MAT 274 DIFFERENTIAL EQUATIONS

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PREREQUISITES: MAT 271 (Calculus II) or equivalent with a grade of C or better.

TEXTBOOK: Elementary Differential Equations, by Boyce and DePrima, Eighth Edition

GRADING:  
15%  Homework, Journals and SSS  
10%  Quizzes and Class Participation  
50%  3 In-class tests  
25%  Final Exam

GRADING SCALE:  
A = 90 to 100%  
B = 80 to 89%  
C = 70 to 79%  
D = 60 to 69%  
F = 0 to 59%

FINAL EXAM  
will be comprehensive and will be given on Tuesday, May 10th at 7:40am for the 8:40 class and on Monday, May 9th at 7:40 am for the 9:40 class.

COURSE POLICIES:  
Students are responsible for assigned material whether or not it is covered in class. Students are responsible for material covered in class whether or not it is in the text. Working regularly on assigned problems and attending class are essential to survival. You are expected to read the text, preferably before the material is covered in class. Written homework will be collected on Mondays at the beginning of the class. No late HW will be accepted and no make-up quizzes will be given. Make-up exams are at the discretion of the instructor. In any case, no make-up exam will be given unless the student has notified the instructor before the test is given. Message may be left in my office, at the main office (965-3951) or through email. You must make every reasonable effort to notify me before the exam is given and document your reason for missing the exam.
HOMEWORK: Will be posted on my web page as the semester goes on: http://math.la.asu.edu/~kolossa/mat274/hw.html. Homework will be a very important part of your learning. You cannot expect to solve all assigned problems easily. Some problem will require more time and effort. Even if you are unable to solve the entire problem, the time spent on trying is not wasted. Try to emphasize understanding rather than memorization when you are working on the problems. I recommend that you form study groups to work together on the problems. You need to explain everything on your homework solutions for full credit. In addition to your written homework we will use WeBWork as an evaluation tool to practice the basics. These homework problems will be put on the web and you will solve the problems on the web. You may try to answer homework problems more than once. After each try, a message appears telling you whether the answer is correct or not. This allows you to find out what you did wrong and hopefully better understand the question.

TOPICS: exam #1: Direction fields
Solutions of some differential equations
Classifications of differential equations
Linear equations; Method of integrating factors
Separable equations
Differences between linear and nonlinear equations
Homogeneous equations with constant coefficients
Fundamental solutions of linear homogeneous equations
Linear independence and the Wronskian
Complex roots of the characteristic equation
Repeated roots; reduction of order
Mechanical and electrical vibrations

exam #2: Nonhomogeneous equations; method of undetermined coefficients
Variation of parameters
Forced vibrations
Higher order linear equations
The method of undetermined coefficients
The method of variation of parameters
Definition of the Laplace transform
Solutions of initial value problems
Step functions
Differential equations with discontinuous forcing functions
Impulse functions
The convolution integral

exam #3: Review of matrices
Review of linear algebra
Basic theory of systems of first order linear equations
Homogenous linear systems with constant coefficients
Complex eigenvalues
Fundamental matrices
Repeated eigenvalues