

Math 3A Course Topics

Calculus of a Single Variable, Early Transcendental Functions (4th ed.)

by Larson, Hostetler & Edwards (Houghton Mifflin, 2007)

- Categories:
1. Must be covered in detail.
 2. Must be covered at least briefly.
 3. Do not cover unless you have extra time after adequately doing 1 & 2.

Timeline	Category	Section	Topic
Covered in class by Week 3	1	Append. D.1	Real Numbers and the Real Number Line
	1	Append. D.2	The Cartesian Plane
	1	1.1	Graphs and Models
	1	1.2	Linear Models and Rates of Change
	1	1.3	Functions and Their Graphs
	1	Append. D.3	Review of Trigonometric Functions
	3	1.4	Fitting Models to Data
Covered in class by Week 6	1	1.5	Inverse Functions
	1	1.6	Exponential and Logarithmic Functions
	1	2.1	A Preview of Calculus
	1	2.2	Finding Limits Graphically and Numerically
	1	2.3	Evaluating Limits Analytically
Covered in class by Week 9	1	2.4	Continuity and One-Sided Limits
	1	2.5	Infinite Limits
	1	3.1	The Derivative and the Tangent Line Problem
	1	3.2	Basic Differentiation Rules and Rates of Change
Covered in class by Week 12	1	3.3	The Product and Quotient Rules and Higher Order Derivatives
	1	3.4	The Chain Rule
	1	3.5	Implicit Differentiation
	1	3.6	Derivatives of Inverse Functions
	1	3.7	Related Rates
	2	3.8	Newton's Method
	1	4.1	Extrema on an Interval
	1	4.2	Rolle's Theorem and the Mean Value Theorem
Covered in class by Week 15	1	4.3	Increasing and Decreasing Functions and the First Derivative Test
	1	4.4	Concavity and the Second Derivative Test
	1	4.5	Limits at Infinity
	1	4.6	A Summary of Curve Sketching
Covered in class by Week 15	1	4.7	Optimization Problems
	1	4.8	Differentials
	1	5.1	Antiderivatives and the Indefinite Integral
	1	5.2	Area
	1	5.3	Riemann Sums and Definite Integrals
	1	5.4	The Fundamental Theorem of Calculus
	1	5.5	Integration by Substitution
Covered in class by Week 15	2	5.6	Numerical Integration
	1	5.7	The Natural Logarithmic Function and Integration