

Math 236 Course Content and Objectives

COURSE CONTENT AND SCOPE - Lecture: Outline the topics included in the lecture portion of the course (<i>Outline reflects course description, all topics covered in class</i>).	Hours Per Topic	COURSE OBJECTIVES - Lecture: Upon successful completion of this course, the student will be able to... (<i>Use action verbs - see Bloom's Taxonomy for 'action verbs requiring cognitive outcomes.'</i>)
Review of algebra: Solving polynomial and rational equations, Cartesian coordinates, and straight lines.	8	Solve a polynomial or rational equation.
Functions, limits, and derivatives: Graphs, the algebra of functions, mathematical models, limits, one-sided limits and continuity, increments, the derivative, and tangent lines.	11	Graph polynomial and rational functions, compute the limit of a function, use derivatives to find rates of change and tangent lines, and compute the derivative of a polynomial function.
Differentiation: Basic rules of differentiation, product and quotient rules, the chain rule, marginal functions in economics, higher order derivatives, implicit differentiation and related rates, and differentials.	14	Apply the product, quotient, and chain rules, analyze the marginal cost, profit, and revenue when given the appropriate function, use calculus to analyze revenue, cost, and profit, compute higher order derivatives, and solve problems involving related rates.
Applications of derivatives: The first derivative, the second derivative, curve sketching, and optimization.	11	Apply the first and second derivative tests to curve sketching.
Exponential and logarithmic functions: Exponential functions, logarithmic functions, compound interest, differentiation of exponential functions, differentiation of logarithmic functions, and exponential functions as mathematical models.	11	Graph exponential and logarithmic functions, compute compound interest, and compute the derivative of exponential and logarithmic functions.
Integration: Antiderivatives and the rules of integration, substitution, area and the definite integral, the Fundamental Theorem of Calculus, evaluating definite integrals, area between two curves, and applications to business and economics.	11	Compute an antiderivative using substitution, compute the area under a curve using a definite integral, use the Fundamental Theorem of Calculus to compute a definite integral, compute the area between two curves, and use integration in business and economics applications.
Additional topics in integration: Integration by parts, tables of integrals, numerical integration, improper integrals, and applications to probability.	11	Evaluate an integral using integration by parts, evaluate a definite integral using numerical methods, and use the definite integral to compute probability.
Calculus of several variables: Functions of several variables, partial derivatives, maxima and minima, the method of least squares, Lagrange multipliers, and double integrals.	11	Compute the partial derivatives of a function, compute the maxima and minima of a multivariable function, apply the method of least squares to a data set, and apply Lagrange multipliers to an optimization problem.
Final examination	2	Final examination
Total:	90	
Total Lecture Hours In Section I Class Hours:	90	