Math 1104 C Linear Algebra
Winter 2020

Instructor: Dr. **Jabir M. Abdulrahman**
                   5250 HP   Tel: 613-520-2600 ext. 1983
                   Email: jabira@math.carleton.ca
Office Hours: Mon. and Wed.: 3:00 – 4:00 pm
Textbook: **Linear Algebra and its Applications, Fifth Edition, David C. Lay, Steven R. Lay, and Judi J. McDonald.**

Additional References:
   1-   **Linear Algebra and its Applications, 3rd Edition by Mohammad R. Sadeghi & Jabir Abulrahman**
   2- **A First Course in Linear Algebra, by Rob Beezer online**
   3-   **Elementary Linear Algebra, First Canadian Edition, Venit, Bishop and Brown**

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.

Lectures: **Mon., and Wed.: 4:05 to 5:25 pm Health Science Building 1301**
Classes start on Mon. Jan. 6, 2020, and **classes end** on Tue. Apr. 7, 2020

Tutorials: **Mon. 2:35-3:25** pm starting Jan. 13, 2020

Evaluation: **5%   Tutorial attendance**
                   45%   Tests (The best 2 tests out of 3 tests)
                   50%   Final Exam

Tutorial Work There will be an hour tutorial each week. Except for the three test weeks, the tutorials will be devoted to problem solving. Please make sure to always go to the tutorial section you are registered in.

Term Tests
 There will be three 50-minute tests held in the tutorial hours on:

        Jan. 27,   Mar.2 ,   Mar. 23.

There will be **NO make-up tests.** Students are allowed to miss one test without penalty. In case when a student misses more than one test due to illness (supported by a doctor note) jury duty or extreme personal misfortune, the term mark may be pro-rated. It is each student's responsibility to collect the marked tests from the TA. The test papers are normally distributed in the tutorial session following the date of the test.

Final Examination:
There will be a 3-hour exam scheduled during the usual exam period (Apr. 13- 25). It is the

responsibility of each student to be available at the time of the final examination. In particular, no travel plans for the examination period in April should be made until the examination schedule is published.

Calculators:

Only **non-programmable, non-graphing calculators** for the tests and the final examination.

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

The following week by week schedule is subject to change depending on the progress of the course

	Dates		Topics
1	Jan 6 –10		Systems of Linear Equations , Row Echelon Forms, Vector Equations
2	Jan 13 – 17	**First tutorial**	The Matrix Equation $\mathbf{Ax = b,}$ Solution Sets of Linear Systems
3	Jan 20 – 24		Matrix Operations, The Inverse of a Matrix.
4	Jan 27 – 31	**Test 1**	Characterizations of Invertible Matrices, Introduction to Determinants,
5	Feb 3 – 7		Properties of Determinants, Cramer's Rule
6	Feb 10 – 14		Subspaces of R^n, Linear dependence, Dimension and Rank
7	Feb 17 – 21	**Break**	Winter break
8	Feb 24 – 28		Introduction to Linear Transformations, The Matrix of a Linear Transformation
9	Mar. 2 – 6	**Test 2**	Eigenvectors and Eigenvalues, The Characteristic Equation
10	Mar 9 -- 13		Diagonalization
11	Mar. 16 – 20		Complex Numbers, Complex Eigenvalues
12	Mar. 23– 27	**Test 3,**	Inner Product, Length and Orthogonality
13	Mar 30 – Apr.3		Orthogonal Sets
	Apr. 6 – 7		Orthogonal Projections, Final Exam Review

Math Tutorial Centre: You can study and get help from teaching assistants in the Math Tutorial centre. It is located in HP3422 and is open Monday-Thursday 11:00am-4:00pm, and Fridays 11:30am-3:30pm. You may also join the Math & Stats Learning Assistance Program which offers extra support for first year mathematics courses. For more information, visit
https://carleton.ca/math/math-tutorial-centre
https://carleton.ca/math/math-learning-assistance-program

Students with disabilities: Students with disabilities requiring academic accommodations in this course are encouraged to contact the Paul Menton Center for Students with Disabilities (500 University Center) to complete the necessary forms. After registering with the Center, make an appointment to meet with me in order to discuss your needs at least two weeks before the first in-class test or CUTV midterm exam. This will allow for sufficient time to process your request. Please note the following deadlines for submitting completed forms to the PMC for formally scheduled exam accommodations: TBA for fall and fall/winter term courses, and TBA for winter term courses."

Academic Accommodation: You may need special arrangements to meet your academic obligations during the term because of disability, pregnancy or religious obligations. You can visit the Equity Services web site to view the policies and to obtain more detailed information on academic accommodation at http://carleton.ca/equity/accommo

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