Math 231 Course Information

Prerequisite Completion of Math 172.

Required Text Ordinary Differential Equations: A Linear Algebra Perspective, by T. Kapitula

Course Content Selected sections in Chapters 1-6 of the textbook.

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 for solving linear systems
2. what are eigenvalues, eigenvectors, and their role in solving discrete linear dynamical systems and systems of ODEs
3. how to solve scalar ODEs, and provide a physical interpretation of the mathematical solution
4. how to solve systems of ODEs, and provide a physical interpretation of the mathematical solution
5. how to mathematically model some canonical physical systems.

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. One of the goals in doing the homework is to not only further develop your problem-solving skills, but to improve 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, and I will not accept 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:

<table>
<thead>
<tr>
<th>Points</th>
<th>Homework</th>
<th>Group Project</th>
<th>Midterm Exams</th>
<th>Final Exam</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td></td>
<td>50</td>
<td>300</td>
<td>150</td>
<td>600</td>
</tr>
</tbody>
</table>

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.