Math 22A: Linear Algebra (Section 2)
Fall Quarter 2022 at UC Davis

(Tentative) Schedule:
Disclaimer: The following schedule is tentative, and there may be changes. I will send an announcement on Canvas to notify students of any changes.
Also see the department syllabus for Math 22A (https://www.math.ucdavis.edu/courses/syllabus_detail?cm_id=58).

Lecture 1: Introduction to linear equations, linear systems, and matrices.
Lecture 2: Geometric interpretation of linear systems, the idea of elimination, and elimination using matrices.
Lecture 3: Gaussian Elimination and Reduced Row Echelon Form.
Lecture 4: Rules for matrix operations, and matrix multiplication.
Lecture 5: Inverse matrices.
Lecture 6: Solving $A\mathbf{x} = \mathbf{b}$ when A is invertible.
Lecture 7: Parametrizing solutions to a system with infinitely many solutions.
Lecture 8: Elementary matrices and elimination matrices.
Lecture 9: *LU* and *LDU* decompositions.
Lecture 10: Transposes, symmetric matrices, and permutation matrices.
Lecture 11: *PLU* decompositions.
Lecture 12: Minors, cofactors, and determinants.
Lecture 13: Properties of the determinant.
MIDTERM 1
Lecture 14: Vectors, linear combinations, and the dot product.
Lecture 15: Orthogonal vectors, projections, and the cross product.
Lecture 16: Vector spaces.
Lecture 17: Vector subspaces.
Lecture 18: Linear independence, span, and the Wronskian.
Lecture 19: A basis for a vector space, and dimension.
Lecture 20: The Four Subspaces: the row space, the column space, the null-space, and the left null-space.
Lecture 21: Rank and nullity, and orthogonal subspaces.
Lecture 22: Projection matrices.
Lecture 23: Least squares approximations.
MIDTERM 2
Lecture 24: Orthogonal matrices.
Lecture 25: The Gram-Schmidt process, and *QR*-Decomposition.
Lecture 26: Introduction to eigenvalues.
Lecture 27: Diagonalizing a matrix.
Lecture 28: Catch-up/Review.
FINAL EXAM

SEPTEMBER						
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
18	19	20	21 Lecture 1	22	23 Lecture 2	24
25	26 Lecture 3 Homework 1 due by 10:00pm (on Gradescope) Technology Assignment (optional) due by 10:00pm (on Gradescope)	27	28 Lecture 4	29	30 Lecture 5	

OCTOBER						
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
						1
2	3 Lecture 6 Homework 2 due by 10:00pm (on Gradescope)	4	5 Lecture 7	6	7 Lecture 8	8
9	10 Lecture 9 Homework 3 due by 10:00pm (on Gradescope)	11	12 Lecture 10	13	14 Lecture 11	15
16	17 Lecture 12 Homework 4 due by 10:00pm (on Gradescope)	18	19 Lecture 13	20	21 **MIDTERM 1**	22
23	24 Lecture 14 Homework 5 due by 10:00pm (on Gradescope)	25	26 Lecture 15	27	28 Lecture 16	29
30	31 Lecture 17 Homework 6 due by 10:00pm (on Gradescope)					

NOVEMBER						
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
		1	2 Lecture 18	3	4 Lecture 19	5
6	7 Lecture 20 Homework 7 due by 10:00pm (on Gradescope)	8	9 Lecture 21	10	11 HOLIDAY	12
13	14 Lecture 22 Homework 8 due by 10:00pm (on Gradescope)	15	16 Lecture 23	17	18 **MIDTERM 2**	19
20	21 Lecture 24 Homework 9 due by 10:00pm (on Gradescope)	22	23 Lecture 25	24 HOLIDAY	25 HOLIDAY	26
27	28 Lecture 26 Homework 10 due by 10:00pm (on Gradescope)	29	30 Lecture 27			

DECEMBER						
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
				1	2 Lecture 28	3
4	5 **FINAL EXAM** 10:30am-12:30pm	6	7	8	9	