Department of Mathematics and Statistics
Concordia University

MATH 252
Linear Algebra II
Winter 2022

Instructor*: _____

Office/Tel No.: _____

Office Hours: _____

*Students should get the above information from their instructor during class time. The instructor is the person to contact should there be any questions about the course. Important information about the course will be posted on Moodle; please check it frequently.

Text: Linear Algebra, 5th Edition, by Friedberg, Insel & Spence, Prentice Hall.

Assignments: Given weekly. No late assignments will be accepted.

Test: There will be one class test in the seventh week. <u>There will be no make-up test.</u>

Final Exam: The final examination will be three hours long. It covers material from the entire course.

Final Mark: The final grade will be based on the higher of (a) or (b) below:
                   a) 20% for the assignments, 30% for the test, and 50% for the final.
                   b) 100% for the final examination.

                   If the grading scheme for this course includes graded assignments, a reasonable and representative subset of each assignment may be graded. Students will not be told in advance which subset of the assigned problems will be marked and should therefore attempt all assigned problems.

Calculators: Only calculators approved by the Department are permitted in the class test and final examination. The calculators are **Sharp EL 531** and **Casio FX 300MS**, available at the Concordia Bookstore. A list of approved calculators can be found at https://www.concordia.ca/artsci/math-stats/services.html#calculators

Week	Section	Topics	Assignments
1	Appendix D 2.2	Complex Numbers Vector Spaces over R or C Matrix $[T]_\beta$ for T:V->V	Page 84: 2bef, 5af, 8,10
2	2.5 5.1	The Change of Coordinate Matrix Eigenvalues and Eigenvectors	Page 116: 2bd, 3d, 6d Page 256: 3bd, 4c
3	5.2	Diagonalizability (Section on Direct Sums excluded)	Page 279: 2df, 3bf, 8, 14abc
4	5.4	Invariant subspaces The Cayley-Hamilton Theorem	Page 321: 3, 6bd, 9bd, 10bd, 18ab
5	6.1	Inner Products and Norms	Page 336: 5, 9, 11
6	6.2	The Gram-Schmidt Orthogonalization Process and Orthogonal Complements **Review**	
7		**Midterm Test**	Page 352: 2df, 9, 19c
8	6.3	The Adjoint of a Linear Operator	Page 365: 2b, 3b, 8, 12a, 19, 20c
9	6.4	Normal and Self-Adjoint Operators (Definition of a positive definite operator Page 377)	Page 374: 2cf, 6, 11, 20
10	6.5	Unitary and Orthogonal Operators and their Matrices	Page 392: 2bce, 3, 11, 17
11	7.1	The Jordan Canonical Form I	Page 494: 2abcd
12	7.2 7.3	The Jordan Canonical Form II The Minimal Polynomial	Page 509: 4bcd Page 522: 2, 3
13		**REVIEW**	

Academic Integrity and the Academic Code of Conduct
This course is governed by Concordia University's policies on Academic Integrity and the Academic Code of Conduct as set forth in the Undergraduate Calendar and the Graduate Calendar. Students are expected to familiarize themselves with these policies and conduct themselves accordingly. "Concordia University has several resources available to students to better understand and uphold academic integrity. Concordia's website on academic integrity can be found at the following address, which also includes links to each Faculty and the School of Graduate Studies: concordia.ca/students/academic-integrity." *[Undergraduate Calendar, Sec 17.10.2]*

Use of Zoom
Note: Zoom is included as an institutionally-approved technology. This means we have been assured of the privacy protections needed to use freely within the classroom)

Zoom will be used in this course to facilitate learning at a distance. It may be used to record some or all of the lectures and/or other activities in this course. If you wish to ensure that your image is not recorded, speak to your instructor as soon as possible.

Also, please note that you may not share recordings of your classes and that the instructor will only share class recordings for the purpose of course delivery and development. Any other sharing may be in violation of the law and applicable University policies, and may be subject to penalties.

Behaviour

All individuals participating in courses are expected to be professional and constructive throughout the course, including in their communications.

Concordia students are subject to the Code of Rights and Responsibilities which applies both when students are physically and virtually engaged in any University activity, including classes, seminars, meetings, etc. Students engaged in University activities must respect this Code when engaging with any members of the Concordia community, including faculty, staff, and students, whether such interactions are verbal or in writing, face to face or online/virtual. Failing to comply with the Code may result in charges and sanctions, as outlined in the Code.

Intellectual Property

Content belonging to instructors shared in online courses, including, but not limited to, online lectures, course notes, and video recordings of classes remain the intellectual property of the faculty member. It may not be distributed, published or broadcast, in whole or in part, without the express permission of the faculty member. Students are also forbidden to use their own means of recording any elements of an online class or lecture without express permission of the instructor. Any unauthorized sharing of course content may constitute a breach of the Academic Code of Conduct and/or the Code of Rights and Responsibilities. As specified in the Policy on Intellectual Property, the University does not claim any ownership of or interest in any student IP. All university members retain copyright over their work.

Extraordinary circumstances

In the event of extraordinary circumstances and pursuant to the Academic Regulations the University may modify the delivery, content, structure, forum, location and/or evaluation scheme. In the event of such extraordinary circumstances, students will be informed of the change.