MATH 155 Course Outline as of Fall 2015

CATALOG INFORMATION

Dept and Nbr: MATH 155 Title: INTERMEDIATE ALGEBRA
Full Title: Intermediate Algebra
Last Reviewed: 9/22/2014

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	4.00	Lecture Scheduled	4.00	17.5	Lecture Scheduled	70.00
Minimum	4.00	Lab Scheduled	0	6	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	4.00		Contact Total	70.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 140.00 Total Student Learning Hours: 210.00

Title 5 Category:	AA Degree Applicable
Grading:	Grade or P/NP
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	

Catalog Description:
An intermediate algebra course which incorporates the use of technology. Topics include functions, equations and inequalities in one variable, systems of linear equations in two or three variables, exponential and logarithmic functions and equations, and discrete topics. Graphing calculators and/or computer algebra systems will be incorporated as appropriate.

Prerequisites/Corequisites:
Completion of MATH 150B or higher (V1) OR Course Completion of MATH 151

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: An intermediate algebra course which incorporates the use of technology. Topics include functions, equations and inequalities in one variable, systems of linear equations in two or three variables, exponential and logarithmic functions and equations, and discrete topics. Graphing calculators and/or computer algebra systems will be incorporated as appropriate. (Grade or P/NP)

Prerequisites/Corequisites: Completion of MATH 150B or higher (V1) OR Course Completion of MATH 151
Recommended:
Limits on Enrollment:
Transfer Credit:
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**		Effective:	Inactive:
	B	Communication and Analytical Thinking	Spring 1988	
	MC	Math Competency		
	MC	Math Competency	Fall 1981	Spring 1988
CSU GE:	**Transfer Area**		Effective:	Inactive:
IGETC:	**Transfer Area**		Effective:	Inactive:

CSU Transfer:	Effective:	Inactive:
UC Transfer:	Effective:	Inactive:

CID:

Certificate/Major Applicable:
Both Certificate and Major Applicable

COURSE CONTENT

Outcomes and Objectives:
Upon successful completion of the course, students will be able to:
1. Define function, domain and range and use function notation appropriately.
2. Identify basic features of the graphs of polynomial, radical, absolute value, rational, exponential and logarithmic functions.
3. Use a graphing calculator to construct graphs, locate roots, intersection points, maximum and minimum values.
4. Find algebraic and graphical solutions to equations that involve polynomial, radical, absolute value, rational, exponential and logarithmic functions.
5. Find graphical solutions to nonlinear inequalities in one variable.
6. Find algebraic solutions to literal equations.
7. Solve, either graphically or algebraically, application and modeling problems that use polynomial, radical, absolute value, rational, exponential and logarithmic functions.
8. Solve linear systems in two and three variables with algebraic methods.
9. Express a system of linear equations as an augmented matrix, transform the matrix with a graphing calculator to its Reduced Row Echelon Form, and interpret the solution set of the system from the RREF.
10. Solve application and modeling problems that require the use of a system of linear equations.
11. Find a graphical solution to a system of linear inequalities.
12. Use the basic properties of exponents and the common and natural logarithms to simplify expressions and solve equations.
13. Express an understanding of the number e.
14. Evaluate sequence and series expressions, by hand and with a calculator.

15. Use factorial notation and find binomial coefficients by hand and with a calculator.

Topics and Scope:

I. Use of technology
   A. Demonstrate algebraic concepts
   B. Observe and predict behavior of functions
   C. Process information
   D. Manipulate structures such as matrices
   E. Perform summations
II. Functions and equations
   A. Definitions
      1. Function
      2. Function notation
      3. Evaluation
      4. Domain
      5. Range
   B. Graphs of functions
      1. Polynomial
      2. Radical
      3. Absolute value
   C. Graphical and algebraic solutions to equations and inequalities
      1. Polynomial
      2. Radical
      3. Absolute value
   D. Solution of literal equations
   E. Applications to emphasize mathematical models that use polynomial, rational, and radical functions
III. Systems of equations/inequalities
   A. Solution of linear systems
   B. Matrices and RREF
   C. Systems of linear inequalities
   D. Applications and modeling
IV. Exponential and logarithmic functions and equations
   A. Common and natural logarithms
   B. Graphs
   C. The number e
   D. Laws of logarithms
   E. Solving exponential and logarithmic equations
   F. Applications and modeling
V. Discrete topics
   A. Introduction to sequences and series
   B. Summation notation
   C. Factorial notation
   D. Pascal's triangle
   E. Binomial coefficients
   F. Binomial expansion
   G. Applications and modeling

Assignment:

1. Daily reading outside of class (approximately 0-50 pages per week)
2. Problem set assignments (10-30)
3. Mid-terms (2-5) and a final exam; quizzes (0-15)
4. Projects (for example, calculator explorations and activities) (0-2)

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.	Writing 0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Problem sets	Problem solving 5 - 20%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None	Skill Demonstrations 0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Exams: multiple choice, free response; quizzes	Exams 70 - 95%

Other: Includes any assessment tools that do not logically fit into the above categories.

Projects	Other Category 0 - 10%

Representative Textbooks and Materials:
Intermediate Algebra: Graphs and Models (4th ed.). Bittinger, Ellenbogen, Johnson. Pearson; 2012
Intermediate Algebra for College Students (6th ed.). Blitzer. Pearson; 2012