

**COURSE OUTLINE**  
**MATH – 065**  
**Integrated Algebra and Geometry II**  
**2 Semester Hours**  
**HOWARD COMMUNITY COLLEGE**

**Course Description**

This course is the second in a two-part sequence covering elementary algebra topics. Students will extend their basic algebra skills to include simplifying, performing operations with, and solving equations involving square roots. Systems of equations will be solved graphically and algebraically. The quadratic formula and graphing a quadratic equation will be introduced. Application problems will include the use of the Theorem of Pythagoras. After successfully completing this course, students should register for intermediate algebra. The course is taught using compute-assisted instruction. You must plan to spend extra time on campus in our open computer labs.

Prerequisite: MATH 064

**Overall Course Objectives**

Upon successful completion of this course, the student will be able to:

1. Solve a system of linear equations in two variables.
2. Graph a system of linear inequalities in two variables.
3. Solve application problems in two variables including percent mixture.
4. Determine corresponding parts of similar polygons.
5. Combine and simplify expressions involving radicals.
6. Solve radical equations.
7. Solve application problems involving radicals.
8. Apply the Pythagorean Theorem.
9. Apply the quadratic formula to application problems.

**Major Topics**

Systems of two equations with two unknowns  
Graphing method; Substitution method; Elimination method  
Application problems including percent mixture  
Graphing linear inequalities

## Radical Expression and Equations

- Pythagorean Theorem
- Multiplying and simplifying radicals
- Quotients involving radicals
- Addition and subtraction of radicals
- Radical equations

## Quadratic Equations

- Quadratic formula
- Application problems
- Graphing a quadratic equation

The following topics will be reviewed.

## Exponents and Polynomials

- Integer exponents
- Applications using scientific notation and unit analysis
- Surface area and volume of prisms
- Add, subtract, multiply and divide polynomials

## Factoring

- Greatest common factor
- $x^2+bx+c$  by trial and error;  $ax^2+bx+c$  by ac method
- Difference of squares
- Quadratic equations that factor; application problems

## Rational Expression and Equations

- Combining rational expressions and simplifying
- Solving rational equations
- Ratio and proportion; similar polygons
- Formulas; Variation

## **Course Requirements**

Grading policies are determined by the division but will include a comprehensive final exam. Credits awarded for the completion of this course do not fulfill degree requirements in any degree or certificate program and are not transferable to four-year colleges.

**Academic Honesty as defined in the student handbook is required of all students.**