

Syllabus & Homework for Differential Equations I

Math 231 Section 002 –Fall 2011

Professor: Fernando Schwartz, 204 Ayres Hall, fernando@math.utk.edu

Course Webpage: <http://www.math.utk.edu/~fernando>

Lectures: MWF 10:10–11am, Ayres 110

Office Hours: TBD.

Text: *Fundamentals of Differential Equations*, by Nagel, Saff and Snider, 8th Edition.

Course evaluation: There are three exams, each worth up to 100 points. Homework counts for another 100 points. The final is worth up to 200 points. The maximum course score is 600. Your grade is roughly computed as follows: 90% or higher of the maximum course score is an A, between 80-90% is a B, 70-80% a C, and so on. Homework is collected before the end of each class. Late homework is not accepted. Your homework score is the average of all but the worst assignment grade.

Special Accommodations: Any student who feels that s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact the Office of Disability Services at 974-6087 to coordinate reasonable accommodations for students with documented disabilities. If you find that circumstances will cause you to miss an exam, you **must** notify me **prior** to the exam. Besides email, you can leave a message for me at the departmental office 974-2461.

Academic Integrity: You are expected to be committed to maintaining an atmosphere of intellectual integrity and academic honesty throughout this class. To familiarize yourself with the expectations you may want to read pages 11 and 41 from the 2010/2011 Hilltopics. Also, you should be familiar with the Classroom Behavior Expectations, which can be found at <http://www.math.utk.edu/Courses/Expectations.pdf>

#	Topic	§	Homework
1	background	1.1	1-17
2	solutions and IVP	1.2	1,3,5,9,10,15,16,18,19,20,22, 23,25,26,27,29
3	direction fields	1.3	1,3,4,5,7,9abcde
4	introduction	2.1	1,3,5,7,9,11,17,18,19,21
5	separable equations	2.2	25,27b, 29,31abc,34
6	linear equations	2.3	1,3,5,7,10,11,13,15,17,18,19,20, 23,25a,28,32,39(noon)
7	exact equations	2.4	1,3,5,6,9,11,15,17,21
8	integrating factors	2.5	23,24,29,32,33abd

Labor day – Monday 9/5

9	substitutions	2.6	21,22,26
10	modeling	3.1	1,3,4,6,7,13,17,21,26,31,34

#	<u>Topic</u>	§	<u>Homework</u>
11	compartmental analysis	3.2	1,2,5,7,11,12,13,14
12	heating and cooling	3.3	1,2,5,7,11,12,13,14
13	newtonian mechanics	3.4	1,3,7,9,21,25abc
14	<u>Exam 1 - Monday 9/19</u>		
15	oscillator	4.1	1-4,6,7,9
16	homog lin eqns	4.2	1,3,5,7,9,11,13,15,19,21-23,26
17	homog linear eqns	4.2	27-29, 31,33,34,35ac,39,41,43
18	aux eqns	4.3	1,3,5,9,11-13,21,25,27,31ab,34,35
Fall Break, Sept 29–30			
19	undetermined coeffs	4.4	1,3,5,9-13,15,17,18,27,29,33,34
20	superposition	4.5	1,3-5,7,9,11,13,17-20,23,24
21	superposition	4.5	23,26,28,29,31-34,37,38,43
22	var of param	4.6	1-5,10,18,20,21
23	variable-coeffs	4.7	1,5,6,9,13,15,19,25,26,30,31,35, 27-39,42,45,47
24	qualit consider	4.8	1,5,6,8,9,17
25	closer look	4.9	1,3,5,7
26	closer look	4.10	3,9,10,13
27	Review		
28	<u>Exam 2 - Monday 10/24</u>		
29	Elim method	5.2	13,19
30	phase plane	5.4	1,3,5-7,9,11,13,15,17,19,21,28
31	Laplace transform: defn	7.2	1-5,7,9,10,12-21,23,25,29a-d,f,h
32	Laplace transform: props	7.3	1-10,13,14,16,17,21-23,32-34
33	Inverse Laplace Transform	7.4	1-13,15,21-23,25,27,29,31
34	Solving IVPs	7.5	1,3,5,7,9,15,17,19,25,35
35	Transforms of periodic functions	7.6	1,3,5,7,11,12,13,15,17,21,22,25,29,30
36	Dirac's delta	7.8	1-13
37	Review		
38	<u>Exam 3 - Wednesday 11/16</u>		
39	Series solns intro	8.1	1,3,5
40	pwr series	8.2	1,3,5,17,23-25
41	power series solutions	8.3	1,3,5,7,11,12,19,21,25
Thanksgiving, Nov 24–25			
42	Review		
<u>Final Exam –Wednesday 12/7</u>		<u>10:15 - 12:15 @Ayres 110</u>	