	40%
Total	100%

Importance of the Proficiency Test.
The proficiency test gives you and the course team a baseline with which you can compare your performance over time. It is therefore important that this test is taken as soon as possible. The proficiency test results will be considered when we have to review grades in borderline cases.

[1] There will be no make-up Lab Tests.

	Test 0, Proficiency Test, and Weekly Quizzes will be administered online through Bitbolide www.bitbolide.com. Registration is required for all students (more details on the course webpage). All grades will be posted electronically on D2L. Midterms may take up to ten (10) business days for the grades to be returned, barring unforeseen circumstances.
Self-Evaluation	You have been provided a list of **learning outcomes** for you to use to check your progress in learning Calculus I. Complete the **learning outcomes check list** when you complete a Section of the book and use the information to seek advice, support and help from your TAs and Instructors. The learning outcomes is a guide for your independent learning and they are indicators of what is expected of a successful learning of calculus. They are **NOT a list of what the instructor will or must cover in the lectures** but indicators of what you should be able to do after studying Calculus I. You would have achieved some of the learning outcomes in high school, and you may achieve some of the learning outcomes during your studies of MTH140 Calculus I.
Grading Requirements	To pass the course you must receive at least 50% of the total course marks.
Homework	Recommended homework questions for practice will be listed on the course webpage.
Academic Policies	a. Ryerson Policies of interest Ryerson Senate Policies - http://www.ryerson.ca/senate/policies/ Ryerson Academic Integrity - http://www.ryerson.ca/ academicintegrity/ Policy 46 - Undergraduate Grading, Promotion and Academic Standing Policy 60 - Student Code of Academic Conduct Policy 61 - Student Code of Non-academic Conduct Policy 134 - Undergraduate Academic Consideration and Appeals Policy 135 - Examination Policy Policy 150 - Accommodation of Student Religious Observance Obligations Policy 157 - Student Email Accounts for Official University Communication b. Obligations - Students need to inform faculty of any situation arising during the semester which may have an adverse effect upon their academic performance; they must request any necessary considerations (e.g. medical or compassionate), or accommodations [e.g. religious observance, disability (should be registered with the Access Center), etc.] according to policies and well in advance. Failure to do so will jeopardize any academic appeals. c. Re-grading and Re-calculation - Must be requested within 10 working days of the return of the graded assignment to the class.

Academic Conduct	http://www.ryerson.ca/academicintegrity/ In order to create an environment conducive to learning and respectful of others' rights, phones and pagers must be silenced during lectures, lab sessions and evaluations. Students should refrain from disrupting the lectures by arriving late and/or leaving the classroom before the lecture is finished.
Academic Misconduct	According to the Ryerson policy 60 (http://www.ryerson.ca/content/dam/senate/policies/pol60.pdf), academic misconduct includes, but not limited to: • Plagiarism which is the claiming of words, ideas, artistry, drawings or data of another person. This also includes submitting your own work in whole or in part for credit in two or more courses. • Cheating • Misrepresentation of personal identity or performance • Submission of false information • Contributing to academic misconduct • Damaging, tampering, or interfering with the scholarly environment • Unauthorized copying or use of copyrighted materials • Violations of departmental policies or professional behavior • Violations of specific departmental or course requirements. Committing academic misconduct will trigger academic penalties, including but not limited to grade reduction (potentially more severe than a grade of 0 on course work), failing grades, suspension and possibly expulsion from the University. As a Ryerson student, you are responsible for familiarizing yourself with Ryerson conduct policies.
Technical Requirements	• All parts of this course require a stable internet connection and a modern web browser. • Answers to in-person traditional Midterm Test and Final Exam questions are expected to be handwritten in the examination room or at the Centre for those with accommodation. However, when required, you may be instructed via announcements to submit some work to Bitbolide or D2L. For example, if we are forced to go online due to COVID, you may need the technology to write your answers to assignments by hand and upload to either Bitbolide or D2L. To accomplish this, you will need: a. A means of getting handwriting into the computer, which is usually one of: i). A tablet or laptop together with a stylus and the software needed to write with it on the screen, ii). Paper and pen/pencil together with a camera/scanner (a cell phone camera is almost always sufficient) b. A program to turn your handwriting into a PDF (e.g. Adobe Acrobat Reader) • In order to attend live lectures Zoom is required (free download and use). • Software which can view PDF files is required to read the textbook; there are many which are easily available. • Additional software may be required to watch or listen to lecture recordings (e.g. a media player). • Lecture notes may require additional software to view (e.g. PowerPoint).

MTH140 Course Content (Total: 48 hrs)

Chapter	Sections	Time
Chapter 1: Functions and Graphs	(1.1-1.5)	(approx. 8 hrs)
Chapter 2: Limits	(2.1-2.4)	(approx. 6 hrs)
Chapter 3: Derivatives (1)	(3.1-3.6)	(approx. 6 hrs)
Chapter 5: Integration (1)	(5.1-5.2)	(approx. 2 hrs)
Chapter 3: Derivatives (2)	(3.7-3.9)	(approx. 4 hrs)
Chapter 5: Integration (2)	(4.10, 5.3-5.7)	(approx. 6 hrs)
Chapter 4: Applications of Differentiation	(4.1-4.3, 4.5-4.8)	(approx. 10 hrs)
Chapter 6: Applications of Integration	(6.1-6.3, 6.9)	(approx. 6 hrs)

Evaluation Guidelines

1. All quizzes, tests, and the exam will be closed book and written without any other aids.
2. There will be no supplemental exam.
3. Grades will be assigned as indicated in the Ryerson 2021/22 Calendar.
4. There is no intrinsic reason for giving a non-zero mark for an incorrect solution. Part marks (if any) are awarded entirely at the examiner's discretion. If a test is submitted for re-marking, the whole test may be re-marked. The result may possibly be that the student receives a lower mark on any or all questions.
5. Students must read and comply with the Statement on Academic Ethics and the Senate Resolution on Academic Dishonesty as found in the Senate Policy Statements distributed at registration and available in the Department Office (Calendar 2021/22). Check also (http://www.ryerson.ca/content/dam/senate/policies/pol60.pdf). Talking to another student, glancing over another student's paper or being caught with non-allowed materials during an evaluation may result in a zero mark for that evaluation and a record of academic misconduct lodged with the Registrar's office.
6. Regrading and recalculation MUST be requested according to Policy 134 (http://www. ryerson.ca/content/dam/senate/policies/pol134.pdf). Note that this means regrading must be requested within 10 working days of the evaluation being returned to the class.

Missed Evaluations

1. Medical Certificates: If a student misses the deadline for submitting an assignment, or the date of an exam, or other evaluation component because of illness, he or she must submit a Ryerson Student Medical Certificate AND an Academic Consideration form within 3 working days of the missed date.

Important:

• The Academic Consideration Request (ACR) online form (https://www.ryerson. ca/senate/StudentInfo/AcademicConsiderationRequest/) must be used by all undergraduate students in the Faculty of Science, Ted Rogers School of Management (TRSM), Faculty

of Engineering & Architectural Studies (FEAS), with the exception of the Electrical Engineering program, and Faculty of Arts (FoA).

• Students in all other Ryerson programs, and students taking courses in the G. Raymond Chang School of Continuing Education, must submit their request for academic consideration on health grounds by completing the Academic Consideration Document Submission Form (https://www.ryerson.ca/content/dam/senate/forms/academic_consideration_document_submission.pdf), along with a completed Student Health Certificate (or letter from an appropriate regulated health professional), https://www.ryerson.ca/ content/dam/senate/forms/medical.pdf.

2. Religious Observance: Any quiz, test, or final exam which will be missed due to religious, aboriginal, or spiritual observance must be requested within the first two weeks of class, or in the case of the final exam within two weeks after the exam schedule is posted (in keeping with Policy 150). If the date(s) of the required absence is not known in advance as it is linked to other conditions, the relevant forms should be submitted with as much lead time as possible in advance of the required absence. These forms are available at http:// www.ryerson.ca/senate/forms/relobservforminstr.pdf. Students are encouraged to examine the Ryerson Religious Observance calendar (available at (http://www.ryerson.ca/humanrights/religious-cultural-observances/) at their earliest convenience.

3. Students who need academic accommodation support should register with the Academic Accommodation Support office (formerly called the Access Centre). Before the first graded work is due, registered students should inform their instructors through an "Accommodation Form for Professors" that they are registered with Academic Accommodation Support and what accommodations are required.

4. If a quiz or a test is missed for a valid reason as described above, there will be a make-up test soon after the test. Students approved to take a make-up test will be required to register via a Google Form to take the make-up test. Dates of make-up quizzes and midterm test will be confirmed one week before. PLEASE NOTE: THERE WILL BE NO ADDITIONAL MAKE-UP TESTS. Make-ups should cover the same material as the original assessment but need not be of an identical format. There are no make-up Lab Tests.

5. Students who miss a final exam for a verifiable reason and who cannot be given a make-up exam prior to the submission of final course grades, mainly in three days after the final exam, must be given a grade of INC (as outlined in the Grading Promotion and Academic Standing Policy) and a make-up exam (normally within 2 weeks of the beginning of the next semester) that carries the same weight and measures the same knowledge, must be scheduled.

6. If proper documentation is not received within reasonable time, the mark for the missed evaluation will be zero,

Student Email Policy

Ryerson's email policy (http://www.ryerson.ca/content/dam/senate/pol157.pdf) clearly states that Ryerson email accounts are to be used for communication with students. All students have access to Ryerson email through their my.ryerson.ca site, and this is the official way in which they receive communication. This is the email address that the professor will use to communicate with students and the professor may not (or will not) respond to any other address.

Diversity and Inclusion Statement

In this course I would like to create a learning environment that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, etc.) For more information about our University's resources and services on Equity, Diversity, and Inclusion please visit https://www.ryerson.ca/equity/.

Additional Considerations

1. This course has Supported Learning Groups organized to help students with the material. Information about SLGs will be posted in D2L.
2. Student Learning Support can provide help with the material in this course (among many other things).
3. Study Halls before each midterm will be organized through the First Year Engineering Office.

Faculty-Student Partnership in Course Development

Students have a role to play in the development of a course. We will be looking to partner with students to develop MTH140 and MTH240 courses for future cohort of students. We invite you to contact Dr. Duah to explore opportunities for working together in the development of learning and teaching of MTH140 Calculus I and MTH240 Calculus II.

We are currently exploring **alignment of learning outcomes with assessment tasks**. These learning outcomes are NOT a list of the instructor MUST cover in class. They are indicators of what the student should be able to do after studying Calculus I and Calculus II. You would have achieved some of the learning outcomes in high school, and you may achieve some of the learning outcomes during your studies of MTH140 Calculus I. A spreadsheet of the learning outcomes will be available on D2L for all students to use to check the progress their learning after they have studied each chapter.

Focus Group Discussions

Students who take MTH140 and MTH240 may be invited to participate in **Focus Group Discussions** about their views and perceptions of the **learning outcomes** and how they may or may not have used the list of learning **outcomes** during the Fall and Winter semesters. The data collected as part of the Focus Group Discussions will be recorded, summarised, and analysed blindly by student researchers and/or other independent researchers not involved in grading. Nothing said during the discussions can be traced back to any individual student. Confidentiality will be guaranteed as the discussions will be held by other undergraduate students who are student partners working as research assistants.

The **Focus Group Discussion** will involve a "town hall type" discussion of volunteers from the course on the following questions":

-What are your views on assessment tasks used on the course and how they are linked to the learning outcomes?

-How did you use the learning outcomes to learn the content taught?

-To what extent do you think the learning outcomes helped you to succeed on the course?

-How could the MTH140/MTH240 course be re-designed to link the assessment/evaluation tasks with the learning outcomes to help future students succeed in their learning.

Analysis of Grades as Secondary Data
As part of routine teaching evaluation, we will analyse grades as **secondary data** anonymously with the view to evaluate and improve the design of the course for future cohort of students. In this regard, we will explore the relationship between student use of learning outcomes and their achievement.

Important Notice

1. Teaching—lectures/labs—will be in-person in rooms shown on your timetable, starting Sep 6th . Office hours will be in a format as advised by the instructor/professor.

2. This course management form is subject to change due to the uncertainty relating to the COVID-19 pandemic.

3. It is recommended that students put on masks when in lectures and lab sessions.