

**Coffeyville Community College**

**PREP-005**  
**COURSE SYLLABUS**  
**FOR**  
**INTRODUCTORY ALGEBRA**

**Zach Binder**  
**Instructor**

**COURSE NUMBER:** PREP-005 **COURSE TITLE:** Introductory Algebra

**CREDIT HOURS:** 3

**INSTRUCTOR:** Zach Binder

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**OFFICE LOCATION:** Math/Science Office Area

**OFFICE HOURS:** As posted on office door

**PREREQUISITE(S):** A minimum score of 24 on the Pre-Algebra Test of the COMPASS, or credit in Elements of Mathematics.

**REQUIRED TEXT AND MATERIALS:** Beginning Algebra, Lial/Miller

**COURSE DESCRIPTION:** This is a beginning course in algebra, designed for those who have not previously studied algebra or for those who want a formal review of basic algebraic concepts.

**EXPECTED LEARNER OUTCOMES:** Upon completion of this course, the student will be able to:

1. Add, subtract, multiply and divide signed numbers.
2. Solve equations and inequalities.
3. Add, subtract, multiply and divide polynomial expressions.
4. Factor polynomial expressions.
5. Simplify and solve rational expressions.
6. Graph linear equations and inequalities.
7. Simplify and solve radical expressions.

**LEARNING TASKS & ACTIVITIES:**

Unit I	Number Systems
Unit II	First Degree Equations and Inequalities in One Variable
Unit III	Polynomials
Unit IV	Factoring
Unit V	Fractions
Unit VI	Rectangular Coordinate System
Unit VII	Systems of Linear Equations
Unit VIII	Exponents and Radicals

Unit IX          Quadratic Equations

**ASSESSMENT OF  
OUTCOMES:**

The semester grade will be determined by tests and homework as shown in the following table.

90-100% = A

80- 89% = B

70- 79% = C

60- 69% = D

0- 59% = F

**TESTING:**

1. Students demonstrate the required behavior on written examinations over the objectives.
2. Exams are to be taken at the time specified. **No late tests will be given.**

**HOMEWORK:**

1. Homework will be assigned to help the student learn the objectives.
2. Homework is due at the time specified by the instructor. **Late homework will not be accepted.**

**ATTENDANCE  
POLICY:**

Students are expected to attend all classes. Attendance will be taken.

**STUDENT  
CONDUCT:**

1. Behavior that interferes with the learning process will not be tolerated.
2. Dishonest work will result in an F for the course.

## COMPETENCIES:

### ADD, SUBTRACT, MULTIPLY AND DIVIDE SIGNED NUMBERS

1. Apply the rules of addition, subtraction, multiplication and division to fractions.
2. Apply the rules of addition, subtraction, multiplication and division to decimals.
3. Convert percents to decimals and vice versa.
4. Know the meaning of the five inequalities.
5. Find the value of algebraic expressions, given values for the variables.
6. Identify natural numbers, whole numbers, integers, rational, and irrational.
7. Apply the rules of addition, subtraction, multiplication and division to signed numbers.
8. Use the order of operation with real numbers.
9. Interpret words and phrases that indicate subtraction, multiplication and division.
10. Evaluate expressions that use variables.
11. Simplify numerical expressions.
12. Translate sentences into equations.
13. Identify the use of the commutative, associative, identity, inverse, and distributive properties.

### SOLVE EQUATIONS AND INEQUALITIES

14. Identify and solve linear equations by using the properties of equality.
15. Translate sentences of a word problem into an equation, and then solve the problem.
16. Use a formula to solve a word problem.
17. Solve ratio and proportion problems.
18. Graph inequalities on a number line.
19. Use the addition and multiplication property of inequality.

### ADD, SUBTRACT, MULTIPLY AND DIVIDE POLYNOMIAL EXPRESSIONS

20. Apply the rules of exponents for any situation.
21. Use zero and negative numbers as exponents.
22. Express numbers in scientific notation.
23. Identify terms and coefficients.
24. Know the vocabulary for polynomials.
25. Calculate the sum or difference of polynomials.
26. Multiply any polynomial situation.
27. Divide a polynomial by either a monomial or polynomial.

## FACTOR POLYNOMIAL EXPRESSIONS

28. Identify prime numbers and prime factorization.
29. Factor out the greatest common factor.
30. Factor by grouping.
31. Factor any trinomial regardless of the lead coefficient.
32. Factor the difference of two squares.
33. Factor the sum or difference of cubes.
34. Solve quadratic equations by factoring.
35. Solve word problems involving area, perimeter, and consecutive integers.

## SIMPLIFY AND SOLVE RATIONAL EXPRESSIONS

36. Find the values of a variable for which a rational expression is undefined.
37. Write rational expressions in lowest terms.
38. Multiply and divide rational expressions.
39. Rewrite rational expressions with the least common denominator.
40. Add and subtract rational expressions regardless of the denominators.
41. Simplify complex fractions.
42. Solve equations involving rational expressions.
43. Solve word problems about distance, work, and variation using rational expressions.

## GRAPH LINEAR EQUATIONS

44. Write a solution as an ordered pair.
45. Complete ordered pairs for a given equation.
46. Plot ordered pairs.
47. Find x and y intercepts for a line.
48. Graph linear equations.
49. Find the slope of a line.
50. Use slope to determine the planar relationship of two lines.
51. Write the equation of a line regardless of supplied information.
52. Graph linear inequalities.

## SIMPLIFY AND SOLVE RADICAL EXPRESSIONS

53. Find square roots.
54. Use the Pythagorean formula.
55. Simplify radical expressions and quotients.
56. Multiply radicals.
57. Add and subtract radical expressions.
58. Write radicals in simplified form.
59. Rationalize denominators.

60. Simplify radical expressions with sums, products, and quotients.
61. Solve equations with radicals.
62. Identify extraneous solutions.

This syllabus is subject to revision with prior notification to the student by the instructor.