Math 21 - Summer 2015

Elementary Linear Algebra

MWF 9-11:30 AM - Jack Baskin Auditorium 101

Instructor: Rob Carman
Email: wcarman[at]ucsc[dot]edu
Class site: http://people.ucsc.edu/~wcarman/21sum15
Office: McHenry 1266
Office Hours: Tu/Th 12-2

Course Description: The topics covered in this class include systems of linear equations, the vector space $\mathbb{R}^n$, matrix algebras, determinants, abstract vector spaces, linear transformations, eigenvectors, and eigenvalues.
Prerequisite: One of the following: Math 11A, Math 19A, Math 20A, AMS 11A, or AMS 15A
Credit Hours: 5

Text: *Elementary Linear Algebra an etext*, 4th Edition
Author: Bruce Cooperstein; **ISBN-13:** 978-0-9885572-0-8
This is an e-text available for purchase on Lulu. The first chapter of the book is available for free.

Grade Distribution:

Quizzes	15%
Homework	20%
Midterm Exam	30%
Final Exam	35%

Quizzes: There will be a quiz at the beginning of every lecture over important definitions and concepts covered in the previous lectures. A quiz score will be determined from the ten best quizzes for each student.
Homework: Homework will be assigned weekly and collected at the end of lecture on Fridays. Homework score will be taken from the best four scores out of five.
Midterm Exam: There will be a single midterm exam on Friday July 10.
Final: A cumulative final exam will be given on the last day of class, Friday July 24.

Section: Tu/Th 5-7 - Engineering 2 room 194
TA: Matt Grace
Email: migrace[at]ucsc[dot]edu
Office: McHenry 4112

Office Hours: W 4-6, F 12-2

Important Summer Session I Dates:

Thursday June 25:	add period ends
Monday June 29:	drop period ends
Friday July 3:	deadline to change grade option
Friday July 10:	withdraw period ends
Tuesday July 21:	evaluations due
Friday July 31:	grades due

Students with Disabilities: If you qualify for classroom accommodations because of a disability, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me as soon as possible, preferably within the first week of the Summer Session. Contact DRC by phone at 831-459-2089 or by email at drc[at]ucsc[dot]edu for more information.

Tutoring: If you would like to hire a tutor for this class, just let me know, and I will put you in contact with possible tutors. Additionally, a list of tutors is supplied by the Math Department at http://www.math.ucsc.edu/undergraduate/tutor-list.html.

Late Policy: I do not accept late homework or give makeup quizzes. If you know you will have to miss a quiz or will be unable to turn in an assignment on time, let me know as far in advance as possible, and we can work something out.

Local Discounts: Check this site for a list of discounts available to summer session students in the Santa Cruz area: http://summer.ucsc.edu/resources/local-discounts.html

Tentative Course Outline:
The topic coverage might change as it depends on the progress of the class.

Date	Topics covered
Mon 6/22	• Notation, Systems of Linear Equations, Matrices, Echelon Forms • Sections: 1.1, 1.2
Wed 6/24	• Vectors in $\mathbb{R}^n$, Vector Operations, Linear Combinations, Span, Subspaces • Sections: 2.2, 2.3
Fri 6/26	• Dependence Relations, Linear Independence, Bases, Dimension • Sections: 2.4, 2.5
Mon 6/29	• Linear Transformations, Image, Null Space of a Matrix • Sections: 3.1, 3.2
Wed 7/1	• Matrix Addition and Multiplication, Transpose, Invertible Matrices • Sections: 3.3, 3.4
Fri 7/3	• Elementary Matrices • Section: 3.5
Mon 7/6	• Determinants • Sections: 4.1, 4.2
Wed 7/8	• Abstract Vector Spaces, Zero Subspace, Span, Independence, Bases • Sections: 5.1, 5.2
Fri 7/10	• Review • Midterm Exam
Mon 7/13	• Dimension of Finitely Generated Vector Spaces • Sections: 5.3
Wed 7/15	• Coordinate Vectors, Change of Basis, Rank, Nullity • Sections: 5.4, 5.5
Fri 7/17	• Linear Transformations, Kernel, Image, Matrix of a Transformation • Sections: 6.1, 6.2, 6.3
Mon 7/20	• Eigenvectors, Eigenvalues, Diagonalization • Sections: 7.1, 7.2
Wed 7/22	• Review
Fri 7/24	• Final Exam