

Fall 2021

MATH 2107A, Linear Algebra II

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Textbook: Linear Algebra and Its Applications (etext without MyLab), 6E, by David C. Lay, Steven R. Lay, Judi J. McDonald. I sent you an email with different options to buy the e-text.

Prerequisites: (i) MATH 1104, or a grade of C- or higher in MATH 1107 or MATH 1109; and (ii) a grade of C- or higher in MATH 1007 or equivalent; or MATH 1152 and permission of the School.

Note: in item (i), MATH 1119 is NOT acceptable as a substitute for MATH 1109.

First lecture: Thursday, September 9.

Last lecture: Thursday, December 9.

First tutorial: Tuesday, September 21.

Last tutorial: Tuesday, December 7.

Lectures will be held Synchronously (live) via Zoom through Brightspace. The schedule is as follows:

Day	Time
Tuesday and Thursday	8:35--9:55 am

Tutorials (On Tuesdays 7:35--8:25 pm): A1 is IN-PERSON and AW is online Synchronous (live) via Zoom through Brightspace.

Instructor's office hour (online): Thursdays 10:00 --11:00 am

Term tests: There will be four tests held online, for all tutorial sections (A1 and AW), during the regular tutorial hours (Tuesdays 7:35 pm--8:25 pm), on the following dates:

Test 1: October 5

Test 2: October 19

Test 3: November 16

Test 4: November 30.

No make up, early, or delayed tests. Instructions for the tests will be posted on Brightspace as they become available.

Quizzes: There will be five online quizzes during the term due on Tuesdays at 6:00pm on the following dates:

Quiz 1: September 28,

Quiz 2: October 12,

Quiz 3: November 2,

Quiz 4: November 9,

Quiz 5: November 23.

No make up, early, or delayed quizzes. Instructions for the quizzes will be posted on Brightspace as they become available.

Final examination: This is a three-hour exam scheduled by the University and will take place during the examination period of **December 11--23**. The University will determine the exact date and time of the examination. It is the responsibility of each student to be available at the time of the examination. Please note that the exam date cannot be changed by the instructor.

Evaluation: Five quizzes 20% (4% each), 4 tests 40% (10% each), and final examination 40% of the final grade.

A minimum grade of 25% on the term mark and 25% on the final examination is required in order to pass the course.

Important notes:

- Lectures will be online via Zoom during the scheduled class times. Lecture notes will be posted on Brightspace.
- Tests, quizzes and the final examination will be run through Brightspace. Details will be posted on Brightspace as they become available.
- You are responsible for keeping up with information announced in class, posted on the Brightspace course page, or sent to your Carleton e-mail account.
- According to Carleton University policy under the Freedom of Information of Privacy Act (FIPPA), please use your Carleton e-mail account for all course related emails.
- You are responsible for making sure that your test marks are recorded correctly by visiting **Brightspace**. The deadline to request any corrections to your term marks is **December 9**.

System requirements: Students must have reliable internet access. Students are fully responsible for resolving their own computer/connection issues and creating proper files for test/examination submissions. Students having technical issues with Brightspace should contact the [ITS service desk](#).

MATH 2107A, WEEKLY LECTURE SCHEDULE, FALL 2021

LECTURE #	DATES	TESTS	SECTIONS	TOPICS
1	Sep. 9	~	4.1	Vector Spaces and Subspaces.
2 & 3	Sep. 14, 16	~	4.2, 4.3	Null Spaces, Column Spaces, Row Space and Linear Transformations. Linearly Independent Sets, Bases.
4 & 5	Sep. 21, 23	~	4.4, 4.5	Coordinate Systems. The Dimension of a Vector Space.
6 & 7	Sep. 28, 30	Quiz 1 Sept. 28	4.5, 4.6	Rank. Change of Basis.
8 & 9	Oct. 5, 7	Test 1 Oct. 5	5.1, 5.2	Eigenvectors and Eigenvalues. The Characteristic Equation.
10 & 11	Oct. 12, 14	Quiz 2 Oct. 12	5.3, 5.4	Diagonalization. Eigenvectors and Linear Transformations.
12 & 13	Oct. 19, 21	Test 2 Oct. 19	5.5	Complex Eigenvalues.
~	Oct. 25--29	FALL	BREAK	NO CLASSES
14 & 15	Nov. 2, 4	Quiz 3 Nov. 2	6.1, 6.2	Inner Product, Length and Orthogonality. Orthogonal Sets.
16 & 17	Nov. 9, 11	Quiz 4 Nov. 9	6.3, 6.4	Orthogonal Projections. The Gram-Schmidt Process.
18 & 19	Nov. 16, 18	Test 3 Nov. 16	6.5, 6.6	Least-Squares Problems. Least-Squares Lines. Least-Squares Fitting of Other Curves.
20 & 21	Nov. 23, 25	Quiz 5 Nov. 23	6.7	Inner product Spaces.
22 & 23	Nov. 30, Dec. 2	Test 4 Nov. 30	7.1, 7.2	Diagonalization of Symmetric Matrices. The Spectral Theorem for Symmetric Matrices. Quadratic Forms.
24 & 25	Dec. 7, 9		7.2 (cont.), 7.3	The Principal Axes Theorem. Constrained Optimization.

The above weekly schedule is subject to change depending on the progress of the course.

Policies:

Academic Integrity: Be sure that you know the academic integrity standards at Carleton which can be found [here](#).

Religious obligations and/or accommodations 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: [Academic Accommodation](#).

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 pmc@carleton.ca 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 or exam requiring accommodation (if applicable). For the deadline to request accommodations, and for more details, visit the [PMC website](#).

COVID-19 Protocol: All members of the Carleton community are required to follow COVID-19 prevention measures and all mandatory public health requirements (e.g. wearing a mask, physical distancing, hand hygiene, respiratory and cough etiquette) and [mandatory self-screening](#) prior to coming to campus daily.

If you feel ill or exhibit COVID-19 symptoms while on campus or in class, please leave campus immediately, self-isolate, and complete the [mandatory symptom reporting tool](#). For purposes of contact tracing, attendance will be taken in all classes and labs. Participants can check in using posted QR codes through the cuScreen platform where provided. Students who do not have a smartphone will be required to complete a paper process as indicated on the COVID-19 website. All members of the Carleton community are required to follow guidelines regarding safe movement and seating on campus (e.g. directional arrows, designated entrances and exits, designated seats that maintain physical distancing). In order to avoid congestion, allow all previous occupants to fully vacate a classroom before entering. No food or drinks are permitted in any classrooms or labs.

For the most recent information about Carleton's COVID-19 response and required measures, please see the University's [COVID-19 webpage](#) and review the [Frequently Asked Questions \(FAQs\)](#). Should you have additional questions after reviewing, please contact covidinfo@carleton.ca.

Please note that failure to comply with University policies and mandatory public health requirements, and endangering the safety of others are considered misconduct under the Student Rights and Responsibilities Policy. Failure to comply with Carleton's COVID-19 procedures may lead to supplementary action involving Campus Safety and/or Student Affairs.

Last Modified: September 2, 2021.