Syllabus for Math 304
Linear Algebra
Fall 2015
Section 510

Instructor: Volodymyr Nekrashevych
Office: Blocker 513c
Office hours: Office hours: Monday and Wednesday 2:00 to 3:00 pm or by appointment.
e-mail: nekrash@math.tamu.edu
Home-page: http://www.math.tamu.edu/~nekrash

Class hours:
MWF 11:30–12:20 BLOC 161

MATH 304 web page: The web page of the course is
http://www.math.tamu.edu/~nekrash/teaching/15F/304/M304.html

Text. Leon, "Linear Algebra with Applications", 8th Edition, Prentice Hall, ISBN 9780136009290.

Topics covered. Introductory course in linear algebra covering abstract ideas of vector space and linear transformation as well as models and applications of these concepts, such as systems of linear equations, matrices and determinants. MATH 323 designed to be a more demanding version of this course. **Prerequisites.** MATH 152; junior or senior classification.

Grading. Your grade will be determined by homework, two midterm exams and a *cumulative* final exam. The weights of each of these are as follows.

Homework	Exam I	Exam II	Final Exam	Total
20 pt	25 pt	25 pt	30 pt	100
weekly	Sept 30	Nov 2	Dec 16, 10:30–12:30	

I may curve any grade and will then compute the course grade by the following rule: A for at least 90 points, B for at least 80 points, C for at least 70 points, D for at least 60 points and F for less than 60 points.

Plan of lectures.

8/31 1.1. Systems of linear equations.

9/2 1.1. Matrix of a system. Elementary row operations.

9/4 1.2. Row echelon form. Gaussian elimination.

9/7 1.2. Row echelon form.

9/9 1.3. Matrix algebra

9/11 1.3. Matrix multiplication, its properties.

9/14 1.4. Elementary matrices.

9/16 2.1. Determinant of a matrix.

9/18 2.1. Determinant of a matrix. 2.2. Properties of determinants.

9/21 2.2. Properties of determinants. Computing determinants using Gaussian elimination.

9/23 3.1. Vector spaces. Definitions and examples.

9/25 3.1. Vector spaces. Definitions and examples.

9/28 Overview.

9/30 First midterm exam.

10/2 3.2. Subspaces.

10/5 3.3. Linear independence.

10/7 3.3. Linear independence. Spaces of functions.

10/9 3.4. Basis and dimension.

10/12 3.4. Change of basis.

10/14 3.4. Change of basis. Transition matrix.

10/16 3.5. Row space and column space. Applications to systems of linear equations.

10/19 3.5. Row space and column space. Applications to systems of linear equations.

10/21 4.1. Linear transformations. Definitions and examples.

10/23 4.1. Linear transformations. Definitions and examples.

10/26 4.2. Matrix representations of linear transformations.

10/29 4.2. Matrix representations of linear transformations.

10/30 Overview.

11/2 Second midterm exam.

11/4 4.3. Similarity, changes of basis for a linear transformation.

11/6 6.1. Eigenvalues and eigenvectors.

11/9 6.1. Eigenvalues and eigenvectors.

11/11 6.3. Diagonalization.

11/13 6.3. Diagonalization.

11/16 6.3. Exponent of a matrix.

11/18 5.1. Orthogonality. The scalar product in R^n.

11/20 5.4. Inner product spaces.

11/23 5.5. Orthonormal sets

11/30 5.6. The Gram-Schmidt orthogonalization process.

12/2 5.7. Orthogonal polynomials.

12/4 5.5. Trigonometric polynomials. Fourier transform.

12/7 Overview.

12/9 Overview.

Make-up policy: Make-ups for missed quizzes and exams will only be allowed for a university approved excuse in writing. Wherever possible, students should inform the instructor before an exam or quiz is missed. Consistent with University Student Rules , students are required to notify an instructor by the end of the next working day after missing an exam or quiz. Otherwise, they forfeit their rights to a make-up.

Scholastic dishonesty: Copying work done by others, either in-class or out of class, is an act of scholastic dishonesty and will be prosecuted to the full extent allowed by University policy. Collaboration on assignments, either in-class or out-of-class, is forbidden unless permission to do so is granted by your instructor. For more information on university policies regarding scholastic dishonesty, see University Student Rules.

Remember the Aggie Code of Honor: *"An Aggie does not lie, cheat, or steal or tolerate those who do."*

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