

Topics we will be covering during Spring 2018

Chapter 1

- 1.1 Dimensional Analysis
- 1.2 Scaling
- 1.3 Differential Equations

Chapter 2

- 2.1 Phase Plane Phenomena
- 2.2 Linear Systems
- 2.3 Nonlinear Systems
- 2.4 Bifurcations
- **2.5 Reaction Kinetics
- **2.6 Pathogens

Chapter 3

- 3.1 Regular Perturbation
- 3.2 Singular Perturbation
- 3.3 Boundary Layer Analysis
- 3.4 Initial Layers
- 3.5 The WKB Approximation
- 3.6 Asymptotic Expansion of Integrals

Chapter 5

- 5.1 Boundary-Value Problems
- 5.2 Sturm–Liouville Problems
- 5.3 Classical Fourier Series
- **5.4 Integral Equations
- **5.5 Green's Functions

Chapter 6

- 6.1 Basic Concepts
- 6.2 Conservation Laws
- **6.3 Equilibrium Equations

** Will be covered if time permits.