MATH 154 Course Outline as of Fall 2016

CATALOG INFORMATION

Dept and Nbr: MATH 154   Title: ELEM AND INT ALG
Full Title: Elementary and Intermediate Algebra
Last Reviewed: 10/22/2018

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	8.00	Lecture Scheduled	8.00	17.5	Lecture Scheduled	140.00
Minimum	8.00	Lab Scheduled	0	17.5	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	8.00		Contact Total	140.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 280.00   Total Student Learning Hours: 420.00

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:
A combined elementary and intermediate algebra course that incorporates the use of technology. Topics include functions, equations and inequalities in one variable, systems of linear equations in two and 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 CSKLS 372 or higher (VE)

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: A combined elementary and intermediate algebra course that incorporates the use of technology. Topics include functions, equations and inequalities in one variable, systems of linear equations in two and 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 CSKLS 372 or higher (VE)
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	Fall 2016	
	MC	Math Competency		
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 completion of the course, students will be able to:
1. Perform arithmetic operations on real numbers and polynomial expressions.
2. Evaluate algebraic expressions.
3. Factor polynomials.
4. Solve linear, polynomial, rational, absolute value, radical, literal, exponential, logarithmic equations and systems of equations.
5. Solve linear and absolute value inequalities.
6. Graph linear equations and find the equation of a line.
7. Graph nonlinear relations and functions including parabolas.
8. Use the properties of radicals, exponents and logarithms.
9. State the distinctions between functions.
10. Apply basic operations on functions.
11. Solve mathematical models such as growth and decay, geometry, optimization, or uniform motion, and justify and interpret the solution in the context of the model.

Topics and Scope:

I. Real number operations
II. Properties of exponents
III. Polynomials
    A. Basic operations of polynomials
    B. Factoring including greatest common factor, grouping, quadratic, sums and differences of cubes and using substitution

    C. Solve equations by factoring
IV. Rational Expressions and Equations
V. Linear equations and inequalities
    A. Literal equations
    B. Applications
    C. Graphing
VI. Absolute value equations and inequalities
VII. Radical expressions and equations including square and cube roots, and rational exponents
VIII. Relations and Functions
    A. Domain and range
    B. Linear and nonlinear
    C. Function notation
    D. Algebra of functions
IX. Quadratic equations/Functions and Their Graphs
    A. Completing the square
    B. Quadratic formula
X. Graphs of nonlinear relations including parabolas
XI. Exponential and Logarithmic Functions
    A. Properties of logarithms
    B. Solving exponential and logarithmic equations
XII. Systems of Equations in two and three variables
XIII. Matrices and reduced row echelon form (RREF)
XIV. Modeling with linear and nonlinear functions, such as growth and decay, geometry, optimization, or uniform motion
XV. Discrete topics
    A. Introduction to sequences and series
    B. Summation notation
    C. Factorial notation
    D. Pascal's triangle
    E. Binomial coefficients
    F. Binomial expansion

Assignment:

1. Daily reading outside of class (approximately 10-60 pages per week)
2. Problem set assignments (15-40)
3. Midterms (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.

Quizzes, Midterms, Final Exam	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:
Beginning and Intermediate Algebra by Martin-Gay 5th, 2013, Pearson
Introductory and Intermediate Algebra by Bittinger 5th, 2013, Pearson
Beginning and Intermediate Algebra by Rockswold 3rd, 2012, Pearson
Beginning and Intermediate Algebra by Messersmith, 4th, 2016, McGraw-Hill