# Georgia Perimeter College
## Common Course Outline

<table>
<thead>
<tr>
<th>Course Abbreviation &amp; Number:</th>
<th>Math 0989</th>
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</thead>
<tbody>
<tr>
<td><strong>Course Title:</strong></td>
<td>Foundations for College Algebra</td>
</tr>
<tr>
<td><strong>Credit Hours:</strong></td>
<td>3 semester hours</td>
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<tr>
<td><strong>Prerequisites:</strong></td>
<td>Placement</td>
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<tr>
<td><strong>Co-requisites:</strong></td>
<td>None</td>
</tr>
</tbody>
</table>

### Course Description:

This is the first course in a year-long pathway leading to MATH 0999 and MATH 1111 in the second semester. This course is designed to prepare STEM major students for Math 1111 College Algebra. Topics will include: real-number concepts, signed number arithmetic, selected geometry concepts, linear equations and inequalities in one variable, problem solving involving linear equations as models, operations on polynomials, factoring polynomials, solving rational equations, graphing linear equations in two variables, writing equations of lines, integer and rational exponents, systems of equations in two variables, and calculator usage.

### Expected Educational Results:

As a result of completing this course, the student will be able to do the following:

1. Perform the four arithmetic operations with signed numbers.
2. Perform the four arithmetic operations with fractions.
3. Construct correct expressions and equations using algebraic symbols and notations from statements.
4. Evaluate linear and quadratic expressions.
5. Solve geometric problems including area and perimeter of triangles, rectangles, and circles. Find the volume of a box.
6. Use the Pythagorean Theorem.
7. Recognize and apply angle relationships involving lines and triangles.
8. Determine the absolute value of a numerical expression.
9. Solve applications for which linear equations are mathematical models.
10. Add, subtract, multiply, and factor polynomials. Divide a polynomial by a monomial.
11. Solve the following types of equations:
   a. Linear
b. Quadratic with real solutions  
c. Rational leading to linear or quadratic  
d. Polynomial of degree higher than two by factoring  
12. Solve linear inequalities, write the solution set in interval notation, and graph the solution set on the number line.  
13. Perform the following activities with lines:  
   a. Graph linear equations in standard form and slope-intercept form.  
   b. Find the slope of a line.  
   c. Write the equation of a line.  
   d. Determine if lines are parallel or perpendicular.  
14. Solve problems involving real square roots with the aid of a calculator.  
15. Solve problems involving order of operations.  
16. Solve problems involving scientific notation with the aid of a calculator.  
17. Apply properties of exponents with integer and rational exponents.  
18. Solve a system of two linear equations in two variables (having no, one, or many solutions) by graphing, substitution, or elimination.  
19. Use a graphing calculator.  

General Educational Outcomes:  
1. Students produce well-organized communication that exhibits logical thinking and organization, use appropriate style for audience and meet conventional standards of usage.  
   o They use the logic of mathematics to manipulate expressions and perform calculations  
   o They write mathematics correctly and precisely  
2. Students demonstrate the ability to interpret and analyze quantitative information; apply mathematical principles and techniques; and to use mathematical models to solve applied problems.  
3. Students demonstrate effective problem-solving and critical thinking skills through interpreting, presenting or evaluating ideas.  
   o They solve application problems of several types  
   o They determine which method to use to solve various problems  
   o They read mathematics and understand its precise terminology  

Course Content:  
I. Real numbers  
II. Expressions and equations  
III. Linear equations and inequalities in one variable  
IV. Geometric concepts  
V. Exponents and polynomials  
VI. Factoring in expressions and equations  
VII. Linear equations in two variables  
VIII. Rational equations  
IX. Quadratic equations in one variable  
X. Simplifying radicals  

Assessment of Outcome Objectives  

Course Grade:
Evaluation methods may include, but are not limited to, computerized module assignments, module exams, a final exam, attendance, and notebook grades. The departmental final exam will be developed by a committee of faculty. Relative weights of grade components will be determined by the committee.

**Course Assessment:**

The Mathematics, Computer Science, and Engineering Discipline Group will determine the assessment schedule. The assessment instrument will be designed by the college-wide Foundations Mathematics course committee based on the expected educational results of the course.

**Use of Assessment Findings:**

The Foundations Mathematics course committee will discuss each assessment and recommend to the MCSE Discipline Group curriculum changes or instructional modifications to enhance student achievement of the desired education outcomes.

**Last Revised:**

EFFECTIVE DATE: Fall 2015  APPROVED DATE: ____________
Reviewed by Committee: ____________