

Standard Institutionally Developed College: N/A

EDGE Compatible: No

Pre-requisites

Program Admission
MATH 0099 - Intermediate Algebra (201003)

Co-requisites

Course Description

Emphasizes techniques of problem solving using algebraic concepts. Topics include fundamental concepts of algebra, equations and inequalities, functions and graphs, and systems of equations; optional topics include sequences, series, and probability or analytic geometry.

Course Length

	Minutes	Contact Unit
Lecture:	2250	
Lab 2:	0	
Lab 3:	0	
Practicum/Internship:	0	
Clinical:	0	
Total:	2250	3

Semester Credit Hours: 3

Competencies

Order	Description	Lecture	Lab2	Lab3	Practicum/Internship	Clinical	Total Minutes	Semester Credit Hrs
1	Fundamental Concepts of Algebra	100	0	0	0	0	100	
2	Equations and Inequalities	750	0	0	0	0	750	
3	Functions and Graphs	650	0	0	0	0	650	
4	Systems of Equations	150	0	0	0	0	150	
5	Optional Topics	600	0	0	0	0	600	
Totals for Course MATH 1111 - College Algebra (version 201003):		2250	0	0	0	0	2250	3

Learning Outcomes

Fundamental Concepts of Algebra

Order	Description	Learning Domain	Level of Learning
1	Demonstrate the concept of sets and set notation.	Cognitive	Application
2	Locate complements, unions, and intersections of sets.	Cognitive	Comprehension
3	Compute the value of expressions using the laws of exponents.	Cognitive	Application
4	Simplify radicals and use them in arithmetic operations.	Cognitive	Application
5	Perform arithmetic operations on polynomials.	Cognitive	Application
6	Identify all factors of algebraic expressions.	Cognitive	Knowledge
7	Perform arithmetic operations on rational expressions	Cognitive	Application

Equations and Inequalities

Order	Description	Learning Domain	Level of Learning
1	Solve linear equations.	Cognitive	Application
2	Solve application problems involving linear equations	Cognitive	Application
3	Solve quadratic equations.	Cognitive	Application
4	Solve application problems involving quadratic equations.	Cognitive	Application
5	Solve linear inequalities.	Cognitive	Application
6	Solve quadratic inequalities.	Cognitive	Application
7	Solve rational inequalities.	Cognitive	Application
8	Solve exponential equations.	Cognitive	Application
9	Solve application problems involving exponential equations.	Cognitive	Application
10	Solve logarithmic equations.	Cognitive	Application
11	Solve application problems involving logarithmic equations.	Cognitive	Application

Functions and Graphs

Order	Description	Learning Domain	Level of Learning
1	Draw ordered pairs.	Cognitive	Knowledge
2	Define relations and functions.	Cognitive	Knowledge
3	Construct a graph of linear functions.	Cognitive	Synthesis
4	Construct a graph of quadratic functions.	Cognitive	Synthesis
5	Construct a graph of exponential functions.	Cognitive	Synthesis
6	Construct a graph of logarithmic functions.	Cognitive	Synthesis

Systems of Equations

Order	Description	Learning Domain	Level of Learning
1	Solve systems of linear equations with two unknowns.	Cognitive	Application
2	Solve application problems involving linear systems.	Cognitive	Application

Optional Topics

Order	Description	Learning	Level of
1	Set-up and solve problems with direct, inverse, and joint variations.	Cognitive	Application
2	Define complex numbers.	Cognitive	Knowledge
3	Perform arithmetic operations on complex numbers.	Cognitive	Application
4	Solve absolute value equations and inequalities.	Cognitive	Application
5	Solve systems of linear equations with matrices.	Cognitive	Application
6	Solve simple linear programming problems.	Cognitive	Application
7	Construct conics which might include hyperbolas, parabolas, ellipses, and circles.	Cognitive	Synthesis
8	Identify a pattern in a sequence of numbers and use the pattern to extend an arithmetic sequence.	Cognitive	Knowledge
9	Identify a pattern in a sequence of numbers and use the pattern to extend a geometric sequence.	Cognitive	Knowledge
10	Use mathematical induction to prove statements.	Cognitive	Application
11	Use the Binomial Theorem to expand the binomial.	Cognitive	Application
12	Use the Binomial Theorem to find indicated terms without expanding.	Cognitive	Application
13	Define permutations and combinations.	Cognitive	Knowledge
14	Use permutations and combinations to solve application problems.	Cognitive	Application
15	Define probability.	Cognitive	Knowledge
16	Calculate probability of events in application problems.	Cognitive	Application

References

Order	Reference Type	Description
1	Book with Author(s) Listed	Aufmann, Barker and Nation. (2008). College algebra. (6th). Boston, MA: Houghton Mifflin.
2	Computer Software	Thinkwell Corporation. (2007). Thinkwell [Computer Software]. Austin, TX: Thinkwell Corporation
3	Book with Author(s) Listed	Bittinger, Beecher, Ellenbogen and Penna. (2001). Fundamentals of college algebra : graphs and models (includes My MathLab). (1st). Boston, MA: Pearson Education.
4	Book with Author(s) Listed	Dugopolski, M.. (2006). Algebra for college students. (4th). n/a: McGraw-Hill.
5	Book with Author(s) Listed	Larson, Hostetler & Edwards. (2000). College algebra, a graphing approach. (3rd). Boston, MA: Houghton Mifflin.
6	Book with Author(s) Listed	Larson, Hostetler & Edwards. (2000). Precalculus . (2nd). Boston, MA: Houghton Mifflin.

Order	Reference Type	Description
		Sharma Kapoor, Treadway & Kumar. (2006). College algebra. (5th). N/A: Educo International. www.educosoft.com