MAT 022A Linear Algebra

Course Information:
2019 Summer Session 2
Hart Hall 1130
MWF 12:10 - 1:50 PM

Instructor:
Mikhail Gaerlan
mgaerlan@math.ucdavis.edu
MSB 3229 TR 12:10 - 1:50 PM

https://www.math.ucdavis.edu/~mgaerlan/ss2_2019_022a.html

Course Information:

Course Description:
Matrices and linear transformations, determinants, eigenvalues, eigenvectors, diagonalization, factorization.

Requisites: Prerequisite: C- or better in MAT 016C, MAT 017C, MAT 021C, or the equivalent. Corequisite: ENG 006, EME 005, ECH 060, or MAT 022AL

Textbook: D. Cherney, T. Denton, R. Thomas, and A. Waldron, *Linear Algebra*, 2013.

Additional References:
B. Kolman and D. Hill, *Introductory Linear Algebra: An Applied First Course*, 8^{th} Edition, Pearson Education, Inc, 2016, ISBN 0-13-143740-2.

G. Strang, *Introduction to Linear Algebra*, 5^{th} Edition, Wellesley - Cambridge Press, 2005. ISBN 978-0-9802327-7-6.

Course Website: https://www.math.ucdavis.edu/~mgaerlan/ss2_2019_022a.html
All course material will be uploaded to the website. Only grades and announcements will be posted to Canvas. The QR code above links to the course website.

Grades:
Grades will be posted on Canvas and Gradescope. Please add yourself to the course on Gradescope using the code 9KD2ZB.

Outline:

Homework	50%
Midterm 1	15%
Midterm 2	15%
Final	20%

Homework: Homework will be posted on the course website and will be **due by 5:00pm** on the days they are due. Since solutions will be provided after the due time, late homework will not be accepted. Homework assignments will be provided on the course website and are to be submitted on Gradescope as a PDF file. Please show your work and write your answers neatly. One homework grade will be dropped.

Midterms and Final: No outside material or help may be used on any exam. Midterm 1 will cover Chapters 1-2, 4-6 from the text. Midterm 2 will cover Chapters 7-11 and 16. The final exam will be cumulative but will heavily focus Chapters 14-15, 17, and 3.

Class Policies and Guidelines:

Calculator and Computers: No calculators or computers will be allowed during exams. You may use a calculator for the homework but remember to show your work to get credit.

Academic Conduct: All students must adhere to the Code of Academic Conduct. You are encouraged to work together on homework but be mindful that copied homework will look obvious to the reader. You may also use any other resources for homework. If you have any questions about what is allowed, feel free to ask me any questions. You may also contact the Office of Student Support & Judicial Affairs.

Accomodations: If you find yourself in an unavoidable circumstances (e.g. family emergency, illness) that may cause you to miss an exam, please contact me as soon as possible to handle the situation. Students with disabilities will be handled by an appointed representative from the mathematics department. Contact the Student Disability Center for further questions.

Important Dates:

Last day to add classes	August 9
Last day to drop classes with refund	August 12
Midterm 1	August 14
Midterm 2	August 28
Final exam	September 13

Resources:

- Learning Tools
  https://www.math.ucdavis.edu/resources/learning/
- Academic Assistance and Tutoring Centers
  https://tutoring.ucdavis.edu
- WolframAlpha®
  https://www.wolframalpha.com

Syllabus

August 5	August 7	August 9
What is Linear Algebra	Gaussian Elimination and Row Operations	Solution Sets and Vectors
Chapter 1	Sections 2.1, 2.3	Section 2.5, Chapter 4
August 12	August 14	August 16
Vector Spaces and Linear Transformations	Midterm 1	Matrices and Their Properties
Chapters 5, 6	Chapter 1-2, 4-6	Sections 7.1, 7.3
August 19	August 21	August 23
Inverse Matrices and LU Decomposition	Determinants	Subspaces and Linear Independence
Sections 7.5, 7.7	Chapter 8	Chapter 9, 10
August 26	August 28	August 30
Basis, Dimension, Kernel, Range, Nullity, and Rank	Midterm 2	Eigenvalues and Eigenvectors
Chapters 11, 16	Chapters 7-11, 16	Chapter 12
September 2	September 4	September 4
Labor Day	Orthonormal Bases and Complements	Symmetric Matrices and Least Squares
	Chapter 14	Chapters 15, 17
September 9	September 11	September 13
The Simplex Method	Review	Final Exam
Chapter 3	Chapters 1-1	Chapters 1-17