Syllabus

MAT 531 Second Course in Linear Algebra, Fall 2018. Page 1

Instructor

Steven Diaz Carnegie 317C, office phone 1583, email spdiaz@syr.edu.

Office Hours

Tuesday 12:30 pm-1:40 pm, Wednesday 2:00 pm-3:00 pm, Thursday 11:15 am-12:00 pm or by appointment.

Prerequisites

((MAT 375 or CIS 375) and MAT 331) or Graduate Standing in Mathematical Sciences

Text

Linear Algebra by Stephen H. Friedberg, Arnold J. Insel, and Lawrence E. Spence, Fourth Edition, Prentice Hall Pearson Education, Upper Saddle River, New Jersey 07458, 2003.

Attendance Policy

If a student misses any classes during the first week of class, the student must immediately notify the instructor by email that they wish to remain registered for the class.

Test dates

Thursday, September 20, Thursday, October 25, Thursday, November 29. These tests will be during the regular class period.

Homework

Homework will be assigned during class. It will be due at the beginning of class the Thursday after it is assigned. It will be graded and will count toward the grade for the course. Students are allowed to collaborate on the homework, but each student must hand in her or his own separate assignments. Collaboration includes working on the problem together or giving hints to other students after you have solved it yourself. It does not include letting someone else simply copy your solution.

Final exam

Friday, December 14, 2018, 12:45 pm – 2:45 pm. It will be a comprehensive final exam.

Calculation of course grade

3 tests during the term 20% each, homework 10%, final exam 30%.

Rules for exams

All exams including the final will be closed book, books, notes and calculators will not be allowed. Collaboration will not be allowed.

Make-up Exams

Makeups for exams will only be given as required by the University Religious Holliday policy and perhaps a few other very special circumstances. Do not assume you know what constitutes a very special circumstance without first discussing the matter with the me. With a good reason I may agree to replace a missed test with the final exam grade. Again, do not assume you know what constitutes a good reason without first discussing the matter with me. It is much better to contact me before the exam. Once an exam is handed in, it is very very rare that I will allow that grade to be dropped.

Topics Covered

The following is a list along with titles of the chapters and sections of the book we will cover. As the titles are descriptive this gives a good list of the topics covered.

Chapter 1 Vector Spaces
Section 1.1 Introduction
Section 1.2 Vector Spaces
Section 1.3 Subspaces
Section 1.4 Linear Combination and Systems of Linear Equations
Section 1.5 Linear Dependence and Linear Independence
Section 1.6 Bases and Dimension

Topics Covered (continued)

Chapter 2 Linear Transformations and Matrices
Section 2.1 Linear Transformations, Null Spaces, and Ranges
Section 2.2 The Matrix Representation of a Linear Transformation
Section 2.3 Composition of Linear Transformations and Matrix Multiplication
Section 2.4 Invertibility and Isomorphisms
Section 2.5 The Change of Coordinate Matrix

Chapter 3 Elementary Matrix Operations and Systems of Linear Equations
Section 3.1 Elementary Matrix Operations and Elementary Matrices
Section 3.2 The Rank of a Matrix and Matrix Inverses
Section 3.3 Systems of Linear Equations-Theoretical Aspects
Section 3.4 Systems of Linear Equations-Computational Aspects

Chapter 4 Determinants
We will do this chapter quickly and in some places use different methods than the book.

Chapter 5 Diagonalization
Section 5.1 Eigenvalues and Eigenvectors
Section 5.2 Diagonalizability

Chapter 6 Inner Product Spaces
Section 6.1 Inner Products and Norms
Section 6.2 The Gram-Schmidt Orthogonalization Process and Orthogonal Complements

Students with disabilities

If you believe that you need academic adjustments (accommodations) for a disability, please contact the Office of Disability Services (ODS), http://disabilityservices.syr.edu, located in Room 309 of 804 University Avenue, or call (315) 443-4498 or TDD: (315) 443-1371 for an appointment to discuss your needs and the process for requesting academic adjustments. ODS is responsible for coordinating disability-related academic adjustments and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since academic adjustments may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

Academic Integrity

Syracuse University's Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the University's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice.

The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. Any established violation in this course may result in course failure regardless of violation level. For more information and the complete policy, see http://class.syr.edu/academic-integrity/

Religious observances policy

Syracuse University's Religious Observances Policy recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors no later than the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice (Student Services -> Enrollment -> My Religious Observances) from the first day of class until the end of the second week of class.