MATH XXXX-001: Foundations for College Mathematics I— Syllabus

College of DuPage

Spring 2026

Course Information

Course Details

- **Course Title:** Foundations for College Mathematics I
- **Course Number:** MATH XXXX
- **Credit Hours:** 5 (Lecture: 5, Lab: 0, Clinical: 0)
- **Class Meeting Times:** Monday, Wednesday, and Friday, 9:30 AM to 10:55 AM
- **Location:** BIC XXXX

Course Description

This course covers foundational algebra topics including: operations with real numbers, variables, exponents, scientific notation, algebraic expressions, linear equations and inequalities, graphing, systems of equations, polynomials, and factoring.

Prerequisites

One of the following:

- MATH 0460 College Arithmetic with a grade of C or better, OR
- MATH 0461 Pre-Algebra with a grade of C or better, OR
- Qualifying score on the mathematics placement test

Repeatable for Credit: No

Instructor Information

Contact Information

- **Instructor:** John Smith, M.S.
- **Email:** smith1234@cod.edu
- **Office:** BIC XXXX
- **Phone:** ZZZ-YYY-XXXX

Office Hours

Held in BIC XXXX:

- Monday through Friday: 2:00 PM to 3:00 PM
- Extended hours: Monday through Wednesday (additional 2 hours)

Course Learning Outcomes

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

1. Define and identify integers, rational numbers, irrational numbers, and real numbers
2. Apply set theory concepts to the real numbers
3. Add, subtract, multiply, and divide signed numbers
4. Determine powers, roots, and absolute values
5. Identify and apply associative, commutative, and distributive properties
6. Use the order of operations to evaluate expressions
7. Evaluate algebraic expressions
8. Express prime factorization of integers
9. Apply the rules of exponents to algebraic and numerical expressions
10. Convert between standard and scientific notation
11. Express algebraic expressions in simplest form
12. Solve linear equations with one variable
13. Solve linear inequalities, graph solutions, and express in interval notation
14. Solve literal equations and formulas
15. Use linear equations and inequalities in problem solving
16. Plot points and graph linear equations in two variables
17. Determine the slope of a line
18. Write equations of lines
19. Solve linear systems in two or more variables
20. Graph linear inequalities and systems of linear inequalities
21. Add, subtract, multiply, divide, and simplify polynomials
22. Factor polynomials using various techniques
23. Solve equations using factoring
24. Apply factoring to problem solving

Topical Outline

Topical outline:

1. Sets of numbers
   (a) Definition of the subsets of real numbers
   (b) Union
   (c) Intersection

Operations with signed numbers

1. Addition, subtraction, multiplication, division, powers, and roots

2. Prime factorization
3. Absolute value
4. Properties of real numbers - associative, commutative, and distributive
5. Order of operations
6. Properties of equations and inequalities

Variables

1. Evaluation of expressions with variables
2. The rules of exponents
3. Integral exponents
4. Scientific notation
5. Simplification of algebraic expressions using exponent rules, distributive rule, and nested grouping

Linear equations and inequalities

1. Solution of linear equations with one variable
   (a) Conditional and inconsistent equations
   (b) Identities
2. Solution of linear inequalities in one variable and interval notation
3. Literal equations
4. Equations of lines
   (a) General form
   (b) Slope
   (c) Slope-intercept form
   (d) Point-slope form
5. Applications
   (a) Conversion of word problems into algebraic statements
   (b) Mixture problems
   (c) Proportions: variation and percent problems
   (d) Distance, rate, and time problems
   (e) Geometric problems - measurement
6. Graphs of linear equations
   (a) Rectangular coordinate system
   (b) Graphs of straight lines
      i. Method 1 - Calculate points
      ii. Method 2 - Intercept method
      iii. Method 3 - Slope-intercept method

Linear inequalities in one variable

1. Solution of linear inequalities with one variable and interval notation
2. Solution of inequalities and their graphs
3. Compound inequalities and their graphs
4. Applications

Systems of linear equations and inequalities with two variables

1. Graphical solution of systems of linear equations
2. Graphical solution of systems of linear inequalities
3. Algebraic solution of systems of linear equations

   (a) Substitution method
   (b) Addition - subtraction method
4. Applications

Linear systems with more than two variables

1. Algebraic solution
2. Applications

Polynomials

1. Addition and subtraction
2. Multiplication
3. Division
   (a) Monomial
   (b) Long division
4. Factoring polynomials
   (a) Greatest common factor
   (b) Factor by grouping
   (c) Trinomials
   (d) Special factoring
      i. Perfect squares
      ii. Difference of squares
      iii. Difference of cubes
      iv. Sum of cubes
5. Solution of equations using factoring
6. Applications

Required Materials

Textbook

Beginning and Intermediate Algebra by Sherri Messersmith

Technology and Supplies

- Access code for ALEKS (online homework system)
- Notebook for note-taking
- Writing tools (pencils, pens)
- Internet-enabled device (laptop, tablet, or smartphone)
- Reliable internet connection

Course Schedule

Key Dates

- **First Day of Class:** January 26, 2026
- **Spring Break:** March 30 to April 5 (No class)
- **Last Day to Withdraw:** April 13, 2026
- **Final Exam:** Wednesday, May 20, 2026, 9:00 AM to 10:50 AM

Quizzes and Exams

Quizzes will be administered every Friday at the beginning of class. Exams will be given every three weeks on Friday during class time.

Content Coverage

The following is a tentative schedule of content coverage:

- Weeks 1–3: Chapter 1
- Week 4: Chapter 2
- Weeks 5–7: Chapter 3
- Weeks 8–9: Chapter 4
- Weeks 10–11: Chapter 5
- Week 12: Chapter 6
- Weeks 13–15: Chapter 7
- Week 16: Chapter 9 and course wrap-up

Grading and Evaluation

Grade Components

Your final grade is determined by the following components:

1. **Exams (50% of grade)**
    - No drops and no retakes
2. **Quizzes (20% of grade)**
    - At least 3 lowest scores dropped
    - No retakes or make-ups
3. **ALEKS Homework (10% of grade)**
    - At least 3 lowest scores dropped
    - No extensions granted
4. **Final Exam (20% of grade)**
    - Cumulative exam covering entire semester
    - Approximately 20 questions
    - 2-hour time limit on scheduled exam day

Grade Scale

- A: 90% to 100%
- B: 80% to 89%
- C: 70% to 79%
- D: 60% to 69%
- F: 59% or below

Note: Grades are rounded to the nearest whole percent.

Academic Integrity

As members of the College of DuPage community, we share a commitment to the highest standards of learning and ethical behavior. The College and its faculty strive to build meaningful relationships with students. Academic dishonesty damages the learning partnership and is considered a serious breach of academic principles.

Violations of the Code of Academic Conduct will be addressed appropriately and may become part of your educational record. For complete information about expectations and consequences, please review the Code of Academic Conduct at: College of DuPage Code of Academic Conduct.

Accessibility and Accommodations

The College of DuPage is committed to providing equitable access to educational opportunities for all students, including those with disabilities, in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act.

Requesting Accommodations

If you believe you may need accommodations based on an illness, injury, medical condition, or disability, please contact the Center for Access and Accommodations:

- **Email:** access@cod.edu
- **Website:** College of DuPage Access Services
- **Online Form:** Accommodation Request Form

For Students Already Registered with Access Services

Please send your Letter of Accommodation to me as soon as possible. Do not send personal medical records or doctor's notes directly to me. The Center for Access and Accommodations handles all medical documentation.

Course Policies on Accommodations

As a course policy, I do not accept late submissions for ALEKS assignments, attendance make-ups, or participation credits without approved accommodations. I am committed to providing fair and unbiased accommodations to all registered students.