

# MATH 231 COURSE INFORMATION

**Prerequisite** Completion of Math 172.

**Required text** ORDINARY DIFFERENTIAL EQUATIONS AND LINEAR ALGEBRA: A SYSTEMS APPROACH, by T. Kapitula

**Course Content** Selected sections in Chapters 1-5 of the text.

**Course Objectives** We will learn the fundamentals of linear algebra and solving linear ODEs. In particular, the student who successfully completes the class will know:

1. the basic definitions and ideas of linear algebra, including Gaussian elimination, subspaces, dimension, and eigenvalues/eigenvectors
2. how to solve scalar first-order ODEs, and provide a physical interpretation of the mathematical solution
3. how to solve systems of ODEs, and provide a physical interpretation of the mathematical solution
4. how to solve scalar  $n^{\text{th}}$ -order ODEs, and provide a physical interpretation of the mathematical solution
5. the role of the Laplace transform in modeling physical systems with discontinuous forcing, and solving the accompanying scalar  $n^{\text{th}}$ -order ODEs.

**Homework Policy** Problems will be assigned regularly. I encourage you to collaborate with each other when doing the homework problems; however, each person must hand in the solutions in his/her own writing and words. The goals in doing the homework include:

- further developing your problem-solving skills
- improving your ability to communicate mathematics.

I must receive a hard copy of the assignment at the **beginning** of the class period in which it is due. I will not accept:

- an electronic copy
- late assignments.

If you will not be in class the day the homework is due because of a prearranged conflict, it is your responsibility to get the assignment handed in to me **before** you leave.

**Make-up Policy** There will be **no** make-up exams. If you miss an exam, the score on the final will be substituted for the score of the exam.

**Grading Policy** The homework will be graded weekly. There will be three midterm exams, two group projects, and a final exam. The points will be distributed as follows:

	Homework	Group Project	Midterm Exams	Final Exam	Total
Points	25	50	300	150	525

The distribution of grades is not determined until the end of the semester. In a typical situation, the final distribution of grades will determine the cutoff point for A's, B's, etc. I can guarantee, however, that if your class average is **93** or better, then you will receive an A for the course.

**Attendance Policy** Your attendance is not mandatory; however, your likelihood of doing well is directly proportional to the number of lectures that you attend. If you decide not to attend, that is your business, but please do not then expect me to be sympathetic to your pleas for help the day before an exam is given.

**Electronic Gadget Policy** While you are free to use the technology of your choice while doing the homework problems, *you will not be permitted to use any technology when taking an exam.*

The classroom is a **No Cell Phone Zone**. You are not to use your cell phone to make phone calls, receive phone calls, or text message. Any violation of this policy will result in the deduction of three points from your **final** class average.