Course Guide Differential Equations 334: Fall 2025: DH 2064, M-W-F 2:10-3:00 PM

Date	Topic	Lecture Notes	Assignment
M: 8-18	Introduction, First order ODEs	9 – 68	
W: 8-20	First order ODEs	9 – 68	
F: 8-22	First order ODEs	9 – 68	
M: 8:25	Theory / Direction Fields/ Geometry of Curves	9 – 68	SAM 1
W: 8-27	Applications of first order differential equations	9 – 68	
F: 8-29	Applications of first order differential equations	9 – 68	
M: 9-1	Complex-Valued Functions / Smooth Operators / n-th order theory	69 – 124	SAM 2
W: 9-3	Solution of the n-th order problem	69 – 124	
F: 9-5	Method of Annihilators & Variation of Parameters	69 – 124	
M: 9-8	Method of Annihilators & Variation of Parameters	69 – 124	SAM 3
W: 9-10	Reduction of order, operator factorization, Cauchy Euler	69 – 124	
F: 9-12	Applications	69 – 124	
M: 9-15	Examples		SAM 4
W: 9-17	Examples		
F: 9-19	Further discussion of exact equations and the insight of differential forms		
M: 9-22	Examples		SAM 5
W: 9-24	Test 1 (comprehensive to material covered before this day)		
F: 9-26	Systems of ODEs matrices	125 – 172	
M: 9-29	Systems of ODEs matrices	125 – 172	SAM 6
W: 10-1	e-vector technique	125 – 172	
F: 10-3	e-vector technique	125 – 172	
M: 10-6	Complex e-vectors	125 – 172	SAM 7
W: 10-8	Complex e-vectors	125 – 172	
Fall Break	no class 10-9 & 10-10		
M: 10-13	Matrix exponential and the magic formula	125 – 172	SAM 8
W: 10-15	Nonhomogeneous systems	125 – 172	
F: 10-17	on integral curves or streamlines of vector fields		
M: 10-20	conservative vector field and conservation of energy, Energy Analysis,	173 – 182	SAM 9
W: 10-22	Laplace Transform technique	183 – 216	
F: 10-24	Laplace Transform technique	183 – 216	
M: 10-27	Laplace Transform technique	183 – 216	SAM 10
W: 10-29	Discontinuity, Dirac Delta technique	183 – 216	
F: 10-31	Discontinuity, Dirac Delta technique	183 – 216	
M: 11-3	Discontinuity, Dirac Delta technique	183 – 216	SAM 11
W: 11-5	Discontinuity, Dirac Delta technique	183 – 216	

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F: 11-7	Discontinuity, Dirac Delta technique	183 – 216	
M: 11-10	Examples		SAM 12
W: 11-12	Test 2		
F: 11-14	Series solutions/ Singular points	217 – 240	
M: 11-17	Series solutions/ Singular points	217 – 240	BF 1
W: 11-19	Fourier Series and the solution of PDEs	241 – 252	
F: 11-21	Fourier Series and the solution of PDEs	241 – 252	
	Thanksgiving Break		
M:12-1	Fourier Series and the solution of PDEs	241 – 252	SAM 13
W: 12-3	Fourier Series and the solution of PDEs	241 – 252	
F: 12-5	Examples	241 – 252	BF 2
	Final Exam on Tuesday, December 9, 1:00-3:00 PM		

Grading: usual 1000pts scale with:

        Test 1 = 200pts,

        Test 2 = 200pts,

        Surprise Attack Missions (SAM) = 200pts, (note, I keep only the highest 10 scores)

        Boss Fights = 100pts

        Final = 300pts.

Note: the SAM assignment may be in-class or outside class. I do allow open notes during an in-class SAM, you may have out handwritten work. No computers or phones may be open during an in-class SAM. I have solutions to many of the practice problems written and posted on the course website. It would be wise to work through the solutions to the Missions from Spring 2025 as the semester unfolds. I may recycle some problems for the SAM's.