

We recognize and acknowledge that McMaster University meets and learns on the traditional territories of the Mississauga and Haudenosaunee nations, and within the lands protected by the "[Dish With One Spoon](#)" wampum, an agreement amongst all allied Nations to peaceably share and care for the resources around the Great Lakes.

MATH 1XX3 – CALCULUS FOR MATH AND STATS II

2024 Spring Term

Section 1 (C01):

Time: Tuesday, Thursday 7:00-10:00PM

Instructor: Adam Van Tuyl | **E-mail:** vantuyla@mcmaster.ca

Location: See Mosaic | **Office Hours:** TBA

COURSE DESCRIPTION

For students in mathematics and statistics. Additional techniques of integration, applications of definite integrals, differential equations, polar coordinates, parametrized curves. Sequences, infinite series, power series. Partial derivatives, double integrals.

Three lectures, one tutorial; one term

Prerequisite(s): MATH 1X03 and registration in Level I Mathematics and Statistics

Antirequisite(s): ARTSSCI 1D06 A/B, MATH 1AA3, 1LT3, 1NN3, 1ZB3, 1ZZ5

Not open to students with credit or registration in ISCI 1A24 A/B.

COURSE OBJECTIVES

To further apply ideas and techniques of differential and integral calculus; to learn the useful language of differential equations; to wrestle with the infinite through sequences and series; and to extend your understanding of calculus beyond two dimensions. You will dive into the underlying ideas and theoretical framework of the subject, setting yourself up for more advanced courses in mathematics and statistics.

Website

- Avenue to Learn (we will NOT use MS Teams for this course)

MATERIALS & FEES

REQUIRED MATERIALS/ RESOURCES

Textbook (same as Math 1X03)

Calculus, Early Transcendentals, 9th Edition, Stewart, Clegg, and Watson, Cengage.

(Note: Older editions can be used, as long as you have access to the exercises in the 9th edition.)

COURSE DELIVERY



At this time, all lectures, tutorials, tests, and the final exam have been scheduled to take place in person. Virtual alternatives will NOT be offered unless university and/or public health guidelines prohibit in-person meetings.

In the event that course activities are moved to a virtual setting,

- Lecture and tutorials would take place on Zoom
- Tests and the final exam would take place on Childsmath and Crowdmark

To follow and participate in virtual classes it is expected that you have reliable access to the following:

- A computer that meets performance requirements [found here](#).
- An internet connection that is fast enough to stream video.
- Computer accessories that enable class participation, such as a microphone, speakers and webcam when needed.

If you think that you will not be able to meet these requirements, please contact uts@mcmaster.ca as soon as you can. Please visit the [Technology Resources for Students page](#) for detailed requirements. If you use assistive technology or believe that our platforms might be a barrier to participating, please contact [Student Accessibility Services](#), sas@mcmaster.ca, for support.

COURSE OVERVIEW AND ASSESSMENT

Topics

This overview is intended to indicate scope and approximate timing. The material covered (with relevant sections in our text) will be posted on our course webpage. Note that because this an evening course, 1 lecture = 3 hours = 3 lectures during a regular semester.

1. **Differential Equations** (1 lecture)
What is a differential equation and how can we visualize it? What techniques can we develop to solve a differential equation?
2. **Sequences, Series, and Taylor Polynomials** (3-4 lectures)
What happens if we add up infinitely many numbers? Can the answer ever be finite? Can we make sense of the idea of an infinite-degree polynomial?
3. **Parametric Equations, Vectors & Graphs in 3D** (3-4 lectures)
How can we describe an input-output relationship that does not fit into our typical $y=f(x)$ framework? What tools can we develop to us navigate a 3-dimensional space?
4. **Differential and Integral Calculus in 3D** (4-5 lectures)
How do the familiar rules of calculus need to change when we move off the page? What does it mean to take a derivative with a certain direction in mind?

Tentative Term Date

There will be two tests, which will be held during class time. Details (e.g. material that will be covered, test format) will be announced on Avenue approximately one week before each test. Only the standard McMaster calculator, Casio fx991MS or Casio fx991MS PLUS, may be used during tests.



- Test 1: May 23, 2024
- Test 2: June 6, 2024

Final Exam

There will be a cumulative, **2.5 hour** final exam scheduled **during the last scheduled day of the session, June 20, 2024**. Details (e.g., material that will be covered, exam format) will be announced on the course webpage approximately one week before the end of classes. Only the standard McMaster calculator, Casio fx991MS or Casio fx991MS PLUS, may be used during the exam.

**At this time, the final exam has been scheduled to take place in person. In the event that course activities are moved to a virtual setting, the final exam would take place on Childsmath and Crowdmark.*

COURSE EVALUATION

Assessment	Scheme A	Scheme B
Homework (best 8 of 10)	20%	20%
2 Term Tests	40% (20% each)	20% (best of 2)
Final Examination	40%	60%

For each student, the final course grade will be calculated as the maximum of Scheme A and Scheme B.

The instructor reserves the right to change the weight of any portion of this marking scheme. For students in good academic standing, other weights might be considered. In either case, the final mark will be computed using this weighting and the new weighting(s). The highest score for a particular student will be their final mark.

REQUESTS FOR RELIEF FOR MISSED ACADEMIC TERM WORK

[McMaster Student Absence Form \(MSAF\)](#): In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar “Requests for Relief for Missed Academic Term Work”. For a missed term test, the weight of the test will be transferred to the final exam (equivalent to Scheme B above). Homework will not be eligible for MSAF as the grading scheme for homework will drop the lowest two scores automatically.

ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES

Students with disabilities who require academic accommodation must contact [Student Accessibility Services \(SAS\)](#) at 905-525-9140 ext. 28652 or sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University’s [Academic Accommodation of Students with Disabilities](#) policy.

ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the [RISO](#) policy. Students should submit their request to their Faculty Office **normally within 10 working days** of the beginning of term in which they anticipate a need for accommodation or to the

Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

COURSES WITH AN ON-LINE ELEMENT

Some courses may use on-line elements (e.g. e-mail, Avenue to Learn (A2L), LearnLink, web pages, capa, Moodle, ThinkingCap, etc.). Students should be aware that, when they access the electronic components of a course using these elements, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in a course that uses on-line elements will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure, please discuss this with the course instructor.

ONLINE PROCTORING

This course may use proctoring software (TBD) for tests/exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins. If you have questions about whether this software will be used, or concerns about the use of this software, please contact your instructor.

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

It is your responsibility to understand what constitutes academic dishonesty.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss

of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university. For information on the various types of academic dishonesty please refer to the [Academic Integrity Policy](https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/), located at <https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/>

The following illustrates only three forms of academic dishonesty:

- plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations, including soliciting aid from a third party.

Students are not permitted to use generative AI in this course. In alignment with McMaster academic integrity policy, it "shall be an offence knowingly to ... submit academic work for assessment that was purchased or acquired from another source". This includes work created by generative AI tools. Also state in the policy is the following, "Contract Cheating is the act of "outsourcing of student work to third parties" (Lancaster & Clarke, 2016, p. 639) with or without payment." Using Generative AI tools is a form of contract cheating. Charges of academic dishonesty will be brought forward to the Office of Academic Integrity.

AUTHENTICITY / PLAGIARISM DETECTION

Some courses may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either

directly to Turnitin.com or via an online learning platform (e.g. A2L, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the Instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software. **All submitted work is subject to normal verification that standards of academic integrity have been upheld** (e.g., on-line search, other software, etc.). For more details about McMaster's use of Turnitin.com please go to www.mcmaster.ca/academicintegrity.

CONDUCT EXPECTATIONS

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all our living, learning and working communities. These expectations are described in the [Code of Student Rights & Responsibilities \(the "Code"\)](#). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, **whether in person or online**.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students' access to these platforms.

Additional information about the Code and netiquette can be found [here](#).

COPYRIGHT AND RECORDING

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, **including lectures** by University instructors.

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

RESEARCH ETHICS – NA

EXTREME CIRCUMSTANCES

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.