MATH 302 — INTRODUCTION TO DIFFERENTIAL EQUATIONS I

Instructor: Kenneth Corea PhD kcorea@hawaii.edu

Lectures: TR 10:30-11:45 Keller 303

Office Hours: MTWR 2-3 Keller 402E or by appt.

Book: *Elementary Differential Equations and Boundary Value Problems*, 12th Edition, by Boyce, Diprima, Meade.

Course description: First order ordinary differential equations, constant coefficient linear equations, oscillations, Laplace transform, convolution, Green's function.

Prerequisites: Math 216 or 243 (or concurrent) or 253A (or concurrent) or consent.

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

> https://math.hawaii.edu/~kcorea/courses/spring_2025/302/

Grades: Your grade is broken down as follows:

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

The standard letter grade scale will be used.

Homework: There will be weekly written homework assignments, due every Thursday at the beginning of lecture. Please write your name and week number on each assignment. All assignments are 10 points. A subset of each problem set will be graded. No electronic submissions will be accepted.

Exams: There will be three exams, two midterm exams and a final. You may use a scientific calculator for numerical computations, no other devices are authorized. For each exam you may bring a two-side 3x5 notecard formula sheet, you may use a 5x8 notecard for the final.

Exam 1	Thursday 2/27
Exam 2	Thursday 4/10
Final	Thursday 5/15

Each midterm will be held in our usual lecture room and time, the final is 9:45-11:45 location TBA.

Make-up Policy: In general, assignments and examinations will not be excused. Your lowest two homework scores will be dropped. Your lowest exam score will be replaced by your final exam score, if it improves your overall grade. Student athletes should meet with me at the beginning of the semester.

Academic integrity: Cheating, plagiarism, and academic dishonesty will not be tolerated.

Electronic Devices: Electronic devices are not permitted at any time; this includes: cell phones, cameras, recording devices, laptops, etc. The only exceptions are a tablet for note taking and a calculator. Offenders must finish my lecture, or leave my lecture.

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 1-6 from the text. The following is a rough timeline of what we are covering each week.

Week	Topic
1	Classification, Direction Fields, Integrating Factor
2	Separable Equations, Modeling
3	Applications, Existence theorems, Autonomous
4	Exact Equations, Euler's Method
5	Linear DEs and the Wronskian
6	Homogeneous constant coefficient
7	Undetermined coefficients, **Exam 1**
8	Variation of parameters
9	Oscillations
10	*Spring Recess*
11	Laplace Transform
12	Solving IVPs with Laplace Transform
13	Discontinuous and Impulse forcing functions, **Exam 2**
14	Convolution
15	Series review, Series solutions
16	Euler's equation
17	Review
18	**Finals week**