MATH 307 — LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS

Instructor: Kenny Corea kcorea@hawaii.edu

Lectures: TR 1:30-2:45 Watanabe 420

Office Hours: MW 1:30-2:30, TR 12-1 Keller 402E

Book: *Linear Algebra and Differential Equations*, by Peterson and Sochacki.

Calculators: You may use a scientific calculator during exams. I highly encourage you to use more sophisticated computational software to *supplement* your studies.

Course description: Introduction to linear algebra, application of eigenvalue techniques to the solution of differential equations.

Prerequisites: 242 or 252A, or consent.

Course management: Course announcements and materials will be available on our course page:

`https://math.hawaii.edu/~kcorea/courses/spring_2023/307`.

Grades: Your grade is broken down as follows:

Homework	30%
Exams	40% (2x20%)
Final	30%

The standard grade scale will be used.

Homework: Written homework will be due each week on Tuesday during lecture. All assignments are weighed equally. A subset of each problem set will be graded. No electronic submissions will be accepted.

Exams: There will be two midterm exams and a final exam. Each exam will cover the most recent material, and the final will be cumulative.

Exam 1	Thursday 2/16 Lecture room and time
Exam 2	Thursday 4/6 Lecture room and time
Final	Thursday 5/11 12-2 pm Watanabe 420

Make-up Policy: In general, assignments and examinations will not be excused. If you know you will miss an exam in advance, we can schedule you to take it earlier; you must

inform me at the beginning of the semester. To account for unforseeable circumstances the following policy is in place:

Your lowest two homework scores will be dropped. Your lowest midterm score will be replaced by your final score if it improves your overall grade.

Academic integrity: You are encouraged to work together, but the work you submit must be your own. Cheating, plagiarism, and academic dishonesty will not be tolerated.

KOKUA: I am happy to work with you and the KOKUA Program (Office for Students with Disabilities), if you need course accommodations. For more information visit their webpage `https://hawaii.edu/kokua/`.

Tentative Schedule: We will cover chapters 1,2, 5 and 6 from the Peterson and Sochacki text. The following is a rough timeline of what we are covering each week.

Week	Topic
1	Systems of Linear Equations, Matrices
2	Matrix Operations, Inverses
3	Special Matrices, Determinants
4	Vector Spaces, Subspaces
5	Linear Independence and Bases
6	Dimension, Fundamental Spaces, **Exam 1**
7	Wronskian, Linear Transformations
8	Algebra of Linear Transformations
9	Matrix of a Linear Transformation
10	*Spring Break*
11	Eigenvectors and Eigenvalues
12	Similar Matrices, Diagonalization, Jordan Canonical Form
13	Systems of Linear Diff. Eqn's., **Exam 2**
14	Homogeneous Systems with Constant Coefficients
15	Nonhomogeneous Linear Systems
16	Applications, 2x2 Nonlinear Systems
17	Overflow
18	**Final's Week**