PHYS2502 Mathematical Physics (Spring 2023)

Class Schedule as of December 19, 2022

Reading assignments from *A Short Introduction to Mathematical Concepts in Physics*

Week	Day	Date	Topics	Chapter	Sections
1	Tue	17 Jan	Fundamentals; Dimensional analysis	1	1,2
	Thu	19 Jan	Derivatives and Differentials	1	3
2	Tue	24 Jan	Integration	1	4
	Thu	26 Jan	Elementary Special Functions	1	5
3	Tue	31 Jan	Taylor Series; Series as Approximations	2	1,2,3
	Thu	2 Feb	Euler's Formula; More than One Variable	2	4,5
4	Tue	7 Feb	First Order Ordinary Differential Equations	3	1,2
	Thu	9 Feb	Second Order Differential Equations	3	3
5	Tue	14 Feb	Harmonic Motion	3	4
	Thu	16 Feb	Series Solutions of Second Order Linear Equations	3	5
6	Tue	21 Feb	Some Important Special Functions	3	6
	Thu	23 Feb	Coupled Differential Equations	3	7
7	Tue	28 Feb	Vectors as Spatial Variables	4	1
	Thu	2 Mar	Vector Derivatives: Divergence, Gradient, and Curl	4	2
		6-10 Mar	**Spring Break (No Classes)**		
8	Tue	14 Mar	Surface Theorems	4	3,4
	Thu	16 Mar	Partial Differential Equations	4	5
9	Tue	21 Mar	Fourier Series	5	1,2,3,4
	Thu	23 Mar	Fourier Transform	5	5,6
10	Tue	28 Mar	Vectors and Vector Spaces	6	1,2
	Thu	30 Mar	Properties of Matrices	6	3
11	Tue	4 Apr	The Eigenvalue Problem	6	4
	Thu	6 Apr	Revisiting Coupled Oscillations	6	4.3
12	Tue	11 Apr	The Euler-Lagrange Equations	7	1,2,3
	Thu	13 Apr	Examples With Constraints	7	4
13	Tue	18 Apr	Complex functions and analyticity	8	1,2,3
	Thu	20 Apr	Contour integration and residues	8	4
14	Tue	25 Apr	Probability Distributions	9	1,2,3
	Thu	27 Apr	Basic Data Analysis; Random Numbers	9	4,5