

Mathematics - Student Learning Outcomes

MATH 060	Math Lab	1. For students enrolled in MATH 071:
		1. Perform the basic operations with rational numbers. (ILO2)
		2. Compute the area and perimeter of standard geometric shapes. (ILO2)
		3. Solve equations appropriate for a Pre-Algebra class. (ILO2)
		2. For students enrolled in MATH 081:
		1. Solve linear equations in one variable. (ILO2)
		2. Factor polynomial expressions using a variety of methods and solve polynomial equations. (ILO2)
		3. Graph linear equations and find values related to linear graphs. (ILO2)
		4. Solve application problems appropriate to beginning algebra. (ILO2)
		3. For students enrolled in MATH 091:
		1. Solve quadratic equations by factoring, completing the square, and quadratic formula. (ILO2)
		2. Solve equations involving radicals. (ILO2)
		3. Recognize and graph equations of conic sections. (ILO2)
		4. Perform operations on functions algebraically. (ILO2)
		5. Solve an application involving exponential functions. (ILO2, ILO5)
MATH 061	Basic Mathematics	1. Perform the basic operations with whole and non-signed rational numbers. (ILO2)
		2. Perform conversions to and from fractions, decimals, and percents. (ILO2)
		3. Solve application problems involving operations with non-signed rational numbers. (ILO2)
MATH 071	Pre-algebra	1. Perform the basic operations with rational numbers. (ILO2)
		2. Compute the area and perimeter of standard geometric shapes. (ILO2)
		3. Solve equations appropriate for a Pre-Algebra class. (ILO2)
MATH 081	Beginning Algebra	1. Solve linear equations in one variable. (ILO2)
		2. Factor polynomial expressions using a variety of methods and solve polynomial equations. (ILO2)
		3. Graph linear equations and find values related to linear graphs. (ILO2)
		4. Solve application problems appropriate to beginning algebra. (ILO2)
MATH 091	Intermediate Algebra	1. Solve quadratic equations by factoring, completing the square, and quadratic formula. (ILO2)
		2. Solve equations involving radicals. (ILO2)
		3. Recognize and graph equations of conic sections. (ILO2)
		4. Perform operations on functions algebraically. (ILO2)
		5. Solve an application involving exponential functions. (ILO2, ILO5)
MATH 110	Number Systems in Elementary Mathematics	1. Demonstrate knowledge of operations and properties by creating story problems and
		2. Demonstrate written mathematical communication skills (ISLO1, ISLO4)
		3. Demonstrate analysis of children's multiplication and division errors (ISLO2, ISLO5)
MATH 112	Geometry in Elementary Mathematics	1. Geometric construction by hand and use of technology (ILO3, ILO4)
		2. Written mathematical communication skills (ILO1, ILO4)
		3. Transformation and tessellation projects (ILO3, ILO4)
MATH 114	Children's Mathematical Thinking	1. Analyze an elementary child's thinking by personal interview using pre-defined problem types. (ILO1, ILO2, ILO3)
MATH 119	Elementary Statistics	1. Determine and interpret a confidence interval for a population mean. (ILO2, ILO4)
		2. Apply statistical inference to conduct formal significance tests concerning single populations. (ILO2)
		3. Demonstrate the ability to use technology in computing and interpreting basic descriptive or inferential statistics. (ILO2, ILO4)
		4. Apply techniques of linear modeling to explore the relationship between two numerical variables. (ILO2)

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MATH 122	Finite Mathematics	1. demonstrate the application of matrix math by encoding and decoding a message using a matrix and technology. (ILO2)
		2. will calculate and interpret the probability of everyday events. (ILO2)
		3. apply techniques from the mathematics of finance to a real world situation. (ILO2)
MATH 140	Trigonometry	1. verify trigonometric identities (ILO2)
		2. Solve a triangle given two sides and the angle in between. (ILO2)
		3. Show understanding in solving trigonometric equations (ILO2)
MATH 150	College Algebra	1. Graph rational functions. (ILO2)
		2. Solve a linear programming problem. (ILO1, ILO2)
		3. Solve an application problem involving exponential growth or decay. (ILO1, ILO2, ILO4)
		4. Perform vertical and horizontal transformations of a basic graph. (ILO2)
MATH 170	Introductory Calculus with Applications	1. Demonstrate an understanding of the relationship between slope, average rate of change, instantaneous rate of change, and the derivative. (ILO2)
		2. Calculate limits, derivatives and integrals for polynomial, rational, exponential and logarithmic functions (ILO2)
		3. Use differentiation and integration techniques to solve problems from business, economics, social science and life science. (ILO1, ILO2, ILO4)
		4. Use the derivative to analyze and aid in graphing functions as well as solving optimization and related rate problems. (ILO1, ILO2)
MATH 190	Pre-Calculus	1. compute the difference quotient of a function. (ILO2)
		2. solve triangles using appropriate trigonometric laws. (ILO2)
		3. solve applications problems involving logarithmic and exponential functions. (ILO2)
		4. find roots of polynomials of degree 3 or higher. (ILO2)
		5. apply function operations both algebraically and graphically. (ILO2)
MATH 192	Calculus I	1. Be able to use substitution to find the anti-derivative of a composite function. (ILO2)
		2. Demonstrate ability to anti-differentiate simple functions (ILO2)
		3. Be able to set up and solve optimization problems of a single variable. (ILO1, ILO2, ILO4)
		4. Be able to compute limits for simple functions. (ILO2)
		5. Be able to apply the chain rule for a function of a single variable. (ILO2)
MATH 194	Calculus II	1. Demonstrate understanding of various techniques of integration (ILO2)
		2. Demonstrate ability to solve applications of integration. (ILO1, ILO2, ILO4)
		3. Demonstrate ability to apply various tests for convergence determination. (ILO2)
		4. distinguish the various types of conic sections (ILO2)
		5. use parametric equations and polar coordinates. (ILO2)
MATH 210	Calculus III	1. Write the equations of lines and planes in three dimensions (ILO2)
		2. differentiate and integrate vector-valued functions (ILO2)
		3. use rectangular coordinates to set up and evaluate double and triple integrals (ILO2)
		4. find partial derivatives of functions of two or more independent variables. (ILO2)
		5. apply the chain rule for functions of more than one variable. (ILO1, ILO2)
MATH 220	Elementary Differential Equations	1. demonstrate the ability to solve a first order differential equation. ILO2, ILO4)
		2. demonstrate the ability to use a differential equation to model a real world phenomena. (ILO2, ILO5)
		3. demonstrate the ability to find a series solution to a differential equation. (ILO2, ILO4)

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MATH 230	Introduction to Linear Algebra with Applications	<ol style="list-style-type: none"> <li>1. Perform matrix operations, and compute determinants, eigenvalues,/vectors, and inverses. (ILO2)</li> <li>2. Understand and apply the relationship between linear transformations, matrices and systems of equations. (ILO2)</li> <li>3. Analyze, synthesize, and evaluate theorems in Linear Algebra. (ILO2)</li> </ol>
MATH 240	Discrete Mathematics	<ol style="list-style-type: none"> <li>1. Use a truth table to test the validity of an argument. (ILO1, ILO2, ILO4)</li> <li>2. Construct proofs of mathematical statements using standard techniques, including induction. (ILO1, ILO2, ILO4)</li> <li>3. Apply graph theory to real world situations. (ILO1, ILO2, ILO4)</li> </ol>
MATH 241	Math Software-MATLAB	<ol style="list-style-type: none"> <li>1. Compute the solution to a system of equations using an algorithm. (ILO2)</li> </ol>