MATH 1107E Linear Algebra I, Fall 2020
(Tentative course outline, subject to change)

Instructor: Şaban Alaca
E-mail: SabanAlaca (at) cunet (dot) carleton (dot) ca

Textbook: Linear Algebra and its Applications (with MyLab Access Code), Sixth Edition, David C. Lay, Steven R. Lay, and Judi J. McDonald. E-Textbook with MyLab 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.

Lectures (online via Zoom): Tuesdays and Thursdays 11:30am-1:00pm. Lectures begin on Thursday September 10, 2020 and end on Thursday December 10, 2020.

Tutorials (online via Zoom): Thursdays 4:30-5:30pm. Tutorials start on September 24, 2020. During the tutorial sessions a TA will answer your questions and/or work out selected problems.

Office hours (online via Zoom): Tuesdays 3pm-4pm (subject to change)

Class conduct: Students are expected to behave in a professional manner at all times. Disrupting a class is considered to be an Instructional Offence (see University Calendar). Please adhere to the same standards of behaviour online that you follow in a real classroom.

Evaluation:
Ten online quizzes 30%
Two assignments 20%
One online midterm exam 20%
One online final exam 30%

Online midterm exam: There will be an 80-minute online midterm exam during the class time on Tuesday Nov 3 at 11:30am--1:00pm. No make-up, early or late midterm exam will be given. Missing 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 3-hour online final exam scheduled during the usual exam period. It is the responsibility of each student to be available at the time of the final examination.

Important notes:

- Lectures will be online via Zoom during the scheduled class times. Lecture notes will be posted on cuLearn in advance. Students are expected to study the assigned pages of the lecture notes and the relevant sections of the textbook before each class. During online lecture times, you will have an opportunity to ask your questions. The classes are not a substitute for studying the lecture notes and the relevant sections of the textbook by yourself prior to each class.

- If you are physically in a different time zone, please email me (using your Carleton email account) during the first week of classes with the details of your time zone to discuss suitable accommodation.

- Instructions on how to join the Zoom sessions will be posted on cuLearn.

- More details for lectures, tutorials and office hours will be 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

- Please use your Carleton e-mail account for all course related e-mails.

- You are responsible for keeping up with information announced during the lectures and tutorials, or sent to your Carleton e-mail account, or announced in cuLearn.

Policies:

Academic accommodation: You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

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 in-class 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/

MATH 1107E Tentative Lecture Schedule

Dates	**Sections**	**Midterm**	**Topics**
Sep 10	1.1		Systems of Linear Equations
Sep 15, 17	1.2 1.3, 1.4		Row Reduction and Echelon Forms Vector Equations, Matrix Equation **Ax = b**
Sep 22, 24	1.5 1.7		Solution Sets of Linear Systems Linear Independence
Sep 29, Oct 1	1.6, 1.10 1.8, 1.9		Applications of Linear Systems Introduction to Linear Transformations The Matrix of a Linear Transformation
Oct 6, 8	2.1, 2.2 2.3		Matrix Operations, The Inverse of a Matrix Characterizations of Invertible Matrices
Oct 13, 15	2.8		Subspaces of $\mathbf{R}^n$
Oct 20, 22	2.9		Dimension and Rank
Oct 26 - 30			FALL BREAK (NO CLASSES)
Nov 3, 5	3.1 3.2 3.3	Nov 3	Introduction to Determinants Properties of Determinants Cramer's Rule
Nov 10, 12	5.1 5.2		Eigenvectors and Eigenvalues The Characteristic Equation
Nov 17, 19	5.3		Diagonalization
Nov 24, 26	Appendix B Lecture Notes		Complex Numbers
Dec 1, 3	5.5 6.1		Complex Eigenvalues Inner Product, Length and Orthogonality
Dec 8, 10	6.2		Orthogonal Sets (if time permits)

The above class outline is subject to change depending on the progress of the course

Teaching Assistants

Section	Teaching Assistant	Email: @cmail.carleton.ca
A1		
A2		
A3		
A4		