

MA363 – Vector Calculus and Ordinary Differential Equations

div, grad, curl, and all that, Fourth Edition, Schey

Elementary Differential Equations and Boundary Value Problems, Ninth Edition, Boyce and DiPrima

DATE	LESSON	TITLE
08-Jan	1	Course Drop
12-Jan	2	Vectors, vector functions, basic electrostatics, and Coulomb's Law
14-Jan	3	Gauss' Law, Unit Normal Vector, Evaluation of surface integrals
16-Jan	4	Flux and finding the electrostatic field
20-Jan	5	The concept of divergence
22-Jan	6	Review
26-Jan	7	Quiz 1
28-Jan	8	Work and Line Integrals; Path Independence
30-Jan	9	The Curl
03-Feb	10	The differential form of the circulation law
05-Feb	11	Stokes' Theorem
09-Feb	12	The Gradient; Quiz 2
11-Feb	13	WPR I Review
13-Feb	14	WPR I
18-Feb	15	WPR I After Action Review
20-Feb	16	ODE review
24-Feb	17	Linear Equations; Method of Integrating Factor
26-Feb	18	Modeling with First Order Equations; Population Dynamics
02-Mar	19	2d Order Homogeneous ODEs; Fundamental Solutions
04-Mar	20	Linear Independence and the Wronskian; Complex Roots
06-Mar	21	Repeated Roots
10-Mar	22	Nonhomogeneous Equations; Quiz 3
12-Mar	23	Power Series
23-Mar	24	Series Solutions Near an Ordinary Point, I
25-Mar	25	Series Solutions Near an Ordinary Point, II; Quiz 4
27-Mar	26	Special Topic
31-Mar	27	Definition of the Laplace Transform
02-Apr	28	Solution of Initial Value Problems
06-Apr	29	Step Functions and Differential Equations with Discontinuous Forcing Functions; Impulse Functions
08-Apr	30	WPR II Review
10-Apr	31	WPR II
14-Apr	32	WPR II After Action Review
16-Apr	33	Two-Point Boundary Value Problems
20-Apr	34	Fourier Series and Convergence Theorem
22-Apr	35	Even and Odd Functions
24-Apr	36	Separation of Variables; Heat Conduction in a Rod
28-Apr	37	Heat Conduction Problems I
01-May	38	Heat Conduction Problems II; Quiz 5
05-May	39	Block I Review
07-May	40	Block II Review