

Math 235 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, functions, and graphs.	12	Add, subtract, multiply, and divide rational expressions and factor polynomials. Solve quadratic and rational equations, and solve quadratic and rational inequalities. Simplify expressions involving rational exponents. Rationalize the numerator or denominator of a rational expression.
Linear equations, logarithmic functions and their applications, matrices, and matrix operations.	15	Apply linear and exponential graphs and functions. Write a system of linear equations to solve applied problems. Solve linear systems by the echelon method and by the Gauss-Jordan method. Add, subtract, and multiply matrices. Calculate matrix inverses. Find the inverse of a square matrix and use the inverse to solve a system of linear equations. Apply the input-output model to applications in business and economics.
Linear inequalities, linear programming, and the simplex method.	13	Graph linear inequalities and solve linear programming problems graphically. Use the simplex method to find an optimum solution. Solve maximization and minimization problems subject to constraints.
Set theory including DeMorgan's Laws, combinatorics, and the binomial theorem.	13	Find the union and intersection of sets. Apply Venn diagrams to solve problems. Count combinations of elements and apply counting principles to solve problems. Identify binomial experiments, use Pascal's triangle to calculate binomial probabilities, and use the binomial theorem to solve problems.
Probability.	5	Calculate the probability of the union, intersection, and complement of sets. Find the odds in favor of an event. Apply the basic concepts of probability to business and economics applications. Calculate the conditional probability of an event and define independent events. Use Baye's theorem to solve problems in business and economics, life sciences, and social sciences.
Statistics.	5	Calculate the mean, median, range, variance, and standard deviation of data. Find the percent of data falling

		within a certain range for a normal distribution. Use the normal distribution to approximate a binomial probability.
Mathematics of finance including sinking funds.	10	Calculate simple and compound interest, future value of an annuity, present value of an annuity, amortization tables, and solve applied problems in finance including sinking funds.
Game theory.	5	Use the game theory framework to make decisions with incomplete information. Model real-world situations as a game. Assign payoffs to the possible degrees of underutilization or overcrowding and derive an optimal strategy.
Markov chains.	5	Use the basic properties of Markov chains to solve problems where the outcome of an experiment depends only on the outcome of the previous experiment.
Graph theory.	5	Define simple graphs and consider the shortest path problem and the traveling salesman problem. Investigate Hamilton paths.
Final examination.	2	Final examination.
	Total: 90	
Total Lecture Hours In Section I Class Hours:		90