

**NorthCentral**  
**MISSOURI COLLEGE**  
Course Outline  
Brush Up (Pre/Basic Algebra)

**Instructor Information:**

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**Brush Up Description:** Student learning outcomes include: whole numbers, fractions, and decimal operations and properties, ratios and proportions, signed number operations, basic geometry concepts, and units of measurement, introduction to statistics, order of operations, solving linear equations and inequalities, introduction to graphing in a rectangular coordinate system, simplifying polynomial expression, factoring, and solving quadratic equations with an emphasis on problem solving. This week long workshop is designed to help students “brush up” on their math skills enough to test a level higher, whether that is Basic Algebra or Intermediate Algebra. The placement test will be given at the end of the week to determine if they were successful. Students will meet 8-12 a.m. Monday–Thursday and 8-completion of exams on Friday.

**Eligibility:** Placement into Pre or Basic Algebra

**Supplementary Materials:**

OER: [www.edready.org](http://www.edready.org)  
Calculator: TI-30XIIS

**Brush Up Objectives:**

<b>Brush Up Objective</b>	<b>Assessment Method</b>
Upon successful completion of this workshop the student will be able to:	Describe the assessment tool/s used to demonstrate each student learning outcome.
1. Add, subtract, multiply, and divide integers, fractions and mixed numbers, and decimals.	EdReady Unit Test Compass Test
2. Solve problems about percent.	EdReady Unit Test Compass Test

3. Solve linear equations and inequalities containing multiple terms, fractions and/or decimals; manipulate formulas for an identified variable, and solve real-world application problems by expressing them as linear equations that can be solved.	EdReady Unit Test Compass Test
4. Graph linear equations in two variables using t-tables, slope-intercept and double intercept; and find and interpret slope as a rate of change	EdReady Unit Test Compass Test
5. Add, subtract, multiply, and divide polynomials	EdReady Unit Test Compass Test
6. Factor polynomials, solve polynomial equations by using the zero product property	EdReady Unit Test Compass Test
7. Simplify radicals, add & multiply expressions containing radicals, solve equations using the quadratic formula	EdReady Unit Test Compass Test

**Course Outline/Major Topics Studied:**

1. Add, subtract, multiply, and divide whole numbers
2. Add, subtract, multiply, and divide integers
3. Add, subtract, multiply, and divide fractions and mixed numbers
4. Add, subtract, multiply, and divide decimals
5. Simplify expressions containing integers, fractions, and/or decimals using order of operations
6. Use percents to solve simple equations and application questions.
7. Use algebra to simplify expressions containing like terms and solve simple linear equations
8. Solve geometry problems including perimeter, area, and volume.
9. Simplifying and evaluating algebraic expressions
10. Solving linear equations using addition (subtraction) property of equality and multiplication (division) property of equality
11. Solving linear inequalities and applications
12. Working with formulas
13. Working Applications: number problems, consecutive integers, percent problems, geometry
14. Demonstrate your understanding of Cartesian Coordinate Systems and reading graphs
15. Graphing linear equations in two variables:  $ax + by = c$
16. Using Slope intercept form

17. Solving systems of equations by graphing, substitution, and elimination
18. Applying Exponent rules
19. Demonstrating Exponent rules and scientific notation
20. Using vocabulary associated with polynomials
21. Add, subtract, multiply (including special products), and divide polynomials
22. Factor using greatest common factor and factor by grouping
23. Factoring trinomials in the forms:  $x^2 + bx + c$  and  $ax^2 + bx + c$
24. Factoring special binomials: difference of squares, sum/difference of cubes, and perfect square trinomials
25. Solving quadratic equations by factoring and by quadratic formula
26. Demonstrate your understanding of application of quadratic equations
27. Reducing, multiplying and dividing rational expressions
28. Simplifying radicals
29. Adding and subtracting radicals
30. Solving equations containing radicals
31. Calculator Use

### **Brush Up Components:**

1. EdReady, an open education resource, is a personally tailored math remediation system that guides students' instruction based on their current ability. The students begin with a placement test that helps them determine their study path. Each lesson on the study path gives students a warm-up, presentation, worked examples, practice and review. Students are able to pick which of these they want to work through based on the amount of review needed. When finished reviewing a topic, they take a test over each unit in order to see if they have mastered the topic. While students work on EdReady the instructor will move around the classroom to give individualized help.
2. Classroom Instruction is based off of the study paths created by EdReady. The instructor will work through the topics that consistently need attention when looking at the group as a whole. This was primarily lecture based where the instructor focuses on reviewing definitions, formulas and rules, as well as working out examples. Another significant aspect of this is training the student on how to use scientific calculators.
3. Brain Breaks are frequently given. These are short, fun activities that get the students up and moving as well as working together.
4. Testing Strategies and the format of the placement exam are reviewed and discussed.
5. Pre/Post Surveys are given to each group in order to see what students like, dislike, would change, etc.

### **Instructional Methods and Techniques:**

1. Lecture
2. Demonstration
3. Class discussion
4. Individual work on edready.org

5. The workshop is designed to review the students' skills only, not to teach new material

### **Brush Up Requirements:**

This workshop is NOT for credit.

A. HOMEWORK is recommended.

- You will be given an individualized study path with recommendations on what to complete each afternoon/evening.

B. PLACEMENT TEST:

- The Math Department Challenge Test will be given on the last day of the Brush Up to determine if the student will be able to move up a level or higher.

C. WORKKEYS Test:

- Mandatory test to be considered a participant. With this test you can earn a National Career Readiness Certificate.

### **Attendance and Class Participation:**

Attendance **every day** is expected for all students. This is a 5 day workshop so missing one day is unacceptable. Absences reduce the value of the learning experience and reduce the probability of testing into a higher level course.

### **Additional Information:**

- TAKE NOTES.
- **You will get out of this brush up what you put in. Remember testing a level higher will save you both time and money.**
- Respect for one another and the ability to work with others is necessary for your success in the classroom as well as in your current and future employment.
- If phones and/or pagers are brought to class, they must be silent. **No texting** during class. Phones should be placed face down on your table and left alone until the conclusion of class.

### **Communications:**

Students are required to use their NCMC student email account for any correspondence within the college. Students are also highly advised to check their email daily.

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