Days, Time, and Location TR-1pm-2:15pm 120 Ingraham

The textbook

The text that is currently being used in our department is


CHAPTER 1. LINEAR SPACES
(1) §1.2. The definition of a linear space.
(2) §1.3. Examples.
(3) §1.6. Subspaces.
(4) §1.7. Dependent and independent sets.
(5) §1.8. Bases and dimension.
(6) §1.9. Components.
(7) §1.11. Inner products, Euclidean spaces. Norms.
(8) §1.12. Orthogonality in Euclidean spaces.
(10) §1.15. Orthogonal compliments. Projections.
(11) §1.16. Best approximations.

CHAPTER 2. LINEAR TRANSFORMATIONS AND MATRICES
(12) §2.1. Linear Transformations
(13) §2.2. Null Space and Range
(14) §2.3. Nullity and rank
(15) §2.5. Operations on Linear Transformations.
(16) §2.6. Inverses.
(17) §2.7. One-to-one linear transformations.
(18) §2.9. Linear transformations with prescribed values.
(19) §2.10. Matrix representations.
(20) §2.11. Matrices in diagonal form.
(21) §2.13. Linear spaces of matrices.
(22) §2.14. Correspondence between linear transformations and matrices.
(23) §2.15 Matrix Multiplication.
(25) §2.18. Computational techniques.
(26) §2.19. Inverse of a square matrix.
Chapter 3. Determinants.
(27) §3.2. Motivation.
(28) §3.3. Axioms for a determinant function.
(29) §3.4. Computation of determinants.
(30) §3.5. The uniqueness theorem.
(31) §3.7. The Product Formula.
(32) §3.8. The determinant of the inverse of a nonsingular square matrix.
(33) §3.9. Determinants and independence of vectors.
(34) §3.10 The determinant of a block-diagonal matrix.
(35) §3.12 Expansion Formulas.
(36) §3.13 Existence of the determinant
(37) §3.14 The determinant of the transpose.
(38) §3.15. The Cofactor.
(39) §3.16. Cramer’s rule.

Chapter 4. Eigenvalues and Eigenvectors.
(40) §4.1. Linear transformations with diagonal matrix representations.
(41) §4.2. Eigenvectors and Eigenvalues of a linear transformation.
(42) §4.3. Linear independence of eigenvectors with distinct eigenvalues.
(43) §4.5. Characteristic polynomials.
(44) §4.6. Calculation of eigenvalues and eigenvectors.
(45) §4.7. The trace.

Chapter 5. Eigenvalues of operators on Euclidean spaces.
(47) §5.1.
(48) §5.2.
(49) §5.3.
(50) §5.4.
(51) §5.5.
(52) §5.6.
(53) §5.7.
(54) §5.8.
(55) §5.9.
(56) §5.10.
(57) §5.12.
(58) §5.13.
(59) §5.14.
(60) §5.16.
(61) §5.17.
(62) §5.18.
(63) §5.19.

(64) §8.1.
(65) §8.2.
(66) §8.4.
TENTATIVE SYLLABUS FOR MATHEMATICS 375

(67) §8.6.
(68) §8.7.
(69) §8.8.
(70) §8.10.
(71) §8.11.
(72) §8.12.
(73) §8.13.
(74) §8.15.
(75) §8.16.
(76) §8.18.
(77) §8.19.
(78) §8.20.
(79) §8.21.
(80) §8.22.
(81) §8.23.

Course Requirements

Homework = %20
Midterm I = %20
Midterm II = %20
Final Exam (cumulative) = %40

Tentative Exam Schedule

Midterm I will be given in the Second week of October.
Midterm II will be given in mid November
The Final Exam will be on December 19.

HOMEWORK

There will be weekly homework assignments. Selected problems will be graded. These are to be handed in each Wednesday in recitation beginning on the 17th of September. NO LATE HOMEWORK WILL EVER BE ACCEPTED. You should check this page weekly for the assignments. I will generally post them every Monday or Tuesday night.

According to the academic calendar at

http://www.secfac.wisc.edu/acadcal

there are 43 MWF days in the fall semester (and 29 TR days). This means we roughly have to cover 12-13 pages per week.

Calculus Resources

(1) Private Tutoring (see Sharon Paulson 2nd floor VanVleck)
### Table 1. Semester Homework Assignments

<table>
<thead>
<tr>
<th>#</th>
<th>Due Date</th>
<th>pgs.</th>
<th>problems</th>
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<td>Hwkrk # 1</td>
<td>Due Sept. 17</td>
<td>13/20</td>
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<td>Hwkrk # 2</td>
<td>Due Sept. 24</td>
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<td>Hwkrk # 3</td>
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### Fall semester 2007

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