

MATHEMATICAL SCIENCES
Institutional (ILO), Program (PLO), and Course (SLO) Alignment

Program: Math (GE and Non-Science Majors)	Number of Courses: 6	Date Updated: 09.21.2014	Submitted by: Susanne Bucher, ext. 3221
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ILOs	1. Critical Thinking <i>Students apply critical, creative and analytical skills to identify and solve problems, analyze information, synthesize and evaluate ideas, and transform existing ideas into new forms.</i>	2. Communication <i>Students effectively communicate with and respond to varied audiences in written, spoken or signed, and artistic forms.</i>	3. Community and Personal Development <i>Students are productive and engaged members of society, demonstrating personal responsibility, and community and social awareness through their engagement in campus programs and services.</i>	4. Information Literacy <i>Students determine an information need and use various media and formats to develop a research strategy and locate, evaluate, document, and use information to accomplish a specific purpose. Students demonstrate an understanding of the legal, social, and ethical aspects related to information use.</i>
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SLO-PLO-ILO ALIGNMENT NOTES:

Mark boxes with an 'X' if: SLO/PLO is a major focus or an important part of the course/program; direct instruction or some direct instruction is provided; students are evaluated multiple times (and possibly in various ways) throughout the course or are evaluated on the concepts once or twice within the course.

DO NOT mark with an 'X' if: SLO/PLO is a minor focus of the course/program and some instruction is given in the area but students are not formally evaluated on the concepts; or if the SLO/PLO is minimally or not at all part of the course/program.

PLOs	PLO to ILO Alignment			
	<i>(Mark with an X)</i>			
	1	2	3	4
PLO #1 Graphical Methods Students will be able to analyze and solve application problems involving business, the social sciences, and/or biological sciences using graphical methods.	X	X		X
PLO #2 Analytical and Computational Skills Students will be able to analyze and solve application problems involving business, the social sciences, and/or biological sciences using analytical and computation skills.	X	X		X

SLOs	SLO to PLO Alignment <i>(Mark with an X)</i>		COURSE to ILO Alignment <i>*FOR OFFICE USE ONLY*</i>			
	P1	P2	1	2	3	4
MATH 120 Nature of Mathematics: SLO #1 Solve Loan Problems Apply techniques of simple and compound interest to solve loan and annuity problems.		X	X			
MATH 120 Nature of Mathematics: SLO #2 Solve Application Problems Using Graphical Methods Solve application problems using graphical methods such as: 3-ring Venn diagrams, truth tables, Euclidean, Riemannian and Lobachevskian geometries.	X					
MATH 120 Nature of Mathematics: SLO #3 Analyze Voting System Analyze voting systems, methods of apportionment and representation to further the understanding of the political process.		X				
MATH 120 Nature of Mathematics: SLO #4 Solve Application Problems Solve application problems using basic counting principles, permutations, combinations, probability, expected value and frequency distribution.	X	X				
MATH 130 College Algebra: SLO #1 Solve Nonlinear Inequalities Solve nonlinear inequalities and a variety of equations such as: polynomial, rational, radical, exponential, and logarithmic.		X	X			
MATH 130 College Algebra: SLO #2 Solve Problems using Graphical Methods Solve problems using graphical methods involving a variety of functions, such as: polynomial, rational, radical, exponential, and logarithmic.	X					
MATH 130 College Algebra: SLO #3 Solve Problems Using Sequences and Series Solve problems using sequences and series.		X				
MATH 130 College Algebra: SLO #4 Solve Application Problems Solve college algebra level application problems and use technology.	X	X				
MATH 140 Finite Mathematics for Business and Social Sciences: SLO #1 Use of Gauss-Jordan Use the Gauss-Jordan technique to solve systems of linear equations.		X	X			
MATH 140 Finite Mathematics for Business and Social Sciences: SLO #2 Use of Matrices Solve problems using matrices.		X				
MATH 140 Finite Mathematics for Business and Social Sciences: SLO #3 Use of Geometrical Approach Solve linear programming problems using the geometrical approach.	X					
MATH 140 Finite Mathematics for Business and Social Sciences: SLO #4 Use of Finite Mathematics Techniques Solve application problems using finite mathematics techniques.	X	X				

SLOs	SLO to PLO Alignment <i>(Mark with an X)</i>		COURSE to ILO Alignment <i>*FOR OFFICE USE ONLY*</i>			
	P1	P2	1	2	3	4
MATH 150 Elementary Statistics with Probability: SLO #1 Computing and Interpreting Various Measures From data or bivariate data, compute statistics and develop displays of the data that illustrate the measures of central tendency, variation, relative position, and correlation. Interpret the displays in context.	X		X			
MATH 150 Elementary Statistics with Probability: SLO #2 Probability Compute probability of an event by applying the basic assumption in classical probability and using addition rule and multiplication rule for contingency tables.	X	X				
MATH 150 Elementary Statistics with Probability: SLO #3 Central Limit Theorem Use the Central Limit Theorem to compute probabilities concerning the distribution of the sample means and comparing these to the probabilities of the related random variable.	X	X				
MATH 150 Elementary Statistics with Probability: SLO #4 Confidence Intervals and Hypothesis Testing Compute the confidence intervals and conduct hypothesis testing for a variety of parameters, and perform non-parametric hypothesis testing.	X	X				
MATH 160 Calculus I for Biological, Management and Social Sciences: SLO #1 Determine and Interpret Limits Determine limits, classify types of continuity of functions, and determine first and second derivatives of functions.	X	X	X			
MATH 160 Calculus I for Biological, Management and Social Sciences: SLO #2 Sketch graphs of functions Identify the intercepts, relative extrema, inflection points, and concavity, and use this information to sketch graphs of functions.	X	X				
MATH 160 Calculus I for Biological, Management and Social Sciences: SLO #3 Area Problems Solve area problems using integral calculus.	X	X				
MATH 160 Calculus I for Biological, Management and Social Sciences: SLO #4 Using Calculus, Solve Application Problems Solve calculus-level application problems and use technology.	X	X				
MATH 161 Calculus II for Biological, Management and Social Sciences: SLO #1 Compute and Interpret Integrals Find integrals using a variety of methods, including: substitution, parts, and partial fractions.		X	X			
MATH 161 Calculus II for Biological, Management and Social Sciences: SLO #2 Compute and Interpret Derivatives Compute and interpret partial derivatives and apply these skills to application problems.	X	X				
MATH 161 Calculus II for Biological, Management and Social Sciences: SLO #3 Convergence and Divergence of Series Determine convergence and divergence of infinite series.		X				
MATH 161 Calculus II for Biological, Management and Social Sciences: SLO #4 Solve Application Problems Using Calculus Use single-variable and double-variable integral calculus methods to solve application problems from relevant disciplines, including economics.	X	X				