INTRO TO DIFFERENTIAL EQUATIONS (MATH 20D)
WINTER 2011
MWF 11:00 - 11:50 SOLIS 107

1. Important Information

Instructor: Stephen J. Young
Office: AP&M5210
Office Hours: MW 12:30 pm – 2:00 pm, or by appointment.
E-mail: s7young@math.ucsd.edu (**Please** include "Math20D" in the subject)
Office Phone: (858)-534-3983
Course Webpage www.math.ucsd.edu/~s7young/teaching/math20D/winter11/
Textbook *Introduction to Differential Equations, 9th edition*

2. Grading System

All exam and homework problems will be graded on the following holistic five-point scale:

5   Well written and complete work. ($\sim$ A+)
4   Good work with minor errors or small gaps in explanation. ($\sim$ A)
3   Good work with more serious errors or insufficiently clear explanation .($\sim$ B)
2   Significant, but incomplete, explanation that will clearly lead to the correct answer. ($\sim$ C)
1   Some ideas that might lead to the correct answer are presented.. ($\sim$ D)
0   No work, work that will not lead to a correct result, or illegible. ($\sim$ F)

3. Grading Breakdown

Final grades in this course will be determined according to most beneficial of the four following rubrics, with the proviso that in order to pass the class you must pass the final exam. At the judgement of the instructor and on an individual basis, course grades may be higher than the numerical calculation would yield.

Homework	Matlab	Exam 1	Exam 2	Exam 3	Final Exam
		Jan. 19	Feb. 9	Mar. 9	Mar. 14, 11:30 am - 2:29 pm
10	10	15	15	15	35
10	10	0	20	20	40
10	10	15	0	20	45
10	10	15	20	0	45

Grade Distribution

A+	A	A-	B+	B	B-	C+	C	C-	D	F
95	85	80	75	65	60	55	45	40	30	0

4. Course Policies

◆ Each MATLAB homework assignment will be worth 1% of your final grade and the MATLAB quiz will be worth 6% of the final grade. The grades for the MATLAB section will be adjusted to bring them inline with the grading scale for the rest of the course.

◆ Unless otherwise specified in writing, all tests are closed book and closed notes.

◆ Please silence all cell phones and noise making devices during class. Note that some models of cell phone when put on vibrate make a significant amount of noise.

◆ All homework assignments are to be turned in to the appropriate drop box by 2:30 pm on the day it is due. Late work *will not* be accepted. You may work together on your homework assignments, but each person must turn in their own work. In order to ensure that your homework is graded, please use clean paper not torn from a spiral notebook, with your name, section, and ID number on the front page. Write your solutions neatly, legibly, and labelled in numerical order. If multiple pages are necessary be

sure to staple the pages together. At the sole discretion of the grader, homework not following these guidelines may not be graded and will receive a 0.

◆ If you believe an exam has been graded incorrectly do not mark the exam in any way. Submit in writing to the TA, along with exam, a short statement of why your think a *particular* problem, or set of problems was graded incorrectly. Regrade requests will not be accepted later than the end of the class period after they are returned. I reserve the right to photocopy any or all of your exams in order to prevent regrade abuse.

◆ In order to receive full credit on exams and homework you must show all work in a clear and coherent manner. In particular, correct answers not fully supported by explanations using complete sentences, where appropriate, will not receive full credit. It is your responsibility to present your solutions in an easily understood manner.

◆ Please keep all your exams and homeworks; if you believe there has been an error in the recording of your grades they are the only way to validate your claim. Also, grades will be placed on WebCT, so please periodically check the grades posted there so we can resolve any issues quickly.

5. Class Schedule

Date	Sections Covered	Notes
Jan. 3	1.1, 1.2, 1.3: Introduction; Classification and Modeling	
Jan. 5	2.1: Linear Equations; Method of Integrating Factors	
Jan. 7	2.2: Separable Equations	
Jan. 10	2.3, 2.4: First Order Modeling, Linear vs. Nonlinear	
Jan. 12	2.5: Autonomous Equations and Population Dynamics	
Jan. 14	2.6: Exact Equations and Integrating Factors	
Jan. 17	**No Class – MLK Holiday**	
Jan. 19	**Exam 1**	
Jan. 21	3.1: Homogeneous Constant Coefficient Equations	
Jan. 24	3.2: Linear Homogeneous Equations; Wronskian	
Jan. 26	3.3: Complex Roots of Characteristic Equation	
Jan. 28	3.4: Repeated Roots; Reduction of Order	Drop Day
Jan. 31	3.5: Nonhomogeneous Equations; Undetermined Coefficients	
Feb. 2	3.6: Variation of Parameters	
Feb. 4	7.1, 7.2: Systems of First Order Equations; Matrix Review	
Feb. 7	7.3: Linear Algebraic Equations; Eigenvalues and Eigenvectors	
Feb. 9	**Exam 2**	
Feb. 11	7.4: Theory of Systems of First Order Linear Equations	
Feb. 14	7.5: Homogeneous Linear Systems with Constant Coefficients	
Feb. 16	7.6: Complex Eigenvalues	
Feb. 18	7.7, 7.8: Fundamental Matrices, Repeated Eigenvalues	
Feb. 21	**No Class – President's Day Holiday**	
Feb. 23	7.9: Nonhomogeneous Linear Systems	
Feb. 25	5.1, 5.2, 5.3: Series Solutions Near an Ordinary Point	
Feb. 28	6.1: The Laplace Transform	
Mar. 2	6.2: Solutions of Initial Value Problems	
Mar. 4	6.3, 6.4: The Step Functions; Discontinuous Forcing Functions	Last day for W
Mar. 7	6.5: Impulse Functions	
Mar. 9	**Exam 3**	
Mar. 11		
Mar. 14	**Final Exam – 11:30 am - 2:29 pm**	