Math53: Ordinary Differential Equations
Winter 2004

Course Schedule

Key Dates

Midterm I	1/28 W	PS1 due	1/16 F
Midterm II	2/25 W	PS2 due	1/26 M
Final	3/15 M	PS3 due	2/9 M
		PS4 due	2/23 M
		PS5 due	3/5 F
		PS6 due	3/12 F

There will be an optional review session in the afternoon of Sunday, 3/14.

Daily Schedule

Date	*Topic*	*Read*	*Comment*
1/6 T	Introduction	1.1-1.3,2.1	
1/7 W	First-Order Linear ODEs	2.4	
1/8 R	Applications	2.5.,3.3,3.4	
1/9 F	Separable ODEs	2.2,2.3	
1/12 M	ODEs and Exact Differentials	2.6	
1/13 T	Applications	3.1,3.2	
1/14 W	Qualitative Properties of First-Order ODEs	2.7,2.8	
1/15 R	Autonomous Equations	2.9	
1/16 F	Linear Homogeneous Equations with Constant Coefficients	4.1,4.3	**PS1 due**
1/19 M	*no class: MLK Day*		
1/20 T	Unforced Harmonic Oscillator	4.4	
1/21 W	Qualitative Properties of Second-Order ODEs	4.2	
1/22 R	Homogeneous and Inhomogeneous Equations		
1/23 F	Method of Undetermined Coefficients	4.5	
1/26 M	Variation of Parameters	4.6,4.7	**PS2 due**
1/27 T	Review		
1/28 W	Midterm I, *location TBA*		**Midterm I**
1/29 R	Midterm I Recap		
1/30 F	Laplace Transform	5.1,5.2	

2/2 M	Inverse Laplace Transform	5.3	
2/3 T	ODEs and Laplace Transform	5.4,5.5	
2/4 W	Convolution and the Delta Function	5.6,5.7	
2/5 R	Applications		
2/6 F	Review of Laplace Transform	5.8	
2/9 M	Review of Linear Algebra, I	7.1-7.3	**PS3 due**
2/10 T	Review of Linear Algebra, II	7.4-7.6	
2/11 W	Systems of ODEs	8.1,9.1	
2/12 R	Planar Linear Systems with Constant Coefficients	9.2	
2/13 F	Phase-Plane Portraits, I	8.2,9.3	
2/16 M	*no class: Presidents' Day*		
2/17 T	Phase-Plane Portraits, II		
2/18 W	Higher-Dimensional Systems, I	9.4	
2/19 R	Higher-Dimensional Systems, II	9.5	
2/20 F	Inhomogeneous Linear Systems	9.8	
2/23 M	Qualitative Properties of Systems of ODEs	8.3,8.4,9.6,9.7	**PS4 due**
2/24 T	Review		
2/25 W	Midterm II, *location TBA*		**Midterm II**
2/26 R	Midterm II Recap		
2/27 F	Euler's Method	6.1	
3/1 M	Runge-Kutta Methods	6.2	
3/2 T	Applications of Numerical Methods	6.3,6.4	
3/3 W	Linearization at Equilibrium	10.1	
3/4 R	Examples	10.2	
3/5 F	Long-Term Behavior of Solutions	10.3,10.4	**PS5 due**
3/8 M	Conserved Quantities	10.5	
3/9 T	Nonlinear Mechanics	10.6	
3/10 W	Lyapunov's Method	10.7	
3/11 R	Applications	8.2,10.3	
3/12 F	Review		**PS6 due**
3/15 M	Final Exam, 7-10p.m., *location TBA*		**Final**