

MAT 100

- Use the symbols and vocabulary of basic mathematics correctly.
- Approximate solutions and identify solutions that do not make sense.
- Use arithmetic skills of real numbers.
- Translate mathematical and numerical information into verbal information, and vice versa.
- Demonstrate mastery of basic algebraic skills.
 - Manipulate and evaluate algebraic expressions.
 - Utilize function notation.
 - Apply properties of exponents.
 - Write numbers using scientific notation.
 - Simplify and perform operations involving rational expressions.
 - Simplify square roots and estimate expressions involving radicals.
 - Solve linear equations.
 - Graph equations on a rectangular coordinate system.
 - Solve linear inequalities.
- Demonstrate proficiency solving problems involving percent.
- Solve problems using ratio and proportion, including converting from one unit of measurement to another using unit fractions.
- Perform set operations of union, intersection, and complement.

MAT 101

- Use prerequisite concepts and skills of the arithmetic of real numbers.
- Manipulate and evaluate algebraic expressions.
- Solve linear equations.
 - Apply linear equations to problems.
 - Write and graph linear equations on a rectangular coordinate system.
 - Use function notation and distinguish between input and output.
- Perform operations involving polynomials.
 - Factor polynomials.
 - Solve polynomial and quadratic equations by factoring.
 - Apply rules of exponents and use scientific notation.
 - Simplify and perform operations involving rational expressions.
 - Solve equations containing rational expressions.
- Simplify and perform operations involving radicals and rational exponents.
 - Solve equations involving radical expressions.
 - Solve quadratic equations by taking square roots, and by the quadratic formula.
 - Given a quadratic function, find its vertex and intercepts and graph the parabola.
- Model and solve application problems.
- Use the symbols and vocabulary of basic mathematics correctly.

MAT 105

- Recognize the differences between inductive and deductive reasoning.
- Correctly use numerical computation and to utilize appropriate technology.
- Use algebraic models, and to identify the distinction between linear and exponential models.
- Be able to organize and present data in appropriate and effective ways, using verbal and written methods, and using correct notation and symbols.
- Analyze and interpret data using appropriate statistical tools and technological tools.
- Identify the impact of compound interest and the effect of interest rates and length of term in financial decision making.
- Compute simple probabilities and expected values and to explain how these concepts influence many aspects of our lives.

MAT 108

- Simplify algebraic expressions using properties of real numbers, rules of exponents, and strategies for factoring.
- Analyze and solve problems involving linear, quadratic, and absolute value equations and inequalities.
- Solve radical, logarithmic and exponential equations.
- Identify properties of functions, including domain, range, operations, compositions, and inverses.
- Identify graphs of basic functions and use function operations to sketch the graph of new functions.
- Express and discuss algebraic analysis in multiple ways: symbolically, numerically, graphically, verbally, and in writing.
- Examine functions analytically and graphically, and to use them to construct and interpret models of real world phenomenon.

MAT 120

- Describe a data set including both categorical and quantitative variables.
- Apply laws of probability to concrete problems.
- Compute probabilities related to the binomial, Poisson, and normal distributions.
- Construct and interpret confidence intervals.
- Perform hypothesis tests and clearly articulate the conclusion and type of error that might have been made.
- Demonstrate competency in commonly utilized technology for statistical decision making.
- Analyze data and develop a statistically based strategy to apply the results in a real world situation.

- Recognize that data are numbers within a context. The result of any calculation involving data will be meaningful within the same context and have an appropriate label.
- Recognize that the most common sources of numerical data are measurements in real-world situations.
- Describe and interpret statistical situations using symbolic, verbal, and graphical representations.

MAT 145

- Parse and evaluate logical statements and forms.
- Assess logical arguments for validity.
- Work with and perform operations on basic sets.
- Work with functions within a modular space.
- Understand and verify properties of relations and functions.
- Prove or disprove statements and the countability of infinite sets.
- Use counting methods to determine the number of elements in a list or set, size of large groups, and basic probabilities.

MAT 152

- Know the definition of a limit and be able to determine limits using limit laws.
- Understand the concept of continuity.
- Find the derivative of a function using the definition.
- Differentiate functions by rules such as the sum, product, quotient, and chain rules, as well as implicit differentiation.
- Identify local and absolute extreme values of functions using the first and second derivative tests.
- Sketch the graph of a function using techniques of calculus including the first and second derivative tests along with other tools such as asymptotes.
- Compute Riemann sums and know the definition of the integral.
- Understand the fundamental theorem of calculus and be able to evaluate integrals, including using the method of substitution.
- Solve applied problems using techniques of calculus.

MAT 153

- Know how to differentiate the inverse of a function and apply that process to transcendental functions such as exponential, logarithmic, and hyperbolic functions.
- Identify indeterminate forms and use L'Hôpital's rule when appropriate.
- Demonstrate understanding of basic integration techniques such as the substitution rule, integration by parts, trigonometric substitution, partial fractions, and improper integrals.
- Find limits of sequences.

- Evaluate geometric series.
- Demonstrate an understanding of the concept of convergence and divergence of a series by using techniques such as the direct comparison test, limit comparison test, integral test, ratio test, root test, n-th term test, and alternating series test.
- Determine the radius and interval of convergence of a power series as well as being able to determine Taylor and Maclaurin series.