

MATH2008A
Intermediate Calculus Fall 2020

Instructor: Mathieu Lemire
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Lectures: This is an online course. The lectures will be in the form of short videos posted on cuLearn. Batches of videos will be posted twice a week by Mondays and Wednesdays by 18:00 (or earlier). The first virtual class should appear on cuLearn on Wednesday September 9.

Tutorials: Tutorials are scheduled to be on Thursdays from 10:35 to 11:25. The first tutorial is on September 24th. The following table give more details:

Section	Room	TA's name	TA's connect email
A1	-	???	???

Tutorials should be live on cuLearn at the indicated times. Recording of the tutorials shall then be available on cuLearn under 'Tutorials'

Office hours: By appointment on Zoom or FaceTime or in virtual room on cuLearn. Please write to me at mathieul@math.carleton.ca to schedule an appointment.

Textbook: Multivariable Calculus - 8th Edition by James Stewart. Available online at Cengage Learning. You can also buy a paper copy if you wish.

Prerequisites: One of MATH1002, MATH1005, MATH2007 AND one of MATH1102, MATH1104, MATH1107; or permission of the school.

Evaluation: Your final grade will be calculated as:

$$\text{Term Mark } 60 \% (\text{best } 4 \text{ tests among } 5) + \text{Final Examination } 40\%$$

Term Mark: There will be five tests administered online around the time of tutorials on **October 1st, October 15th, November 5th, November 19th** and **December 3rd**. **No make up, early or delayed tests will be given.**

Final exam: The final exam is a cumulative three hours closed book exam scheduled by the university. The exam period runs from December 12th to December 23rd (including Saturdays). It is student's responsibility to be available at the time of the examination. In particular, no travel plans should be made until the examination schedule is published. It is the students responsibility to find out the correct date and time of the exam and the room where it takes place. Students who missed the final examination may be eligible for a deferred exam provided that they present a doctor note or another supporting document to the Registrars Office. It is the Registrars Office and not the instructor which take decision of granting a deferred examination. After the exam is written, students may see their final examination papers. This examination review is for educational purpose only and NOT for negotiation of the grade.

Calculators: Only non-programmable and non-graphical calculators are allowed for tests and the final exam.

Practice problems lists Practice problems lists will regularly be posted on cuLearn. These problems are not to be handed in and will not be graded. However, in order to succeed in the course, it is absolutely

essential to practice on a regular basis.

Withdrawal: The last day for academic withdrawal is **December 11th**.

Students with Disabilities: Students with disabilities who require academic accommodations in this course are encouraged to contact the Paul Menton Centre for Students with Disabilities to complete the necessary Letters of Accommodation. After registering with the PMC, make an appointment to meet with me and discuss your needs in order to make the necessary arrangements as early in the term as possible. Please consult the PMC website for the deadline to request accommodations for the formally-scheduled exam (if applicable).

Notes:

1. The best four out of five tests will be used to determine the test component of your final mark. If you are in the impossibility of doing a test, please let me know as soon as possible by writing to me an email.
2. Problem lists, comments, solutions and other informations will regularly be posted on cuLearn. It is your responsibility to look on cuLearn to obtain these informations.
3. **I will not necessary follow the same order of topics as in the textbook. The best way to know where exactly we are in class is to come to class or to follow the order of topics found in the practice problems lists.**
4. Following the online virtual classes is very important and I strongly encourage you to do so.
5. **Pregnancy accommodation:** write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services webpage.
6. **Religious obligation:** write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services webpage.

Tentative Class schedule:

IMPORTANT: This schedule is just to give you an overview. Because of several factors, it is quite possible that the timing of topics will be changing as we go further into the course. Some topics may possibly be added and some may be removed. The practice problems lists that will be available on cuLearn will give you the exact topics covered on each week.

September 9 to September 11: Functions of Several Variables, Limits

September 14 to September 18: Continuity, Partial Derivatives, Chain Rule

September 21 to September 25: Directional Derivative, Gradients, Tangent Planes, Extrema of a function of 2 variables

September 28 to October 2: Extrema of a function of 2 variables, Lagrange Multipliers

October 5 to October 9: Lagrange's Multipliers (conclusion), Double Integrals, Fubini's Theorem

October 12 to October 16: Polar Coordinates, Polar Coordinates and Double Integrals, Surface Area

October 19 to October 23: Triple Integrals, Cylindrical Coordinates

October 26 to October 30: Break

November 2 to November 6: Triple Integrals over Cylindrical Coordinates, Spherical Coordinates, Triple integrals over spherical coordinates (beginning)

November 9 to November 13: Triple integrals over spherical coordinates (Conclusion), Transformation of double integrals

November 16 to November 20: Transformation of double integrals (conclusion), Vector Functions, Space Curve, Derivative and Integration of curve.

November 23 to 27: Arc Length of a curve, Vector Fields, Gradient Fields

November 30 to December 4: Line Integrals, Line Integrals over vector Fields

December 7 to December 11: Potential Function, Fundamental Theorem for Line Integrals, Green's Theorem