

**RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE**

MATH030 – INTERMEDIATE ALGEBRA

I. Basic Course Information

- A. Course Number and Title: MATH030 Intermediate Algebra
- B. New or Modified Course: Modified
- C. Date of Proposal: Semester: Spring Year: 2017
- D. Effective Term: Fall 2017
- E. Sponsoring Department: Mathematics
- F. Semester Credit Hours: 4 NC. This is a developmental level course which does not carry college credit.
- G. Weekly Contact Hours: Lecture: 4
Laboratory: NA
Out of class student work per week: 6 – 8
- H. Prerequisites/Corequisites: MATH020, MATH020W or appropriate placement score
- I. Laboratory Fees: None
- J. Name and Telephone Number or E-Mail Address of Department Chair at time of approval: Lynne E Kowski, Lynne.Kowski@raritanval.edu, x8254

II. Catalog Description

Prerequisite(s): Math 020 Elementary Algebra, Math 020W Elementary Algebra w/Workshop or appropriate placement score.

This course is designed to expand on the concepts in Elementary Algebra and prepare students for success in Precalculus and Statistics courses. The topics include advanced factoring, systems of equations and inequalities, numerical and graphical solutions of linear and quadratic equations and inequalities, rational and radical expressions and equations, integer and rational exponents, absolute value equations, introduction to functions and their graphs, introduction to circles.

III. Statement of Course Need

A. The course is designed for those students who enter college not prepared for the level of math needed in precalculus and statistics courses. Students who do not show adequate proficiency on the placement test for college level work will need to take this course prior to entering Precalculus or Statistics.

B. There is no computer lab component.

C. This course is not designed for transfer.

IV. Place of Course in College Curriculum

A. This is a developmental course and carries no college credit.

V. Outline of Course Content

- A. Linear Equations and Inequalities
 - 1. Graphing linear equations and inequalities
 - 2. Slopes and rates of change
 - 3. Slope intercept and point-slope forms
 - 4. Linear applications

- B. Systems of Linear Equations in Two Variables
 - 1. Solving systems of equations algebraically
 - 2. Systems of linear inequalities and their graphs

- C. Polynomials and Exponents
 - 1. Operations of polynomials
 - 2. Integer exponents
 - 3. Division of polynomials

- D. Factoring Polynomials and Solving Quadratic Equations
 - 1. Factoring trinomials
 - 2. Special types of factoring
 - 3. Solving quadratic equations by factoring
 - 4. Solving higher degree polynomial equations by factoring

- E. Rational Expressions and Equations
 - 1. Operations with rational expressions
 - 2. Complex rational expressions
 - 3. Rational equations, formulas and applications

- F. Introduction to Functions
 - 1. Basic concepts and functions and their representations
 - 2. Linear functions and their graphs
 - 3. Compound inequalities

4. Other functions and graphs, including absolute value functions
 5. Absolute value equations and inequalities
- G. Radical Expressions and Functions
1. Radical expressions
 2. Simplifying rational exponents
 3. Operations with radicals
 4. Radical equations and their applications
 5. Complex numbers
 6. The distance formula
 7. Introduction to circles
- H. Quadratic Equations and Inequalities
1. Quadratic functions and their graphs
 2. Solving quadratic equations by the square root property, completing the square and the quadratic formula.
 3. Equations in quadratic form
 4. Quadratic applications
 5. Quadratic Inequalities in one variable

VI. General Education and Course Learning Outcomes

A. General Education Learning Outcomes:

At the completion of the course, students will be able to:

1. Solve and/or graph linear and quadratic equations and inequalities. (GE-NJ2)
2. Factor basic and advanced polynomials. (GE-NJ2)
3. Develop the equation of lines in standard form, point/slope form, and slope/intercept form. (GE-NJ2)
4. Solve systems of linear equations and inequalities. (GE-NJ2)
5. Solve rational and radical equations. (GE-NJ2)
6. Perform operations on polynomial-based expressions, expressions that contain integer and rational exponents, and rational and radical expressions. (GE-NJ2)
7. Solve application problems. (GE-NJ2)

B. Course Learning Outcomes

See above

C. Assessment Instruments

1. Classwork/homework/quizzes

2. Chapter tests
3. Departmental final exam
4. Online homework assignments

VII. Grade Determinants

- A. Chapter tests (required)
- B. Assignments/homework/quizzes
- C. Final exam (required)
- D. MyLabsPlus online homework (required)
- E. Other teacher determined items

The departmental cumulative final exam will be used to assess all of the learning outcomes listed in Section VI, Part A.

- A. Lecture/active learning
- B. Small-group work
- C. Computer-assisted instruction

VIII. Texts and Materials

- A. Suggested textbook: Beginning and Intermediate Algebra with Applications and Visualization by Gary K. Rockswold & Terry A. Krieger, 3rd edition, Pearson.

(Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.)

IX. Resources

Suggested resource: MyMathLab (Plus), Pearson