

Syllabus for Math 304

Linear Algebra

Summer 2015

Section 202

Instructor: Volodymyr Nekrashevych

Office: Blocker 513c

Office hours: Office hours: Tuesday and Thursday 1:00–2:00 PM or by appointment.

e-mail: nekrash@math.tamu.edu

Home-page: <http://www.math.tamu.edu/~nekrash>

Class hours:

10:00–11:35 THOM 112D

MATH 304 web page: The web page of the course is

<http://www.math.tamu.edu/~nekrash/teaching/15E/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
	July 15	July 28	Aug 11	

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.

- 7/7** 1.1. Systems of linear equations. Matrix of a system. Elementary row operations.
- 7/8** 1.2. Row echelon form. Gaussian elimination.
- 7/9** 1.3. Matrix algebra. Matrix multiplication, its properties.
- 7/10** 1.4. Elementary matrices.
- 7/13** 2.1. Determinant of a matrix.
- 7/14** 2.2. Properties of determinants. Computing determinants using Gaussian elimination. Overview.
- 7/15** First midterm exam. 3.1. Vector spaces. Definitions and examples.
- 7/16** 3.2. Subspaces.
- 7/17** 3.3. Linear independence.
- 7/20** 3.4. Basis and dimension. Change of basis.
- 7/21** 3.4. Change of basis. Transition matrix.
- 7/22** 3.5. Row space and column space. Applications to systems of linear equations.
- 7/23** 4.1. Linear transformations. Definitions and examples.
- 7/24** 4.2. Matrix representations of linear transformations.
- 7/27** 4.3. Similarity, changes of basis for a linear transformation. Overview.
- 7/28** Second midterm exam.
- 7/29** 5.1. Orthogonality. The scalar product in R^n .
- 7/30** 5.4. Inner product spaces.
- 7/31** 5.5. Orthonormal sets 5.6. The Gram-Schmidt orthogonalization process.
- 8/3** 6.1. Eigenvalues and eigenvectors.
- 8/4** 6.3. Diagonalization.
- 8/5** 6.3. Exponent of a matrix.

8/6 5.7. Orthogonal polynomials.

8/7 5.5. Trigonometric polynomials. Fourier transform.

8/10 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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