

Mathematics 30
Fall 2009

Instructor: Professor R. Alperin: Office: Duncan 239; Telephone: 924-5066; Office hours: MW: 10:45-11:30; M: 3-5 or by appt.

Text: *Single Variable Calculus, Early Transcendentals by Stewart, 6e*

Prerequisites: Satisfactory score on the Mathematics Placement Exam, Satisfaction of the ELM requirement.

Peer tutoring available at LARC, Room 600, Student Services Center, tel. ext. 4-2587. Students who intend to use this course to satisfy the mathematical concepts requirements for general education must earn a grade of C or higher.

Final grade based on: Comprehensive Final, 150 points; Midterm 100 points and Quizzes, 100 Points total.

Do Diagnostic Tests A-D, Read Preview.

Problem assignments refers to odd numbers only.

Chapter 1: Functions, 1 Lecture Sec. 1 - 6 Review (skip Sec. 4)

§1: 1-15; §2: 1-15; §3: 1-15; §5: 1-15; §6: 1-15.

Chapter 2: Limits and Derivatives, 8 Lectures The tangent and velocity problems, the limit of a function, limit laws, the definition of the limit, continuity, limits at infinity, infinite limits, horizontal and vertical asymptotes, tangent lines, velocity and other rates of change, the definition of the derivative.

§1: 1-9; §2: 1-15,21-31; §3: 1-15, 31; §4: 1-15, 41; §5: 1-20, 47; §6: 1-19; §7: 1-25; §8: 1-33.

Chapter 3: Differentiation Rules, 11 Lectures Derivatives of polynomials, exponential functions, trigonometric functions, logarithmic functions, and hyperbolic functions. The product rule, quotient rule and chain rule. Implicit differentiation, higher order derivatives, related rates, differentials and linear approximations.

§1: 1-35,51; §2: 1-31; §3: 1-25,33,35; §4: 1-30, 60-80; §5: 1-20, 69; *Midterm*

§6: 1-33; §7: 1-20; §8: 1-13; §9: 1-25; §10: 1-35; §11: 1-20.

Chapter 4: Applications, 8 Lectures Maximum and minimum values, the Mean Value Theorem, curve sketching, indeterminate forms, and L'Hopital's Rule. Optimization problems. Newton's method, an introduction to antidifferentiation.

§1: 1-43; §2: 1-19; §3: 1-31, 67; §4: 1-29; §5: 1-19; §7: 1-39; §8: 1-31; §9: 1-51.