

Course Outline for ARTSSCI 1D06 / Calculus

2021-2022 (Fall 2021 and Winter 2022)

Instructor: Dr. Megumi Harada, megumi.harada@math.mcmaster.ca

Instructor Office Hours:

Fridays 10:30AM-11:20AM (Fall: on Zoom. Winter: in person [subject to change])

Class Times:

- Fall Term 2021: Content delivered asynchronously via Avenue. Optional live sessions held on Wednesdays 1:30-2:20PM and Fridays 11:30AM-12:20PM (on Zoom, accessed via MS Teams). Additional (optional) live sessions to be added if deemed beneficial to the students.
- Winter Term 2022: Classes are expected to return to an *in-person* format and students will meet during the following times (M W Th 1:30-2:20PM [lectures] and Fri 11:30AM-12:20PM [lab])

Teaching assistants:

- Andrew Dissanayake, dissanaa@mcmaster.ca
- Ryan Edwards, edwarr4@mcmaster.ca
- Hayley Miller, milleh3@mcmaster.ca

Tutorials: There are 3 tutorials at each of the following times led by one of the TAs:

Thurs. 10:30-11:20AM Andrew Dissanayake
Thurs. 11:30AM-12:20PM Hayley Miller
Thurs. 12:30-1:20PM Ryan Edwards

Textbook: Calculus: early transcendentals, 9th edition, by James Stewart, Nelson Education Ltd. *You must also purchase a license for WebAssign (Nelson's on-line resources for the textbook)*, since there will be on-line homework assignments using WebAssign.

Course description and objectives: This course will be a full-year treatment of single-variable differential and integral calculus at a university level. There are two main objectives of the course. The first is to learn the techniques and applications of the differential and integral calculus. The second is to develop writing and oral communication skills, especially for technical and/or mathematical ideas.

Course structure and delivery structure: For the Fall 2021 term, this course will be delivered as a *virtual, on-line* course. Winter Term 2022 plans are subject to change, but it is expected that courses will return to an *in-person* format and will meet at the times listed above (M W Th 1:30-2:20PM [lectures] and Fri 11:30AM-12:20PM [lab]).

NOTE: The exact format and platforms used for the virtual course in Fall 2021 is subject to change, depending on the success of the initial format/platforms used. If it is to the advantage to the students to make changes, we will do so.

For Fall 2021, the course content will be delivered in a *blended* format; all content will be available in asynchronous format, but synchronous, “live sessions” will be offered as supplemental, optional support. The main course portal will be Avenue to Learn (a.k.a. Avenue), with MS Teams playing a supporting role for accessing the Zoom live sessions with the instructor and TAs, etc.

- Pre-recorded mini-lectures covering course content (on Avenue to Learn);
- Posted lecture notes accompanying each mini-lecture (on Avenue);
- Two scheduled “live” session per week with the instructor, which is intended for problem-solving and question-and-answer/discussion. (Optional; conducted on Zoom, via a link accessed through MS Teams)
- One scheduled “live” tutorial session per week with a pre-assigned Teaching Assistant, intended for informal questions-and-answer/discussion as well as homework help and other advice. (Optional; conducted on Zoom, via a link accessed through MS Teams)
- Office hours: one scheduled “live” office hour per week with the instructor, which is intended for one-on-one question-and-answer. Each Teaching Assistant will also hold one scheduled “live” office hour per week; all students are welcome to attend office hours by any of the TAs. (Optional; conducted on Zoom, via a link accessed through MS Teams)
- Additional “live” help sessions to be arranged, if deemed beneficial to the students.

All “live” sessions are optional.

However, if students do opt to attend the live sessions with the instructor, *they will be expected to view the appropriate pre-recorded mini-lectures* prior to attending the session. The pre-recorded mini-lecture videos for the entire week will be posted by Monday morning each week, or earlier when possible.

The live tutorial sessions with the Teaching Assistants will take place on Thursdays each week. Each student will have been assigned to a TA, and is expected to attend the live session for his/her TA. These sessions are intended for informal question-and-answers, as well as for (more) direct help and support on the homework assignments.

This course will deliver content of two types: firstly, the core course material from the Stewart textbook, and second, supplementary/supporting material as appropriate (e.g. review of material from high school, mathematical logic, mathematical writing, scientific communication, frontiers of mathematical research, et cetera). *The ratio of material presented over the Fall term will be roughly 60-70% core + 30-40% supplementary.* For much of the Fall term, the supplementary material will focus on review of high school math, mathematical logic/writing, and scientific communication.

Assessment:

Late submission of any assignments or other assessments will not be accepted. Please do not ask if I will accept late submissions; the answer will be “No”. Instead, there is a “drop” option in the computation of the final course mark, so that if you miss up to 2 WebAssign and 2 Long-answer assignments per term (so 4 WebAssign and 4 Long-answer HWs in total for the year) for any reason, you will not be penalized. See details below.

Grading Scheme for **Fall 2021 Term portion** (50%) of final course mark:

- 5% Scientific Communication essay (due Wednesday 8 December at 11:59PM)
- 20% WebAssign homeworks (due weekly on Fridays at 11:59PM, best 8 out of 10)
- 20% Long-answer homeworks (due weekly on Sundays at 11:59PM, best 8 out of 10)
- 25% Take-home 24-hour test #1 (Thursday October 28, 2021, 12:00AM to 11:59PM)
- 30% Take-home 24-hour Mid-Year Examination (start time to be scheduled by the Office of the Registrar during the December Examination Period)

Scientific Communication project: You will be asked to write an essay in the Fall Term and complete a project in Winter Term, pertaining to Scientific Communication skills. You will be asked to work in groups of 2 to 4 students, with one essay submission per group. For the Fall Term, you will be asked to form your groups by late September. You will submit a topic and brief plan for your essay for informal review by the instructor, by late October. The final essay (~3-5 pages) for the Fall term will be due **Wednesday, 8 December 2021**.

The final project for the Winter Term will be due **Tuesday, 12 April 2022**. More details will be given at the beginning of Winter Term.

(Late Scientific Communication assignments will not be accepted, in either term.)

WebAssign Homeworks: These are mainly computational questions that check that you have a basic working understanding of the material. These homeworks will be assigned on a weekly basis and will be due on **Fridays at 11:59PM throughout the year**. They will be completed and submitted on the WebAssign online platform provided by the textbook publisher. They are automatically marked, so you will receive feedback on your work immediately. You will be given multiple attempts on each question. The questions will be randomized, so everyone will get (slightly) different questions, but you are still encouraged to discuss the problems with each other and collaborate, within the bounds of McMaster’s Academic Integrity rules. (More on that below.) **I will take the best 8 out of 10 of your scores (each term). Therefore, you may miss, without any penalty, up to 4 assignments through the year, and this will not affect your final course mark. Late assignments will NOT be accepted.**

Long-Answer Homeworks: These assignments will build upon the foundational knowledge gained from doing the computational WebAssign homeworks. The long-answer homeworks will consist of more conceptual questions that require a deeper understanding of the ideas being presented in the course. The answers to these questions will not be a “Yes/No” or “True/False”, nor will the answers be a number like “2.12” or a single equation like “y=2x”. Instead, the answers to these homework questions will usually consist of several complete English

sentences/paragraphs that explain a thought process, or a sequence of logical/mathematical reasoning, that are more similar to an *essay* than to the kind of math problems you are likely to have encountered in high school. Please don't freak out; your instructor and your TAs will provide a lot of guidance to aid you. As for the WebAssign homeworks, you are also encouraged to work collaboratively on these homeworks and get help, within the bounds of McMaster's Academic Integrity rules. The simple rule is: no matter how much you discuss with others in advance, the final submitted work must be "**your own work, in your own words**". These assignments will be submitted for marking by your TAs through the Crowdmark online platform, and are due on **Sundays at 11:59PM**. **As with the WebAssign HWs, I will take the best 8 out of 10 of your scores, each term. Therefore, you may miss, without any penalty, up to 4 assignments through the year, and this will not affect your final course mark. Late assignments will NOT be accepted.**

Take-Home Test in Fall Term: There will be a take-home test in Fall Term. This will be open-book, open-notes, and you are permitted and encouraged to discuss the problems with your classmates. However, as with homeworks, the final submission must be *your own work, in your own words*. More details concerning Academic integrity issues for the take-home will be discussed. The take-home test in Fall Term will be available for 24 hours. The test is scheduled to take place: Thursday October 28, 2021, 12:00AM to 11:59PM.

Grading Scheme for **Winter 2022 Term portion** (50%) of course mark:

- 5% Scientific Communication essay (due Tuesday April 12 at 11:59PM)
- 20% WebAssign homeworks (due weekly on Saturdays at 11:59PM, best 8 out of 10)
- 20% Long-answer homeworks (due weekly on Tuesdays at 11:59PM, best 8 out of 10)
- 25% In-class, in-person, 50-minute test (Wednesday Feb. 16, 2022, 1:30-2:20PM. "Snow date": Monday Feb. 28, 2022, 1:30-2:20PM)
- 30% In-person, proctored, 2.5-hour Final Examination (to be scheduled by the Office of the Registrar during the April Examination Period)

Weekly Flow of the Course

Fall Term:

- Mondays: all mini-videos of course content, the WebAssign homework, and the long-answer homework for that week will be posted, accompanied by a Weekly Guide to the material. Students are expected to begin viewing the lecture videos, read relevant sections of the text, and try the practice problems suggested in the Weekly Guide.
- Wednesdays: the first "live" session with the instructor, with discussion/problems covering the first half of the pre-recorded mini-lectures of the week.
- Fridays: the second "live" session with the instructor, with discussion/problems covering the second half of the pre-recorded mini-lectures of the week. Instructor office hours, for one-on-one help.
- Thursdays: "live" tutorial sessions with the Teaching Assistants.
- Fridays: WebAssign HWs due at 11:59PM.
- Friday to Sunday: Long-answer homework due on Sunday at 11:59PM. Prepare for a fresh start of the new week on Monday morning.

Winter Term: It is expected that the Winter Term will be held in-person, though this is subject to change.

- Mondays: the homeworks (WebAssign, Long-Answer) and Weekly Guide will be posted on Avenue.
- Mondays: first (in-person) lecture of the week.
- Wednesdays: second (in-person) lecture of the week.
- Thursdays: third (in-person) lecture of the week; (in-person) tutorials with the TA.
- Fridays: lab/question-and-answer hour with the instructor; WebAssign homework due at 11:59PM. Instructor office hours, for one-on-one help.
- Friday to Sunday: Long-Answer HW due at 11:59PM.

Schedule of Readings and Lectures (Tentative and Subject to Change)

Sept 7-10 : Stewart Chapter 2

Sept 13-17: Stewart Chapter 2

Sept 20-24: Stewart Chapter 2

Sept 27-Oct 1: Stewart Chapter 3

Oct 4-8: Stewart Chapters 3 and 4

Oct 11-15: Midterm Recess

Oct 18-22: Stewart Chapter 4

Oct 25-29: Stewart Chapters 4 and 5

Nov 1-5: Stewart Chapter 5

Nov 8-12: Stewart Chapter 5

Nov 15-19: Stewart Chapter 6

Nov 22-26: Stewart Chapter 9

Nov 29-Dec 3: Stewart Chapter 9

Dec 6-8 : Stewart Chapter 9

Jan 10-14: Stewart Chapter 7

Jan 17-21: Stewart Chapter 7

Jan 24-28: Stewart Chapter 7

Jan 31-Feb 4: Stewart Chapter 8
Feb 7-11: Stewart Chapter 10
Feb 14-18: Stewart Chapter 10 and Chapter 11
Feb 21-25: Midterm Recess
Feb 28-Mar 4: Stewart Chapter 11
March 7-11: Stewart Chapter 11
March 14-18: Stewart Chapter 14
March 21-25: Stewart Chapter 14
March 28-April 1: Stewart Chapter 14
April 4-8: Review, or, Additional Topics TBD
April 11-12: Review, or, Additional Topics TBD

SENATE-APPROVED ADVISORY STATEMENTS

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*](#), 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.

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., online search, other software, etc.). For more details about McMaster's use of Turnitin.com please go to www.mcmaster.ca/academicintegrity.

COURSES WITH AN ONLINE ELEMENT

Some courses may use online 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 online 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

Some courses may use online proctoring software for tests and 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.

CONDUCT EXPECTATIONS

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of 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.

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.

REQUESTS FOR RELIEF FOR MISSED ACADEMIC TERM WORK

In the event of an absence for medical or other reasons, students should review and follow the [*Policy on Requests for Relief for Missed Academic Term Work*](#).

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.

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 either by 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.

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.

NOTES FOR ALL ARTS & SCIENCE COURSES

1. Some of the statements above refer to a "Faculty Office"; please note that the Arts & Science Program Office serves in this capacity.
2. It is the responsibility of students to check their McMaster email regularly. Announcements will be made in class, via A2L, and/or via the course email distribution list.
3. For additional information regarding requests for accommodation, relief for missed term work (e.g. MSAF), deferred examinations, etc., students should read carefully the [Requests](#) and [Resources](#) pages on the Arts & Science Program website.