Math 2418: Linear Algebra

Spring 2014

Course section: Math 2418.005, MW, 10:00am-11:15am, FN 2.106 Instructor: Dr. Dmitry Rachinskiy Office: FO 2.602D Office hours: Monday, Thursday 12:00 – 1:00pm, or by appointment E-mail: dmitry.rachinskiy@utdallas.edu Phone: (972) 883 6697

Problem Sections:

Section	Day	Time	Room	TA's Name	Office	Contact
math2418.310	Fri	10:00am-11:50am	FN 2.106	Edward Hooton		exh121730

Textbook

Linear Algebra by Kenneth Hoffmann and Ray Kunze

Further reading:

Algebra by Michael Artin

Linear Algebra by Serge Lang

Finite-dimensional Vector Spaces by P. R. Halmos

Linear Algebra and Geometry by A. I. Kostrikin and Yu. I. Manin

Elementary Linear Algebra by by Howard Anton

Course description

This is an introductory course to Linear Algebra. Topics to be covered include: Systems of linear equations, matrices, determinants, vectors and vector spaces, linear transformations, eigenvalues and eigenvectors, quadratic forms.

Student Learning Objectives

Students will be able to solve systems of linear equations, perform operations with matrices, calculate determinants, find eigenvalues and eigenfunctions of a matrix, use matrix algebra in the context of analysis and geometry for solving a variety of problems.

Assignments, quizzes and exams

Assignments: There will be weekly assignments. All the assignments should be completed independently by the students. Each assignment is due within one week unless otherwise indicated in the assignment. **Late assignments will NOT be accepted**.

Quizzes: There will be a weekly quiz during the problem session organized and graded by the teaching assistant.

Exams: There will be three common examinations. Textbooks, notes, calculators or other electronic devises won't be allowed during examination. No exams and assignment may be dropped except in extraordinary circumstances. Missed exams and assignments are a zero. The midterms and final examinations have been scheduled as follows:

	Date	Time	Room
Exam I	February 23, Monday		
Exam II	April 6, Monday		
Final Exam	May 11, 2015	11:00am-1:45pm	

UTD Course Book: http://coursebook.utdallas.edu/

Grading policy

Graded assignments: 20% Weekly Quizzes in Problem Sessions: 15% Midterm exam I: 20% Midterm exam II: 20% Final exam: 25%.

Important Dates

January 12, 2015: Classes begin
January 19, 2015: University Closing: Martin Luther King Day
January 28, 2015: Census Day
January 28, 2015: Last Day to drop a class without a "W"
February 23, 2015: Midterm Exam I
March 16-21, 2015: University Closing, Spring break
April 6, 2015: Midterm Exam II

May 2, 2015: Last Day of Full-Term Session (not including exams) May 6, 2015: **Final Exam**

UTD Course Book: http://coursebook.utdallas.edu/math2420.701.15s

Further important dates:

http://www.utdallas.edu/academiccalendar/

Detailed course description

1. Systems of linear equations, matrix form of a system.

- 2. Operations with matrices.
- 3. General solution of a linear system, Gaussian elimination.
- 4. Permutations, determinants.
- 5. Inversion of a matrix. Cramer's rule.
- 6. Groups, complex numbers.
- 7. Vector spaces. Bases and dimension. Rank of a matrix. Direct sums.
- 8. Linear transformations. Dimension formula.
- 9. Matrix of a transformation in different bases.
- 10. Eigenvalues and eigenvectors. The characteristic polynomial. Invariant subspaces.
- 11. Diagonalization.
- 12. Jordan form, invariant subspaces.
- 13. Scalar product. Symmetric matrices. Orthogonal matrices and rotations.
- 14. Quadratic forms.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to http://go.utdallas.edu/syllabus-policies for these policies.

These descriptions and timelines are subject to change at the discretion of the Professor.