

MATH 252
Linear Algebra II
Winter 2015

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.

Course Examiner: Dr. E. Cohen.

Text: Linear Algebra, 4th Edition, by Friedberg, Insel & Spence, Prentice Hall.

Assignments: Given weekly. No late assignments will be accepted. Solutions will be posted at the SGW Digital Store (LB-115).

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

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) 10% for the assignments, 30% for the test, and 60% for the final.
b) 100% for the final examination.

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.

| Week | Section | Topics | Assignments |
|------|-----------------------|---|--|
| 1 | Appendix D 2.2 | Complex Numbers Vector Spaces over R or C Matrix $[T]_{\beta}$ for $T:V \rightarrow V$ | 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 | Page 352: 2df, 9, 19c |
| 7 | | Review Midterm Test | |
| 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 | |