

**College of Dupage**  
**Math 0482-008: Foundations for College Mathematics II**  
**Monday, Wednesday 4:00 – 6:25 PM**  
**BIC 1429**

**Contact Information:**

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**Course Objectives and Topic Outline:**

Course description to appear in catalog:

Students will survey topics from elementary algebra and intermediate algebra. Topics include: operations with algebraic fractions, solving equations with the algebraic fractions, radicals and rational exponents, complex numbers, solving quadratic equations, variation, solving equations and inequalities involving absolute value, function notation, graphing functions, inverse functions, exponential and logarithmic functions, applications, and problem solving.

Repeatable for credit: No

Pre-Enrollment Criteria:

Demonstrated geometry competency (level 2) and

Prerequisite: MATH 0481 Foundations for College Mathematics I with a grade of "C" or better, or equivalent or a qualifying score on the mathematics placement test

**A. General Course Objectives:**

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

1. Demonstrate the ability to reduce rational expressions
2. Demonstrate the ability to add, subtract, multiply, and divide rational expressions
3. Express complex rational expressions in simplest form
4. Solve equations containing rational expressions
5. Solve equations and formulas containing rational expressions for a designated variable
6. Use rational expressions in problem solving
7. Convert a radical expression into an exponential expression
8. Convert an exponential expression into a radical expression
9. Express radical expressions in simplest form
10. Demonstrate the ability to add, subtract, multiply, and divide radical expressions
11. Solve equations that contain radicals
12. Demonstrate the ability to add, subtract, multiply, and divide complex numbers
13. Use radicals and complex numbers in problem solving
14. Solve quadratic equations using factoring, completing the square, and using the quadratic formula
15. Use the discriminant to describe the nature of the roots
16. Solve equations that are in quadratic form
17. Use quadratic equations in problem solving
18. Solve direct, inverse, and joint variation problems
19. Solve absolute value equations and inequalities

20. Analyze relations and functions
21. Identify the domain and range of relations from a graph
22. Demonstrate use of function notation
23. Construct the graphs of linear, quadratic, square root, and absolute value functions
24. Construct the graphs of step functions in the context of applied problems
25. Find the inverse of a linear function
26. Evaluate an exponential function
27. Construct the graph of the exponential function
28. Evaluate a logarithmic function
29. Construct the graph of the logarithmic function
30. Convert an exponential expression to logarithmic form
31. Convert a logarithmic expression to exponential form
32. Solve problems using functions

B. Topical Outline:

1. Review of topics from Math 0481
2. Algebraic fractions
  - a. Operations with fractions
    - i. Reducing fractions to lowest terms and finding equivalent fractions
    - ii. Multiplication and division of fractions
    - iii. Addition and subtraction of like fractions
    - iv. Addition and subtraction of fractions with different denominators
    - v. Simplification of complex fractions
  - b. Solution of algebraic equations involving fractions
    - i. Algebraic equations with one variable
      - A. Linear
      - B. Factorable quadratics
    - ii. Literal equations
    - iii. Applications
3. Rational exponents and radicals
  - a. Definition of rational exponents and their radical form
  - b. Simplification of radicals
  - c. Equations involving radicals
  - d. Complex numbers
  - e. Applications
4. Quadratic equations
  - a. Solutions of equations by factoring
  - b. Solutions of quadratic equations by completing the square
  - c. The quadratic formula and the use of the discriminant
  - d. Equations in quadratic form
  - e. Applications of the Pythagorean Theorem
5. Variation
  - a. Direct
  - b. Inverse
  - c. Joint
6. Absolute value equations and inequalities
7. Functions
  - a. Definition, domain, and range

- b. Function notation
- c. Graphing functions
  - i. Linear functions
  - ii. Quadratic functions
  - iii. Absolute value functions
  - iv. Step functions
- d. Inverse functions
- e. Exponential functions
- f. Logarithmic functions and their properties
- g. Applications

### **Textbook & Course Materials:**

- *Beginning and Intermediate Algebra with P.O.W.E.R. Learning, 5e*, by Messersmith, Vega-Rhodes, and Feldman (ISBN 9781265530037)
- ALEKS 360 Access Code (bundled with the textbook above. Can be purchased through the COD bookstore at [www.cod.edu/bookstore](http://www.cod.edu/bookstore))
- A steady internet connection.
- Notebook + pens/pencils

### **Classtime:**

Students are expected to attend class and PARTICIPATE. Students are responsible for all material covered in each class, even if they missed that day. Exams will be held during class time.

While in class, students should be respectful of other students as well as the instructor. All students are welcome to share their thoughts and the classroom will be an inclusive space.

Students should not distract others with their computers or cell phones. Any distractible cell phone use should be done outside the classroom. All communication between instructor and students will be conducted either through Blackboard or via a COD email account. Make sure you check your COD email regularly.

### **Homework:**

Homework will be assigned for every lecture in the ALEKS system. Students need to spend time and complete every assigned homework problem to master the material and be prepared for quizzes and exams. Homework problems may appear on quizzes and exams.

Solution guides and online step-by-step solutions should not be overused when doing homework. Students who rely on these resources tend to underperform on exams. When stuck on a problem, take the time to read class notes the textbook for related examples. Working with study partners or groups is highly recommended.

### **Quizzes:**

Some quizzes will be taken in class and some will be assigned to be taken at home using ALEKS. The course calendar will specify which quizzes will be taken in each modality.

ALEKS quizzes may require the Respondus Lockdown Browser app to run. This app can be used on computers running Windows 8+, MacOS 10.13+, or iOS 13.0+. It will *not* work with a Chromebook. This software does not require a webcam.

The lowest quiz score will be dropped before computing the quiz average in the final grade. Scratch work will not be collected for quizzes taken in ALEKS. Scratch work will be graded for quizzes taken in class. Calculators are NOT allowed on any quizzes.

### **Quiz and Homework Extensions:**

Each student will receive two 24-hour extensions on homework, no questions asked. The extension must be requested at least 24 hours before the homework is due.

Each student will receive two 48-hour extensions on quizzes, no questions asked. These extensions can apply to any quiz except the one that is proctored in class. The extension must be requested at least 24 hours before the quiz and the quiz must then be taken in the COD Testing Center during its regular hours of operation.

If there is *any* doubt that you will not be able to make a homework or quiz deadline (and you still have unused extensions), ask for an extension!

### **Exams:**

There will be three (3) midterms and a cumulative final exam given in the course in ALEKS. Every exam will be comprehensive and questions might cover any material from earlier in the semester. Each midterm may cover new as well as old material, so understanding mistakes made in previous units will be beneficial.

Scratch work will be graded on exams, and correct work will be rewarded partial credit even if the final answer is not correct.

The final exam will take place on Monday, December 12, as shown on the calendar. It is a department-wide exam and is cumulative.

The final exam grade will replace the lowest unit exam grade if that helps a student's final grade in the course.

### **Attendance Policy:**

Students are expected to attend every class and to understand material for classes they miss. Attendance and participation will make up a portion of the final grade. This includes being on time for lecture, staying through most of the lecture, and answering any questions asked to the entire class where answers should be typed in or submitted through electronic polling.

See the Quiz and Homework Extensions section for the policy regarding late work for quizzes and homework.

The exam dates are all posted on the calendar. If a student knows in advance they will not be in class that day, they must plan to take the exam on an earlier day in a COD Testing Center. These situations are planned on an individual basis and the instructor should be notified at least two days in advance. Any exam missed without consulting the instructor beforehand will receive 0 points.

Exams CANNOT be made up after their due date under any circumstances except as an accommodation required by the Center for Access and Accommodations. Quizzes cannot be made up unless a request for a quiz extension is asked for at least 24 hours before the deadline.

## Grade Calculation:

Graded Assessment	Percentage of Final Grade
Attendance	5%
Homework	10%
Quizzes	14%
Exam 1	16%
Exam 2	16%
Exam 3	16%
Final Exam	23%

Letter Grade	A	B	C	D	F
Percentage	90% and Up	80%-89%	70%-79%	60%-69%	Below 60%

## Written Style:

Student should practice and use good style when answering problems to receive any partial credit, if scratch work is turned in. That means that any answer which requires an explanation should be written in complete sentences, all mathematical notation should be consistent and make sense, and anybody reading the solutions for the first time (namely, the grader) should have no confusion as to both the final answer and the work involved to get there. For example, “ $1 + 1 = 2$ ” is a complete sentence. It has a subject ( $1+1$ ), a verb ( $=$ ) and an object ( $2$ ).

## Academic Integrity:

Students should be aware of the Code of Academic Conduct and know the consequences should the code be violated. The document can be found at

[Code of Academic Conduct](#)

If a student is caught violating the Code they will receive a grade penalty and will be reported through COD's academic integrity reporting system.

Student academic dishonesty includes but is not limited to:

- Dishonest use of course materials, such as student papers, examinations, reports and material posted on the Internet.

- Knowingly posting course materials of any kind on Internet sites such as (but not limited to) Course Hero and Chegg without the consent of the instructor.
- Knowingly assisting others in the dishonest use of course materials such as student papers, examinations and reports.
- Knowingly providing course materials such as papers, lab data, reports and/or electronic files to be used by another student as that student's own work.
- Plagiarizing, i.e., using language or ideas from materials without acknowledgement and/or copying work from other sources and submitting it as one's own.
- Examples of plagiarism include but are not limited to:
  - § Copying a phrase, a sentence, or a longer passage from a source (including an Internet source) and submitting it as one's own.
  - § Summarizing or paraphrasing someone else's ideas without acknowledging the source.
  - § Submitting group assignments individually as one's own independent work.
  - § Copying or taking pictures of course materials such as videos, exams, quizzes or assignments and posting the copied items and/or pictures on the Internet **or** sharing these copied items and/or pictures with other students who have not yet completed the assignments.
  - § Taking pictures or copying course materials that are considered confidential by the instructor such as exams or quizzes.

If an exam is being proctored, students should comply with the proctor's instructions. If a proctor accuses a student of violating the Code of Academic Conduct or not conforming to the assessment's instructions, and the student does not agree with the accusation, the student should provide countervailing evidence to support their case. Students caught violating the Code of Academic Conduct will receive a 0 on that assignment and possibly further penalties depending on the nature of the violation.

### **Center for Access and Accommodations:**

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](mailto:access@cod.edu). Students may also initiate a request for services by going to [www.cod.edu/access](http://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 the course instructor.

## **Covid-19 Policy**

Students should adhere to COD's Covid-19 safety protocols throughout the semester if visiting campus. All relevant policies regarding masking, vaccinations, reporting can be found on the COD website at

<https://www.cod.edu/coronavirus/index.aspx>

If you have been exposed to Covid-19 or have been diagnosed with Covid-19, please fill out the Student Self-Reporting form at

[https://cm.maxient.com/reportingform.php?CollegeofDuPage&layout\\_id=9](https://cm.maxient.com/reportingform.php?CollegeofDuPage&layout_id=9)

## **Withdrawal Policy:**

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 the COD portal <https://inside.code.edu> or in person at the Registration office, Student Services Center (SSC), Room 2221.

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