

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 (Winter 2023) MTH240 - Calculus II

<p>Instructor for Sections 011-041, 291 Dr. Francis Duah email: f.duah@torontomu.ca Lectures: Tu 8am -10am & Th 4pm-6pm Office Hours: Tu and Th, 3 pm - 4 pm Office: ENG214</p>	<p>Instructor for Sections 051-101 Dr. Chul Kim email: chulkim@torontomu.ca Lectures: Mo 4pm -6pm & Tu 8am -10am Office Hours: Mo, Tu, We and Fr, 3 pm - 4 pm Office: ENG233</p>
<p>Instructor for Sections 111-161 Dr. Leul Fisseha email: lfisseha@torontomu.ca Lectures: Mo 8am-10am & Fr 11am-1pm Office Hours: Mo, 10:30 am - 12 pm Office: VIC703</p>	<p>Instructor for Sections 171-221 Dr. Nara Jung email: nara.jung@torontomu.ca Lectures: Mo 4pm-6pm & Tu 8am-10am Office Hours: TBA Office: TBA</p>
<p>Instructor for Sections 23-28 Dr. Chul Kim email: chulkim@torontomu.ca Lectures: Th 4pm - 6pm & Fr 4pm - 6pm Office Hours: Mo, Tu, We and Fr, 3 pm - 4 pm Office: ENG233</p>	<p>Notes</p> <ul style="list-style-type: none"> 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.

Student Email Policy

TMU email policy (<https://www.torontomu.ca/content/dam/senate/policies/pol157.pdf>) clearly states that TMU email accounts are to be used for communication with students.

All students have access to TMU email through their my.torontomu.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 respond to students communications from non-TMU email address.

Course Website	The MTH240 course shell in D2L (at my.torontomu.ca).
Prerequisites	MTH140
Calendar Description	Integration techniques. L'Hôpital's Rule. Improper integrals. Partial derivatives. Infinite sequences and series, power series. First-order differential equations, with applications.
Compulsory Textbooks	<p><i>Calculus, Volume 2</i>, by Strang, Herman, et al (2016) Print ISBN-13: 978-1-938168-06-2 Digital ISBN-13: 978-1-947172-14-2 (Download Link)</p> <p><i>Calculus, Volume 3</i>, by Strang, Herman, et al (2016) Print ISBN-13: 978-1-938168-07-9 Digital ISBN-13: 978-1-947172-16-6 (Download Link)</p>
Recommended Textbooks	<p>1. <i>APEX Calculus</i>, by Gregory Hartman, Ph.D., Sean Fitzpatrick, Ph.D. (Editor), Alex Jordan, Ph.D. (Editor), Carly Vollet, M.S. (Editor). (Download Link)</p> <p>2. <i>Calculus Early Transcendentals: Differential & Multi-Variable Calculus for Social Sciences</i>, by Petra Menz and Nicola Mulberry. (Download Link)</p> <p>3. <i>Calculus Early Transcendentals: Integral & Multi-Variable Calculus for Social Sciences</i> by Dr. Petra Menz, Nicola Mulberry. (Download Link)</p>
Course Organization	Four hours of lecture and one hour of lab per week.
Course Objectives	<ol style="list-style-type: none"> 1. To continue to gain a facility with the concepts and techniques of differential and integral calculus. 2. To continue to build a strong foundation in calculus as preparation for subsequent courses in mathematics and engineering. 3. To continue to nurture students' ability in analytic thinking and problem-solving.

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: <https://www.torontomu.ca/engineering-architectural-science/about/quality-assurance-programs/>.

Course Evaluation

- (1) 15% Weekly Quizzes, WQ, via the Bitbolide Platform remotely.
- (2) 10% Lab Tests, LT, in - person.
- (3) 35% Midterm Test, MT, in-person.
- (4) 40% Final Exam, FE, in-person.

Final Exam is non-cumulative. Raw marks available for each assessment component will vary depending on the level of challenge or difficulty of the problems given to students. Your final grade is calculated using the following formula:

$$\text{Percent course mark} = (0.15)\text{Percent WQ mark} + (0.1)\text{Percent LT mark} + (0.35)\text{Percent MT mark} + (0.4)\text{Percent FE mark}.$$

All grades will be posted electronically on D2L. Assessment schedule is available on D2L

Grading Requirements

To pass the course you must receive at least 50% of the total course marks.

Technical Requirements

Teaching, both lectures and tutorials, are planned to take place in-person in Winter 2023. Students are expected to attend these learning and teaching sessions on Campus. Lectures will NOT be recorded because no instructor is obligated to record their lectures. Although lectures and tutorials will be in-person, students are strongly advised to ensure that they have the minimum technology required for mobile and remote learning at TMU. For more information on technology requirements for mobile and remote learning please visit <https://www.torontomu.ca/covid-19/students/minimum-technology-requirements-remote-learning/>. In addition to the minimum technology requirements, the following will be needed in this course:

- All parts of this course require a stable internet connection and a current version of Google Chrome.
- You may choose to take notes electronically. 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 pre-arranged online office hours, [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 video material on some aspects of the content (e.g. a media player).
- Lecture notes may require additional software to view (e.g. Powerpoint).

Homework and Labs

Recommended homework questions for practice will be listed on the course webpage. You are not expected to turn in your solutions to these problems as they will not be marked or graded. You are expected to answer all Lab questions and bring your solutions to

Academic Policies

a. *TMU Policies of interest*

TMU Senate Policies - <https://www.torontomu.ca/senate/policies/>

TMU Academic Integrity - <https://www.torontomu.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 Misconduct

According to the TMU policy 60 (<https://www.torontomu.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 TMU student, you are responsible for familiarizing yourself with TMU conduct policies.

MTH240 Course Content¹ (Total: 52 hrs)

Chapter	Sections ²	Time
(V2) Chapter 3: Integration Techniques	(3.1-3.4, 3.7)	(approx. 12 hrs)
(V2) Chapter 4: First-Order Differential Equations	(4.1, 4.3, 4.5)	(approx. 4 hrs)
(V2) Chapter 5: Sequences and Series	(5.1-5.6)	(approx. 12 hrs)
(V2) Chapter 6: Power Series	(6.1-6.4)	(approx. 12 hrs)
(V3) Chapter 4: Functions of Several Variables	(4.1-4.3, 4.5, 4.7)	(approx. 12 hrs)

Evaluation Guidelines

1. There will be no supplemental evaluations.
2. Grades will be assigned as indicated in the TMU 2022/23 Calendar.
3. 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.**
4. 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 2022/23). Check also (<http://www.torontomu.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.
5. Regrading and recalculation MUST be requested according to Policy 134 (<http://www.torontomu.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. Lab Tests will be taken in-person in class under the supervision and instruction of TAs. There are no make-ups for Lab Tests. Lab Tests must be taken in the Lab. The Lab Tests duration is 15 mins plus 15 mins to accommodate students including those with 50

¹Changes to and clarifications of details in this course management form (such as room numbers for tests) will be announced to the class on at least two different occasions before they take effect (except in unavoidable emergencies which permit only one announcement).

²All chapter and section references pertain to *Calculus*, by Strang, Herman, et al (2016). V2 refers to *Volume 2* and V3 refers to *Volume 3*.

2. *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 TMU 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.torontomu.ca/senate/resources/>) 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 TMU 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.torontomu.ca/senate/resources/>), along with a completed Student Health Certificate (or letter from an appropriate regulated health professional).
3. *Religious Observance*: Any quiz, test (mini- or otherwise), 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.torontomu.ca/senate/forms/reobservforminstr.pdf>. Students are encouraged to examine the TMU Religious Observance calendar (available at <http://www.torontomu.ca/humanrights/religious-cultural-observances/>) at their earliest convenience.
4. *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.
5. If a test is missed for a valid reason as described above, there will be a make-up test soon after the test.
6. 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.
7. **If proper documentation is not received within reasonable time, the mark for the missed evaluation will be zero.**

Lab Procedure & Regulations

1. No labs will take place during the first week of classes.
2. Labs meet once a week, starting the week of January 16-20, 2023.
3. Each student must attend the lab section indicated in his/her individual timetable. Do not attend a different lab section. Your name will not appear on the class list. Please check your schedule carefully to be certain that you are going to the correct lab section.

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.torontomu.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); find the Math Hub on the 4th floor of SLC.
3. Study Halls before each midterm will be organized through the First Year Engineering Office.

Faculty-Student Partnership in Course Developments

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 when you took MTH140, and you may achieve some of the learning outcomes during your studies of MTH240 Calculus II. 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.

1. 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”:

- (a) What are your views on assessment tasks used on the course and how they are linked to the learning outcomes?
 - (b) How did you use the learning outcomes to learn the content taught?
 - (c) To what extent do you think the learning outcomes helped you to succeed on the course?
 - (d) 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.
2. 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 Notices

1. Teaching—lectures/labs—will be in-person in rooms shown on your timetable, starting January 9th . 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.