# Math 1104A Linear Algebra, Summer 2021

**Instructor:** Dr. Mohammad R Sadeghi
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**Lectures:** There are **no scheduled lectures**. Instead, every week about 4 **Prerecorded** podcasts will be posted on **Brightspace** twice a week.
It is planned to have live sessions every week to review the key points of topics and answer your questions during office hours.

**Podcasts start on** Mon May 10, and **end** on Wed Jun 16

**Office Hours:** There will be no formal office hours, email is the best. Any questions related to course operation should be emailed to the Professor. Any questions regarding tutorial, assignments, or homework should be emailed to the TAs (TA email addresses will be posted on Brightspace).



**References:** **1:** Lecture notes, will be posted on BrightSpace regularly after each lecture,
**2:** Linear Algebra and its Applications, 6th (or 5th) Edition, David C. Lay, Steven R. Lay, and Judi J. McDonald. Loose-leaf/ "À la carte edition" visit Carleton book store for online order,

**Tutorial Book:**
"Linear Algebra and its Applications," 3rd Edition by Mohammad R. Sadeghi & Jabir Abulrahman,
**Can be ordered online to Haven Books**

**Prerequisite:** Ontario Grade 12 Mathematics: Geometry and Discrete Mathematics; or an OAC in Algebra and Geometry; or MATH 0005; or equivalent; or permission of the school.

**Tutorials:** Mon & Wed 17:35-18:25 **Online TBA**

| Sec | Location | Students Last name | TAs name | TAs email address |
|---|---|---|---|---|
| A1 | BBB or Zoom | TBA | TBA | |
| A2 | BBB or Zoom | TBA | TBA | |
| A3 | BBB or Zoom | TBA | TBA | |

**Evaluation:** **45%** **Three Assignments, will be posted on Brightspace, the due date for each one will be announced. Late assignment submission is NOT allowed.**
**15%** **Midterm test on Wed May 26**
**40%** **Final Exam**

**Tutorial Work** There will be 1-hour tutorial each week. The tutorials will be devoted to problem solving

and answering your questions. Please make sure to always attend to tutorial section you are registered in.

**Final Examination:**
There will be a 3-hour exam scheduled during the usual exam period. It is the responsibility of each student to be available at the time of the final examination. The final exam will be an online, e-proctored, three-hour closed book exam to be held during the period of (TBA) of June. The Examination office is in charge of scheduling the dates and exams. You should also check your email from your course instructor about instruction of the final exam.

**Online proctoring**: Please be aware by registering in this course you acknowledge that this course may use online proctoring tools. These online proctoring tools could require you to identify yourself via webcam. Additionally, while you are completing the proctored exam, your activities will be monitored. This could include direct observation via webcam and through the use of screen recording software. Evidence of academic misconduct during an exam will be treated seriously.

**E-mail:** According to Carleton University policy under the Freedom of Information of Privacy Act (FIPPA), Please use your Carleton account ONLY for all course related email, and write your course code on the subject line.

**Announcements:** You are responsible for keeping up with information announced in class or sent to your connect email account.
The following **course schedule** is approximate, and may change subject to the progress of the class. The material covered on each test will be announced in class one week before the test.

## Tentative Course Schedule

| | Topics |
|---|---|
| 1 | Systems of Linear Equations , Row Echelon Forms, Vector Equations |
| 2 | The Matrix Equation **Ax = b,** Solution Sets of Linear Systems |
| 3 | Matrix Operations, The Inverse of a Matrix. |
| 4 | Characterizations of Invertible Matrices, Introduction to Determinants, |
| 5 | Properties of Determinants, Cramer's Rule |
| 6 | Subspaces of $R^n$, Linear dependence, Dimension and Rank |
| 7 | Introduction to Linear Transformations, Matrix of a Linear transformation |
| 8 | Eigenvectors and Eigenvalues, The Characteristic Equation |
| 9 | Diagonalization |
| 10 | Complex Numbers, Complex Eigenvalues |
| 11 | Inner Product, Length and Orthogonality |
| 12 | Orthogonal Sets |
| 13 | Orthogonal Projections, Final Exam Review |

**Academic Accommodation**
Students with disabilities requiring academic accommodations in this course must contact a coordinator at the Paul Menton Centre for Students with Disabilities to complete the necessary Letters of Accommodation. You must request accommodations by the official accommodation deadline published on the PMC website.