MATH-0481-002: SYLLABUS

1. Course Information

- Course Title: Foundations for College Mathematics I
- Course Number: 0481
- Credit Hours: 5; Clinical Hours: 0; Lecture Hours: 5; Lab Hours: 0
- Meet Times: Monday, Wednesday, and Friday from 09:30 am to 10:55 am
- Meet Location: HSC 2120
- Course Description: Topics from elementary algebra: sets of numbers, operations with real numbers, variables, integral exponents, scientific notation, simplification of algebraic expressions, solving linear equations and inequalities in one variable, graphing linear equations, writing equations of lines, solving linear inequalities in two variables, solving systems of linear equations in two or more variables, applications, problem solving, operations with polynomials, factoring polynomials, and solving equations using factoring.
- Repeatable for Credit: NO
- Pre-Enrollment Criteria: N/A
- Prerequisite: MATH 0460 College Arithmetic with a grade of "C" or better, or equivalent or,
- Prerequisite: MATH 0461 Pre-Algebra with a grade of "C" or better, or equivalent or a qualifying score on the mathematics placement test

2. Instructor Information

- Name: Michael McCabe, M.S.
- Email: mccabem85@cod.edu
- Office: 3436B or Blackboard Collaborate
- Office Phone: 630 942 2152

- Office Hours: Labeled on Blackboard (always available by appointment)

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3. General Course Objectives

Upon successful completion of the course the student should be able to do the following:

1. Define and identify integers, rational numbers, irrational numbers, and real numbers
2. Apply the concepts of set theory to the real numbers
3. Demonstrate the ability to add, subtract, multiply, and divide signed numbers
4. Determine powers, roots, and absolute values of real numbers
5. Identify and apply the associative, commutative, and distributive properties
6. Use the order of operations to evaluate numerical expressions
7. Evaluate algebraic expressions
8. Express the prime factorization of an integer

9. Apply the rules of exponents to algebraic and numerical expressions
10. Convert standard notation to scientific notation and scientific notation to standard notation
11. Express algebraic expressions in simplest form
12. Solve linear equations with one variable
13. Solve linear inequalities with one variable, graph the solution, and express the solution in interval notation
14. Solve literal equations and formulas for a designated variable
15. Use linear equations and linear inequalities in problem solving
16. Plot points in the Cartesian coordinate system
17. Demonstrate the ability to graph a linear equation in two variables
18. Determine the slope of a line
19. Demonstrate the ability to write an equation of a line
20. Solve linear systems in two variables using graphing and algebraic techniques
21. Solve linear systems with more than two variables
22. Demonstrate the ability to graph the solution of a linear inequality in two variables
23. Demonstrate the ability to graph the solution of a system of linear inequalities
24. Use systems of linear equations in two or more variables in problem solving
25. Demonstrate the ability to add, subtract, multiply, divide, and simplify polynomials
26. Demonstrate the ability to factor polynomials using the greatest common monomial factor and grouping
27. Demonstrate the ability to factor the difference of squares, trinomials, the sum of cubes, and the difference of cubes
28. Solve equations using factoring
29. Use factoring in problem solving

4. Topical Outline

- **1.:** Sets of numbers
  - **a.:** Definition of the subsets of real numbers
  - **b.:** Union
  - **c.:** Intersection
- **2.:** Operations with signed numbers
  - **a.:** Addition, subtraction, multiplication, division, powers, and roots
  - **b.:** Prime factorization
  - **c.:** Absolute value
  - **d.:** Properties of real numbers - associative, commutative, and distributive
  - **e.:** Order of operations
  - **f.:** Properties of equations and inequalities
- **3.:** Variables
  - **a.:** Evaluation of expressions with variables
  - **b.:** The rules of exponents
  - **c.:** Integral exponents
  - **d.:** Scientific notation

- **e.:** Simplification of algebraic expressions using exponent rules, distributive rule, and nested grouping

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

5.: Linear inequalities in one variable
- **a.:** Solution of linear inequalities with one variable and interval notation
- **b.:** Solution of inequalities and their graphs
- **c.:** Compound inequalities and their graphs
- **d.:** Applications

6.: Systems of linear equations and inequalities with two variables
- **a.:** Graphical solution of systems of linear equations
- **b.:** Graphical solution of systems of linear inequalities
- **c.:** Algebraic solution of systems of linear equations
  - **i.:** Substitution method
  - **ii.:** Addition - subtraction method
- **d.:** Applications

7.: Linear systems with more than two variables
- **a.:** Algebraic solution
- **b.:** Applications

8.: Polynomials
- **a.:** Addition and subtraction
- **b.:** Multiplication
- **c.:** Division
  - **i.:** Monomial
  - **ii.:** Long division
- **d.:** Factoring polynomials
  - **i.:** Greatest common factor

ii.: Factor by grouping
iii.: Trinomials
iv.: Special factoring
A.: Perfect squares
B.: Difference of squares
C.: Difference of cubes
D.: Sum of cubes
e.: Solution of equations using factoring
f.: Applications

5. Required Texts, Materials, and Supplies

- **Required Text**: Beginning and Intermediate Algebra by Sherri Messersmith.
- **Materials**: Access code for ALEKS, notebook for taking notes in class, writing tools, and if possible a internet enabled device.
- **Supplies**: Internet, extra notebooks, and extra writing tools

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6. Schedule

6.1. Academic Calendar.

- First Day: 8/21/2023
- No Class: 9/4/2023 (Labor Day)
- Last Day to Withdraw: 11/12/2023
- Fall Break (No Class): 11/22/2023 to 11/26/2023
- Final Exam: 12/14/2023

6.2. Exam Dates (Tentative).

- Exam 1: 9/8/2023
- Exam 2: 10/6/2023
- Exam 3: 11/3/2023

6.3. Content Coverage.

- Week 1 thru 3, Chapter 1
- Week 4, Chapter 2
- Week 5 thru 7, Chapter 3
- Week 8 and 9, Chapter 4
- Week 10 and 11, Chapter 5
- Week 12, Chapter 6
- Week 13, 14, and 15, Chapter 7
- Week 16, Chapter 9
- Week 16 Wrap-up

7. Method of Evaluation

(1) Exams [Weight 40%]
  (a) No drops and no retakes.
(2) ALEKS Homework Sets [Weight 30%]
  (a) At least three of the lowest scores will be dropped.
(3) Extra Assignments [Weight 10%]

(a) Extra "Turn-In" assignments will be graded on correctness with no partial credit but unlimited attempts and hard due date.
(b) Extra "In-Class" assignments will be graded on participation with soft due date.
(c) At least three of the lowest scores will be dropped.

(4) Final Exam [Weight 20%]
(a) Test on everything covered throughout the semester (Cumulative Exam).
(b) Constructed to be completed during a 2 hour time limit on the scheduled Final Exam day.
(c) I plan to construct the Final Exam with about 20 questions.
(d) I plan to construct the Final Exam similar to twice the amount of a regular exam.

7.1. **Grade Scale.**

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

I do round.

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8. Academic Honesty

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 and productive relationships with our students. The expectation of honesty and effort is the foundation of that relationship. Academic dishonesty damages the learning partnership built between student and faculty and is considered a serious breach of the principles of learning and growth. Violations of the Code of Academic Conduct will be dealt with appropriately and may become part of a student's educational record. Please don't risk it! For further information about the expectations, please review the Code of Academic Conduct found at the following website: Code of Academic Conduct.

9. Access and Accommodations

- As a course policy, I do not accept late work/make up for My Open Math assignments, attendance, and participation. I am committed to providing fair, equal, and unbiased accommodations. If you believe that your circumstances qualify you for accommodations, please contact the Center for Access and Accommodations at access@cod.edu. Staff from the Center can help you better understand if your situation qualifies you for an accommodation.
- If you are student who is registered with the Center for Access and Accommodations, please send me your Letter of Accommodation as soon as possible.
- Please do not send me personal medical records or similar personal documents.

- Here is a to start the process for accommodations: Center for Access and Accommodations Intake Form (https://cod-accommodate.symplicity.com/public_accommodation/).

The College of DuPage is committed to the equitable access of educational opportunities for students with disabilities in accordance with The Americans with Disabilities Act, As Amended and Section 504 of the Rehabilitation Act of 1973. Any student who feels they may need an accommodation on the basis of an illness, injury, medical condition, or disability should contact the Center for Access and Accommodations to determine eligibility for accommodations and to obtain an official Letter of Accommodation. The Center for Access and Accommodations can be reached via email at access@cod.edu. Students may also initiate a request for services by going to www.cod.edu/access and clicking on the green box labeled "complete form to request accommodations." If you are already registered with the Center for Access and Accommodations, please email me your Letter of Accommodation as soon as possible. Please DO NOT send any private health documentation or Doctor's notes to me.

10. Withdraw Policy

Withdrawal from a Class. The final day for a student to withdraw from any course will be equal to 75% of the time for the respective academic session (see the Registration Calendar) through MyAccess or in person at the Registration office, Student Services Center (SSC), Room 2221.

Administrative Withdrawal. After the deadline, students will be required to appeal for late withdrawal and provide appropriate documentation to the Student Registration Services Office for all requests. Students who are granted approval to withdraw by petition will not be eligible for refunds of tuition or fees and will receive a 'W' grade on their transcript. Appeals must be submitted prior to the designated final exam period for 16-week classes and before the last class meeting for all other session classes.

Coronavirus Information. Stay up to date with information provided by the college about alternative withdrawal policies. Coronavirus Information