

## Introductory Algebra

MATH011

Spring 2016

This course is designed to provide the fundamental concepts of algebra and examine some simple applications of these concepts, i.e., word problems. Topics include signed numbers, algebraic expressions, linear equations and inequalities in one variable, the Cartesian coordinate system, linear equations and inequalities in two variables, systems of equations, and descriptive statistics (e.g., mean, median, mode, and reading graphs). Note: Credits earned in this course cannot be applied toward graduation. Prerequisite: C- or higher in MATH001 Preparation for College Math I or MATH010 Fundamentals of Mathematics; waiver by placement testing results; or departmental approval.

COURSE OUTCOMES	OUTCOMES ACTIVITIES
At the end of this course, students will be able to	
Apply the rules of signed numbers, the order of operations agreement, and the rules for simplifying algebraic expressions in order to have the basic skills necessary for successful completion of the other topics in this course and related topics in other courses.	<ol style="list-style-type: none"><li>1. Add, subtract, multiply and divide signed rational numbers. (W,R,CT,QS)</li><li>2. Simplify numeric expressions according to the order of operations. (emphasis on integers) (W,R,CT,QS)</li><li>3. Evaluate variable expressions. (W,R,CT,QS)</li><li>4. Simplify algebraic expressions using the distributive law. (W,R,CT,QS)</li><li>5. Combine like terms. (W,R,CT,QS)</li></ol>
Solve first degree equations and inequalities in one variable in order to solve problems that can be modeled by these types of relationships.	<ol style="list-style-type: none"><li>1. Determine whether a given number is a solution of an equation/inequality. (W,R,CT,QS)</li><li>2. Solve equations/inequalities of the form <math>ax = b</math>, <math>x + a = b</math>, <math>ax + b = c</math>, <math>ax + b = cx + d</math>. (W,R,CT,QS)</li><li>3. Solve equations/inequalities containing fractions and parentheses. (W,R,CT,QS)</li><li>4. Solve literal equations. (W,R,CT,QS)</li><li>5. Solve proportions. (W,R,CT,QS)</li><li>6. Translate and solve number problems, percent problems, ratio and proportion problems. (W,R,CT,QS)</li></ol>
Plot points and graph linear equations and inequalities on the Cartesian coordinate system in order to use these skills to solve related problems in this and related courses.	<ol style="list-style-type: none"><li>1. Plot points and find the coordinates of a given point. (W,R,CT,QS)</li><li>2. Graph an equation/inequality by plotting points, by finding the x-, and y-intercepts, and by using the slope-intercept method. (W,R,CT,QS)</li><li>3. Graph an equation/inequality of the form <math>y = mx + b</math>, <math>Ax + By = C</math>, <math>y = b</math>, <math>x = a</math>. (W,R,CT,QS)</li></ol>
Determine an equation of a given line in order to solve application problems in this and related courses.	<ol style="list-style-type: none"><li>1. Find the slope of a line given two points or given an equation of the line. (W,R,CT,QS)</li><li>2. Write an equation of a line given a point and the slope, two points, or information about parallel and perpendicular lines. (W,R,CT,QS)</li><li>3. Determine when two lines are parallel, perpendicular or neither. (W,R,CT,QS)</li></ol>

Solve systems of linear equations in order to solve applications problems in this and related courses.	<ol style="list-style-type: none"> <li>1. Solve a system of linear equations in two variables by graphing, the substitution method, and the addition method. (W,R,CT,QS)</li> <li>2. Determine if a system of linear equations is inconsistent or dependent. (CT,QS,W,R)</li> <li>3. OPTIONAL: Solve a system of linear equations using Cramer's Rule. (W,R,CT,QS)</li> <li>4. Solve mixture, current, distance, and number word problems. (W,R,CT,QS)</li> </ol>
Solve simple descriptive statistics problems in order to analyze and interpret data in real word situations.	<ol style="list-style-type: none"> <li>1. Read and interpret bar graphs, pie graphs, and line graphs. (W,R,CT,QS)</li> <li>2. Calculate the mean, the median, and the mode for a given set of data. (W,R,CT,QT)</li> </ol>
Strengthen Core Competencies** in order to increase success in this and other courses and in the workplace.	Reference above

\*\*Indicate the Core Competencies that apply to the outcomes activities and assessment tools: Critical Thinking (CT); Technology Skills (TS); Oral Communications (OC); Quantitative Skills (QS); Reading (R); Writing (W).