

MATH 009B

First-Year Calculus

Course Description

Introduction to the integral calculus of functions of one variable.

Prerequisites

MATH 005B with a grade of C- or better or MATH 009A or MATH 09HA.

Textbook

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

Suggested Lecture Schedule (50-minute lectures)

Lectures	Textbook Section(s)	Topic(s)
1.5	5.1	Antiderivatives and Indefinite Integration
1	5.2	The Definite Integral
1	5.3	Riemann Sums
2	5.4	The Fundamental Theorem of Calculus
3	6.1	Substitution
2	6.2	Integration by Parts
1	6.3	Trigonometric Integrals (cover powers of sine and cosine)
2	6.4	Trigonometric Substitution
2	6.5	Partial Fraction Decomposition
1	6.6	Hyperbolic Functions
2	6.8	Improper Integration
1	7.1	Area Between Curves
2	7.2	Volume by Cross-Sectional Area; disk and washer methods
1.5	7.3	The Shell Method
2	7.4	Arc Length and Surface Area

Total number of scheduled 50-minute classes: 25 lectures + 1 midterm exam day = 26 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 four 50-minute classes unaccounted for, allowing space in the lecture schedule for holidays (UCR closed, no classes held), review days, catchup days, etc.