

# MATH 009A

## First-Year Calculus

### Course Description

Introduction to the differential calculus of functions of one variable.

### Prerequisites

MATH 005A with a grade of C- or better or MATH 006B.

### Textbook

[\*APEX Calculus \(Version 4.0\)\* by Gregory Hartman](#)

### Suggested Lecture Schedule (50-minute lectures)

Lectures	Textbook Section(s)	Topic(s)
1	1.1, 1.2	An Introduction to Limits, Epsilon-Delta Definition of a Limit (omit evaluation of limits using the definition)
2	1.3	Finding Limits Analytically
1.5	1.4, 1.5	One-Sided Limits, Continuity
1.5	1.6	Limits Involving Infinity
2	2.1, 2.2	Instantaneous Rate of Change: The Derivative (omit normal line), Interpretations of the Derivative
1	2.3	Basic Differentiation Rules
2	2.4	The Product and Quotient Rules
2	2.5	The Chain Rule
1.5	2.6	Implicit Differentiation
1	2.7	Derivatives of Inverse Functions
1.5	6.7	L'Hopital's Rule
2.5	3.1, 3.2	Extreme Values, Mean Value Theorem
1.5	3.3	Increasing and Decreasing Functions
1.5	3.4	Concavity and the Second Derivative
1	3.5	Curve Sketching
1.5	4.2	Related Rates
1	4.4	Differentials

Total number of scheduled 50-minute classes: 26 lectures + 1 midterm exam day = 27 classes

50-minute classes meet three times a week for 10 weeks (minus holidays), so there are at most 30 50-minute class sessions in one quarter. This leaves three 50-minute classes unaccounted for, allowing space in the lecture schedule for holidays (UCR closed, no classes held), review days, catchup days, etc.