

Course Content & Tentative Schedule

(number of classes listed is approximate)

Algebra and Trigonometry Review (4 classes)

Algebra Modules I, II, & III

1.1 PP. 8-10, Prob. 2-8, 21-35, 39-42

1.2 PP. 21-24, Prob. 37-53

Note: These topics can be covered separately or in conjunction with calculus concepts

Limits and Their Properties (8 classes)

Chapter 1

1.3 The Limit of a Function. PP. 33-34, Prob. 3-6, 11, 12, 14

1.4 Calculating Limits. PP. 42-44, Prob. 1-7, 10-28, 31, 33-42, 49-56

1.5 Continuity. PP. 54-55, Prob. 1-4, 11, 15-18, 29-31, 33-35

1.6 Limits Involving Infinity. PP. 67-68, Prob. 1-8, 10, 13-15, 18-24, 27-30, 35, 36, 43*

REVIEW EXERCISES PP. 70-72, 19, 22-32, 34-36, 39, 40, 45

Differentiation (8 classes)

Chapter 2

2.1 Derivatives and Rates of Change. PP. 80-81, Prob. 1, 3, 5, 6, 8, 11-18, 19-23, 25-30

2.2 The Derivative as a Function. PP. 92-93, Prob. 3-11, 19-27, 33-36

2.3 Basic Differentiation Formulas. PP. 105-106, Prob. 1-35, 38-40, 43, 47-50, 53, 63*, 67*

2.4 The Product and Quotient Rules. PP. 112-113, Prob. 1-35, 37-42, 45, 46, 48*

2.5 The Chain Rule. PP. 120-121, Prob. 1-48, 52-56, 61-63

2.6 Implicit Differentiation. PP. 127-128, Prob. 1-16, 19-28

2.7 Related Rates. PP. 132-134, Prob. 1-33, 37-40

2.8 Linear Approximations and Differentials. PP. 138, Prob. 17-20

REVIEW EXERCISES PP. 140-143, Prob. 10-48, 51, 53-64, 67-70, 74

Inverse Function (Exponential, Logarithmic and Inverse Trigonometry Functions) (7 classes)

Chapter 3

3.1 Exponential Functions. Read PP. 145-149

3.2 Inverse Functions and Logarithms. PP. 161-162, Prob. 43-57

3.3 Derivatives of Logarithmic and Exponential Functions. PP. 169-170, Prob. 1-64, 69

3.5 Inverse Trigonometric Functions. PP. 183-184, Prob. 1-6, 16, 17, 19-28, 30-34

3.7 Indeterminate Forms and L'Hôpital's Rule. PP. 197, Prob. 1-38

REVIEW EXERCISES PP. 200-201, Prob. 17-26, 28-38, 40, 43, 49, 61-64, 66-76, 52

Applications of Differentiation (8 classes)

Chapter 4

4.1 Maximum and Minimum Values. PP. 208-209, Prob. 1, 3-10, 23-32, 37-44

4.2 Mean Value Theorem

4.3 Derivatives and the Shapes of Graphs. PP. 222-223, Prob. 1-4, 12, 15*, 17-19, 24*, 25-30

4.4 Curve Sketching. PP. 230, Prob. 1-16, 17-26

4.5 Optimization Problems. PP. 238-239, Prob. 1-28

REVIEW EXERCISES PP. 254-255, Prob. 1-3, 9-10, 15-17, 18-20, 39, 40

Anti-Derivatives (3 classes)

Chapter 4 – 5

4.7 Anti-Derivatives. PP. 252, Prob. 1-9, 12-13, 14*, 15-34 35-36*

5.5 The Substitution Rule. PP. 306, Prob. 1-20, 22-36

REVIEW EXERCISES PP. 256, Prob. 51-58 PP. 309, Prob. 19, 21-29, 31

Differential Equation (2 classes)

Chapter 7 and Handout

Verification of Solutions of Differential Equations Handout. Prob. 1-24

7.7 Differential Equations. Read PP. 412-414, PP. 418, Prob. 1-4, 8-13

Handout Prob. 1, 2, 4, 9, 10, 14, 18

* = enriched or theoretical questions