

MAT	137	Intermediate Algebra	3
Dept. Abbr.	Course No.	Course Title	Credits

Course Description

This course is a further study of algebra and mathematical modeling of functions and relations represented by tables, graphs, words, and symbols. Polynomial functions and expressions with special attention to linear, quadratic, exponential, rational, and radical functions are studied. There is an emphasis on modeling and applications for all topics. A graphing calculator is required for this course. Note: Course cannot be used to satisfy the Quantitative Reasoning competency for transfer programs or pathways.

Prerequisite: Eligible for ENG*101 (including 063/101 ALP and ENG*101E) and MAT*085 or 095 with a grade of "C" or better OR eligible for ENG*101 (including 063/101 ALP and ENG*101E) and math placement

General Objectives of the Course

This course introduces the student to basic non-linear mathematical relationships and prepares them for further study in mathematics. It also includes the following Combined Mathematics Standards/Quantitative Literacy Outcomes:

- 1) Exhibit perseverance, ability, and confidence to use mathematics to make sense of and solve problems
- 2) Perform mental arithmetic and use proportional reasoning
- 3) Analyze problem situations through numerical, graphical, symbolic and/or verbal approaches and modeling
- 4) Use appropriate tools strategically in solving problems
- 5) Recognize patterns, draw inferences
- 6) Communicate and interpret results
- 7) Demonstrate an understanding and appreciation of the usefulness of mathematics in everyday life

TAP Learning Outcomes (Competencies) of the Course

Written Communication in English ((E))

3. Craft Logical Arguments

- Generate a controlling idea or thesis.
- Provide clear and logical evidence, support, or illustration for their assertions.
- Choose appropriate and effective organizing methods, employing effective transitions and signposts.

Quantitative Reasoning (D)

1. Represent mathematical and quantitative information symbolically, graphically, numerically, and verbally.
2. Apply quantitative methods to investigate routine and novel problems. This includes calculations/procedures, mathematical and/or statistical modeling, prediction, and evaluation.
3. Interpret mathematical and quantitative information and draw logical inferences from representations such as formulas, equations, graphs, tables, and schematics.
4. Evaluate the results obtained from quantitative methods for accuracy and/or reasonableness.

Critical Analysis and Logical Thinking (E)

3. Analysis: Break subject matter into components and identify their interrelations to ascertain the defining features of the work and their contributions to the whole.

(D) Designated (E) Embedded

Number indicates the numbered item in the TAP Competency Report

Unit #	Instructional Unit	Specific Objectives of Unit
1	Linear Functions	<ol style="list-style-type: none">1. Provide multiple representations (e.g., words, symbols, graphs, tables) of linear functions by hand and/or using technology2. Determine identifying characteristics of linear functions3. Model and solve real world applications with linear functions (e.g., car depreciation) and systems of linear equations
2	Exponential Functions and/or Expressions	<ol style="list-style-type: none">1. Provide multiple representations (e.g., words, symbols, graphs, tables) of exponential functions or expressions by hand and/or using technology2. Determine identifying characteristics of exponential functions or expressions3. Evaluate, simplify, and perform operations on exponential functions or expressions4. Identify exponential functions within real world applications and recognize the appropriate domain of each application

3	Quadratic Functions and/or Expressions	<ol style="list-style-type: none"> 1. Provide multiple representations (e.g., words, symbols, graphs, tables) of quadratic functions or expressions by hand and/or using technology 2. Determine identifying characteristics of quadratic functions or expressions (e.g., factors) 3. Evaluate, simplify, and perform operations on quadratic functions or expressions 4. Solve quadratic equations algebraically (e.g., factoring, square root method, and quadratic formula with rational solutions) and/or graphically 5. Solve real world applications involving quadratic equations and functions and recognize the appropriate domain of each application
4	Rational Functions and/or Expressions	<ol style="list-style-type: none"> 1. Provide multiple representations (e.g., words, symbols, graphs, tables) of simple rational functions or expressions by hand and/or using technology 2. Determine identifying characteristics of rational functions or expressions 3. Evaluate, simplify, and perform operations on simple rational functions or expressions 4. Solve simple rational equations algebraically and/or graphically 5. Solve real world applications involving rational functions and identify the appropriate domain of each application
5	Radical Functions and/or Expressions	<ol style="list-style-type: none"> 1. Provide multiple representations (e.g., words, symbols, graphs, tables) of simple radical functions or expressions by hand and/or using technology, with primary emphasis on square root 2. Determine identifying characteristics of radical functions or expressions 3. Evaluate, simplify, and perform operations on simple radical functions or expressions 4. Solve simple radical equations algebraically and/or graphically 5. Solve real world applications involving radical functions and identify the appropriate domain of each application 6. Identify imaginary numbers