APPLIED MATHEMATICS FOR SCIENCE AND ENGINEERING I (MATH 310)
Dr. Ani P. Vela
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CLASS SCHEDULE AND LOCATION:
Section 2: TTH, 10:45-12:05 Loma Hall 302

OFFICE HOURS:
T, Th, 1:50pm-2:20pm
M, W, 5:30pm-7:30pm

OTHER FREE MATH TUTORING:
Math Center, Serra Hall 310
For tutoring hours click here

PREREQUISITES:
MATH 151. Students may not take both MATH 310 and 330 for credit.

TEXTBOOK:

DISABILITY:
For accommodations due to a disability please contact me within the first 2 weeks.

ACADEMIC HONESTY:
Cheating and plagiarism are in violation of USD's academic integrity policy and are taken very seriously.

GENERAL COURSE EXPECTATIONS:
Regular attendance is necessary. If you happen to miss a class, it is your responsibility to catch up. Office hours can not be a substitute for missed classes and lectures. You will benefit the most from my office hours if you come prepared with questions.

Graded activities for this course will include quizzes, homework assignments and exam(s). The graded activities will take place on Thursdays (unless mentioned otherwise) and may include homework, quizzes, or both. The problems assigned for homework will be selected and graded at random. If some of the problems selected for grading are missing, you will receive zero points for those problems. Write clear and complete solutions to your homework problems. There will be two exams and one final exam. All exams will be closed-book and the final will be cumulative. Make-up quizzes or tests will not be given except of personal emergency situations such as hospitalization. Even under such circumstances, the instructor should be notified in advance about the absence.

Calculators are not mandatory and the use of the calculators will be limited as this course emphasizes the conceptual understanding more than the computational features of your calculator.

A student is supposed to spend at least two hours at home for each class hour. You will be struggling in this course if you are not consistent and do not study the material in depth. Don't be discouraged if you have trouble understanding a passage the first time through. It is only to be expected that in technical reading there will be parts that you must reread several times. You are expected to read each lesson independently and regardless of how much of the lesson we will be able to cover in class. Understanding and applying the class notes is equally important to succeed in this course. Learning to cope well with technical reading is a skill that will be useful throughout your life.

If you are taking the pass/fail option, you must get at least a C- to pass. The last day to select that option is Wednesday, March 24. The last day to withdraw from the course without a W is Wednesday, February 3. The last day to withdraw from the course is Tuesday, April 6.

TENTATIVE COURSE CONTENT BY THEMES:
Introduction
Recommended Self-Review: Calculus--Differentiation and Integration Techniques

Block I
First-Order Ordinary Differential Equations, Chapter 1
Second-Order Ordinary Differential Equations, Chapter 2

Block II
Laplace Transform, Chapter 6

Block III
Basic Linear Algebra, Chapter 7
Linear Algebra Methods for Solving Linear Systems of ODEs, Sections 4.1, 4.2, 6.7
Matrix Eigenvalue Problems, Chapter 8

Exam 1, Thurs., March 4

http://home.sandiego.edu/~avelo/Math310Spring2010.htm

1/26/2010
Exam 2, Thurs., April 22
Final Exam, Tues., May 18, 11am-1pm, Loma Hall 302

COURSE LEARNING OUTCOMES:
- Study Ordinary Differential Equations (ODEs) by deriving them from physical and other problems (modeling), solving them by standard methods, and interpreting solutions and their graphs to see what they practically mean and imply.
- Learn a special operational technique such as Laplace Transform and apply it to transform and solve differential equations.
- Study Linear Algebra, perform calculations with matrices, vectors, determinants, eigenvalues, and see their various applications.
- Be able to apply mathematical concepts to problems outside of mathematics.
- Write clear and complete solutions to mathematical problems, showing correct reasoning, precision in details, and a sense of communicating with the reader.

DETAILED COURSE CONTENT:
(Will be developed during the semester on weekly basis)

Introduction
Recommended Self-Review: Calculus—Differentiation and Integration Techniques

Block I
First-Order ODEs: Chapter 1

Week 1
Basic Concepts, Sect. 1.1
Hmw. 1: #2, 3, 6, 7, 10 and 14 (graphs not mandatory), 19, 20
Classroom: 16, 17, 18
Direction Fields, Sect. 1.2
Hmw.2:

EVALUATION:
Your grades will be available on WebCT.
Tentative Point Distribution:

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<tr>
<th>Activity</th>
<th>Points</th>
<th>Weight</th>
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<tr>
<td>Assignments</td>
<td>200</td>
<td>1/3</td>
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<tr>
<td>Exams (2)</td>
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<td>1/3</td>
</tr>
<tr>
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<td>1/3</td>
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<tr>
<td>Total</td>
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http://home.sandiego.edu/~avelo/Math310Spring2010.htm 1/26/2010