MATH1107 C, Linear Algebra I, Winter 2021 Course Outline

Instructor: Moussa Larbani
Email address: moussa.larbani@carleton.ca
Office Hours: Wednesdays: 13:30 -15:00. Office hours will be online via BigBlueButton (subject to change).
Classes: Mondays and Wednesdays: 4:35 PM- 5:55 PM.
Lectures will be **asynchronous** in the form of recorded videos posted weekly in CuLearn; the students can watch or review them at any time and day of the week at their convenience.
Tutorials: Mondays 12:35-13:25. Tutorials will be online Via BigBlueButton or Zoom.
Office Hours of Assistants: As lectures will be asynchronous, TAs will hold office hours during class time: Mondays: 4:35 PM – 5:35 PM, Via BigBlueButton or Zoom.

Textbook: Linear Algebra and its Applications (with MyMathLab Access Code), Sixth Edition, David C. Lay, Steven R. Lay, and Judi J. McDonald. E-Textbook with MyMathLab Access Code is available from the university bookstore.

Prerequisite: Ontario Grade 12 Mathematics: Advanced Functions, or MATH 0005, or equivalent, or permission of the School.

Calendar description: Systems of linear equations; vector space of n-tuples, subspaces, bases; matrix transformations, kernel, range; matrix algebra and determinants. Dot product. Complex numbers (including De Moivre's theorem and n-th roots). Eigenvalues, diagonalization and Applications.

Course modality: This course is an online course. The lectures will be asynchronous. This means that the lectures will be recorded and posted weekly in Culearn in class days. The students can watch them at any time suitable for them.

Class Conduct: Students are expected to have a respectful attitude towards their classmates, TA and instructor when interacting online: https://carleton.ca/online/online-learning-resources/netiquette/. Any disruption of the course is considered to be an Instructional Offence.

Evaluations:

Eight online quizzes (best 6 out of 8)	15%
Two assignments	25%
One online midterm	25%
One online final exam	35%

Important Note. All the Quizzes, Midterm and final exam will be on MyMathLab. Therefore, it is a necessity to purchase the textbook **with the access** to MyMathLab. However, the two Assignments must be submitted Via Culearn.

Quizzes: There will be eight online (via MyMathLab) quizzes throughout the semester. Each quiz will be posted on a Wednesday at 12:00 (noon) and due the following Friday, 5:00 PM. They are scheduled as follows: Jan. 22, 29; Feb. 5, 26; March 12, 19, Apr. 2, 9. The average of your 6 highest quizzes will be taken to make up the grade for the quizzes. No make-up, early or late Quiz will be given. Missing a Quiz will be counted as zero. If you miss a Quiz for medical reasons, an official medical note must be presented.

Assignments: There will be two Assignments that need to be submitted via Culearn. They are scheduled as follows: Assignment 1 due on February 12; Assignment 2 due on March 26. The Assignments will be posted in Culearn one week before the due date.

Online midterm exam: There will be an 80-minute online (Via MyMAthLab) midterm exam during the class time

on Wednesday March 3rd from 4:35 PM- 5:55 PM. EST. No make-up, early or late midterm exam will be given. Missing the midterm exam will be counted as zero. If you miss the midterm exam for medical reasons, an official medical note must be presented.

Online final exam: There will be a **cumulative** 3-hour online final exam scheduled during the usual exam period. The time and date of the exam are announced by the University. It is the responsibility of each student to be available at the time of the final examination.

Important Notes:

- All announcements, notes, videos, and instructions related to the course will be posted on cuLearn. It is the student's responsibility to remain up-to-date with the content posted on cuLearn.
- Be sure that you know the academic integrity standards at Carleton which can be found at https://carleton.ca/secretariat/wp-content/uploads/Academic-Integrity-Policy.pdf

  For questions, requests, enquiries, etc. please use your Carleton email address and add "MATH1107 C" to the subject line when contacting me by email.
- Web conferencing tutorial sessions and office in this course may be recorded and made available only to those within the class. Sessions may be recorded to enable access to students with internet connectivity problems, who are based in different time zones, and/or who have conflicting commitments. If you wish not to be recorded, you need to leave your camera and microphone turned off. You will be notified at the start of the session if it is being recorded.
- All course materials, including notes, outlines, recordings and other materials, are copyright protected and remain the intellectual property of their respective author(s). Students registered in the course may take notes and make copies of course materials for their own educational use only. Students are not permitted to reproduce or distribute lecture notes and course materials publicly for commercial or non-commercial purposes without express written consent from the copyright holder(s).

Academic accommodations for students with disabilities: The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or https://carleton.ca/pmc/ for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first scheduled test requiring accommodation. After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. For the deadline to request accommodations for the formally-scheduled exams, visit the PMC website https://carleton.ca/pmc/

Religious obligations and/or accommodation for pregnancy: 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 see the student guide at https://carleton.ca/equity/accommodation/academic/students/

Survivors of Sexual Violence: As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: https://carleton.ca/sexual-violence-support/

Accommodation for Student Activities: Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor 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, see the policy by visiting the website:
https://students.carleton.ca/course-outline/#accommodation-for-student-activities

MATH1107C - Tentative Schedule

Week	**Textbook Sections**	**Topics**	**Important dates/Quizzes, Assignments and Midterm**
Jan 10 -16	1.1 1.2	Systems of linear equations Row Reduction and Echelon Forms	
Jan 17 - 23	1.3, 1.4 1.5	Vector Equations, Matrix Equations Solution Sets of Linear Systems	Quiz 1 (due Jan 22)
Jan 24 - 30	1.6 1.7	Applications of Linear Systems Linear Independence	Quiz 2 (due Jan 29)
Jan 31 - Feb 6	1.8, 1.9 1.10 2.1	Introduction to Linear Transformations The Matrix of a Linear Transformation Matrix Operations	Quiz 3 (due Feb 5)
Feb 7 - 13	2.2 2.3	The Inverse of a Matrix Characterization of Invertible Matrices	Assignment 1 (due Feb 12)
Feb 14 - 20	Winter Break - No Classes!		
Feb 21 - 27	2.8	Subspaces of $\mathbf{R}^n$	Quiz 4 (due Feb 26)
Feb 28 - Mar 6	2.9	Dimension of a Subspace Rank of a Matrix	Midterm (due March 3)
March 7 - 13	3.1 3.2 3.3	Introduction to Determinants Properties of Determinants Cramer's Rule	Quiz 5 (due March 12)
March 14 - 20	5.1 5.2 5.3	Eigenvectors and Eigenvalues The Characteristic Equations Diagonalization	Quiz 6 (due March 19)
March 21 - 27	Appendix B Lecture Notes	Complex Numbers	Assignment 2 (due Mar 26)
Mar 28 - Apr 3	5.5 6.1	Complex Eigenvalues Inner Product, Length, Orthogonality	Quiz 7 (due April 2)
April 4 - 10	6.2	Orthogonal Sets (If time permits)	Quiz 8 (due April 9)

April 13		Course Review	