

# Math 2410 Lectures 003 Schedule (Tentative)

## First-Order Differential Equations

Aug 25-29	1.1	Modeling via Diff Eqs	# 2, 3, 5, 7, 8, 9, 15, 16, 17, 19, 20
	1.2	Separation of Variables	# 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 34
Sept 1-5	1.3	Slope Fields	# 1, 3, 5, 7, 9, 11, 13, 15, 16, 17, 18, 24
	1.4	Euler's Method	# 1, 3, 5, 7, 8, 10, 11
Sept 8-12	1.5	Existence and Uniqueness	# 1, 3, 5, 6, 7, 8, 13, 18
	1.6	Equilibria and the Phase Line	# 1, 3, 5, 7, 9, 11, 29, 31, 33, 35, 37, 38, 39, 45, 46, 47, 48
Sept 15-19	1.7	Bifurcations	# 1, 3, 5, 7, 9, 11, 17, 22, 23
	1.8	Linear Equations	# 1, 3, 5, 7, 9, 11, 13, 21, 23, 25, 27, 32, 33, 34
Sept 22-26	1.9	Integrating Factors	# 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 20, 21, 22, 25

### Hour Exam One: Friday, 26 September 2008

## First-Order Systems

Sept 29-3	2.1	Modelling via Systems	# 1, 2, 3, 4, 5, 6, 7, 8, 9-14, 15, 17, 18, 20-24, 25-30
	2.2	The Geometry of Systems	# 1, 3, 5, 7, 11, 13, 15, 17, 20, 21, 23, 24, 25, 26, 27, 28, 29
Oct 6-10	2.3	Special Systems (Analytic)	# 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17
	2.4	Euler's Method for Systems	# 1, 2, 3, 5, 7, 8, 9, 12, 13, 14, 15
Oct 13-17	2.5	Lorenz Equations	# 1, 2, 3, 4, 5

## Linear Systems

	3.1	Linear Systems	# 1, 2, 3, 4, 5, 7, 9, 14, 15, 16, 17, 20, 21, 22, 23, 25, 26, 27, 34
Oct 20-24	3.2	Straight-Line Solutions	# 1, 3, 5, 7, 11, 15, 16, 17, 18, 19, 20, 21, 23
	3.3	Real Eigenvalues	# 1, 3, 5, 9, 13, 15, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27
Oct 27-31	3.4	Complex Eigenvalues	# 1, 2, 3, 5, 7, 9, 11, 13, 15, 16, 17, 18, 19, 20, 21, 23, 24
	3.5	Repeated and Zero Eigenvalues	# 1, 3, 5, 7, 9, 10, 11, 12, 13, 15, 17, 20, 24
Nov 3-7	3.6	Second-Order Linear Equations	# 1, 3, 5, 7, 9, 11, 30, 31, 32, 36

### Hour Exam Two: Friday, 7 November 2008

## Forcing and Resonance

Nov 10-14	4.1	Forced Harmonic Oscillators	# 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 20, 25, 27, 29, 36, 37, 39, 41
	4.2	Sinusoidal Forcing	# 1, 3, 5, 7, 9, 11, 13, 15, 16, 17, 18, 19, 20

## Nonlinear Systems

Nov 17-21	5.1	Equilibrium Point Analysis	# 1, 2, 3, 4, 5, 6, 27, 28, 29, 30
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## Laplace Transforms

	6.1	Laplace Transforms	# 1, 2, 3, 4, 5, 6, 7, 9, 11, 13, 15, 17, 19, 26, 27
Dec 1-5	6.2	Discontinuous Functions	# 1, 2, 3, 5, 7, 9, 11, 13, 14, 15, 16, 17, 18

### Final Exam: Wednesday, 10 December 2008, 10:30AM-12:30PM