

Mathematics MAT 331 : Linear Algebra
Spring 2007
MF 12:30 - 1:45 pm, Room 117

Instructor: Dr. Brad Emmons

Office: DePerno Hall 121

Telephone: 792-3413 (Don't leave voicemail)

Office Hours: Monday 2:00 - 3:00, Tuesday 1:00 - 2:00, Thursday 1:00 - 2:00, or by appointment

Email: bemmons@utica.edu

Webpage: <http://websrv.utica.edu/faculty/bemmons/>

Course Materials

Elementary Linear Algebra (9th Edition) : Anton (required)

Introduction

MAT 331 is a course on Linear Algebra. Linear Algebra deals with two distinct, yet interconnected theories. One of the theories deals with matrix computations as a way of solving systems of equations. The other theory deal with abstract vector spaces. We will deal with both subjects in this course.

Exams

There will be two in-class exams as well as a final cumulative exam. The exams will test your ability to work through some of the computations, as well as your ability to apply the techniques to certain applications. The first exam is scheduled for Friday, February 16, the second exam is scheduled for Friday, March 30, and the final exam will be held on Thursday, May 3 from 4:00 - 6:30. All exams will count for 20 percent of your final grade. There will be NO make-ups for missed exams. Please look over your schedule as soon as possible. If you see a potential conflict, inform me immediately.

Homework

Homework will be assigned daily at the end of each class, and will be due at the beginning of the next class. Homework will count for 20 percent of your final grade. Out of each assignment, I will select 3 or 4 problems to grade for 5 points each. There will also be 5 completion points on each assignment. To get 5 out of 5 completion points, the assignment must be written up neatly and thoroughly with complete solutions to all of the assigned problems. Late homework will not be graded, but you may still earn completion points on late assignments. The homework is designed to help you identify where you might have difficulties. If you encounter any trouble with an assignment or a concept, seek help!

Quizzes

Every other Friday, starting with January 26th, we will have an in-class quiz. There will be a total of 6 quizzes throughout the semester. You should treat the quizzes as mini-exams, covering material from approximately 6 days worth of course work. The quizzes will consists of 4 or 5 problems similar to problems from your graded homework, and they are to make sure that you are keeping up with the concepts presented in class, and to identify where you are having problems before you take the exams. The quizzes will count for 20% of your final grade.

Attendance

Attendance in MAT 331 is extremely important. Although there is no official attendance policy, note that if you are not in class on a particular day, I will not grade your homework assignment. I will also require that you be in class at 12:30 p.m. and no later.

Grading

Your grade in this course will be based on three main factors: homework, quizzes and exams. The homework will be worth 20% of your final grade, the quizzes 20%, and the exams 60%. In addition to these factors, minor ethereal factors such attendance, class participation, attitude, and improvement over the course of the semester can also affect your grade. To determine your final grade, 90–100% = A, 80–89% = B, 70–79% = C, 60–69% = D, 59 and below = F, with the top two percents receiving a + and the bottom two percents receiving a –.

Calculators

The use of calculators will not be allowed on any quizzes or exams. None of the work will require any sophisticated computations. You may use a calculator when working on your homework to check your work. However, since will not be allowed to use it on the exam, I suggest you do as much work without

your calculator as possible.

Important Dates

Friday, January 26 – Quiz I
Friday, February 9 – Quiz II
Friday, February 16 – Exam I
Friday, March 2 – Quiz III
Monday, March 12 - Friday, March 16 – Spring Break
Friday, March 23 – Quiz IV
Friday, March 30 – Exam II
Friday, April 13 – Quiz V
Friday, April 27 – Quiz VI
Thursday, May 3, 4:00 - 6:30 p.m. – Final Exam

Suggestions

Come to class with your homework assignment completed every day
Study for at least 30 minutes each day in addition to completing your homework assignment
Read the section we will be covering *before* we cover it in class
Do not fall behind!
Come to office hours to discuss homework and concepts. I am here to help!

Syllabus

MAT 331 : Linear Algebra

Term : Spring 2007

Week 1	January 19	Course Policies, Syllabus, Section 1.1 - Linear Equations
Week 2	January 22	Section 1.2 - Gaussian Elimination
	January 26	Sections 1.3 - Matrices and Matrix Operations, Quiz I
Week 3	January 29	Section 1.4 - Inverses
	February 2	Section 1.5 - Elementary Matrices and Finding A^{-1}
Week 4	February 5	Section 2.1 - Determinants by Cofactor Expansion
	February 9	Section 2.2 - Determinants by Row Reduction, Quiz II
Week 5	February 12	Section 2.3 - Properties of Determinants
	February 16	Exam I
Week 6	February 19	Section 4.1 - Euclidean n -Space
	February 23	Section 4.2 - Linear Transformations from \mathbb{R}^n to \mathbb{R}^m
Week 7	February 26	Section 4.3 - Properties of Linear Transformations
	March 2	Section 4.4 - Linear Transformations and Polynomials, Quiz III
Week 8	March 5	Section 5.1 - Real Vector Spaces
	March 9	Section 5.2 - Subspaces
Week 9	March 12	NO CLASS
	March 16	NO CLASS
Week 10	March 19	Section 5.3 - Linear Independence
	March 23	Section 5.4 - Basis and Dimension, Quiz IV
Week 11	March 26	Section 6.1 - Inner Products
	March 30	Exam II
Week 12	April 2	Section 6.2 - Angle and Orthogonality in Inner Product Spaces
	April 6	Section 6.3 - Orthonormal Bases; Gram-Schmidt Process
Week 13	April 9	Section 6.5 - Change of Bases
	April 13	Section 7.1 - Eigenvalues and Eigenvectors, Quiz V
Week 14	April 16	Section 7.2 - Diagonalization
	April 20	Section 8.1 - General Linear Transformations
Week 15	April 23	Section 8.2 - Kernel and Range
	April 27	Section 8.3 - Inverse Linear Transformations, Quiz VI
Week 16	April 30	Review