GEORGIA PERIMETER COLLEGE LEARNING SUPPORT
COMPREHENSIVE COURSE GUIDE

COURSE ABBREVIATION MATH 0098
COURSE TITLE PRE-COLLEGE ALGEBRA
CREDIT HOURS 4 hours institutional credit (does not count toward a degree)
PREREQUISITES Placement by examination

CATALOG DESCRIPTION
This course is designed to prepare students for college level mathematics. Topics will include: real-number concepts, selected geometry concepts, linear equations and inequalities in one variable, problem solving involving linear or factorable quadratic equations as models, operations on polynomials, factoring polynomials, integral exponents, graphing linear and quadratic equations in two variables, rational expressions, function notation, integral and rational exponents, solving absolute value and quadratic equations and inequalities, solving rational and radical equations, problem solving involving linear equations, rational equations, quadratic equations, and systems of equations in two variables, and writing equations of lines, operations with radicals and complex numbers, geometric concepts, and calculator usage.

TEXT, SOFTWARE, AND CALCULATOR
- REQUIRED: A 52-Week ALEKS 360 Access Code which may be purchased at the bookstore or online. This code provides access to the ALEKS (Assessment & Learning in Knowledge Spaces) computer-based learning system and to the media-rich eTextbook: Beginning and Intermediate Algebra (1st edition) by Hendricks and Chow, McGraw-Hill Publishing, 2013.
- OPTIONAL: For those students who would like to have a hard-copy version of the eTextbook in addition to the above required materials, a packaged bundle of a full-color, three-hole punched, loose-leaf text can be purchased at campus bookstores bundled along with the 52-Week ALEKS 360 Code. Please note that neither the hard-copy text nor the access code can be sold back to the bookstore after bundle has been opened.
- RECOMMENDED: A TI-83 or TI-84 graphing calculator

OPTIONAL MATERIALS AND HELP FOR STUDENTS
- Free tutors in Learning and Tutoring Center (LTC)
- Loose leaf color copy of the text
- Students Solution Manual
- Success Strategies Manual
- Guided Student Workbook

SUPPLEMENTARY MATERIALS
- In the non-print section of the LRC: videotapes and CD ROMS of the videotapes
- Lecture Videos, Exercise Videos, and Troubleshooting Common Errors videos in ALEKS-360

GENERAL COURSE PURPOSE
To provide the student with the necessary skills and techniques to be successful in college level mathematics as well as to provide the student with skills to apply these concepts to real world problems.

COURSE CONTENT
1. Real numbers, expressions, and equations
2. Exponents, polynomials, and function notation
3. Linear equations, inequalities, and functions in one variable
4. Factoring in expressions, equations, and functions
5. Linear equations in two variables plus geometric concepts in one and two variables
6. Rational expressions, equations, and functions
7. Quadratic equations and functions in one variable with parabolas and geometric concepts
8. Radical expressions, equations, and functions along with complex numbers
9. Absolute value equations, inequalities, and functions plus non-linear inequalities in one variable

ENTRY LEVEL COMPETENCIES
Upon entering this course, the student should be able to do the following:
1. Define and identify the factors and multiples of a number
2. Determine the greatest common factor of two or more given numbers
3. Determine the least common multiple of two or more given numbers
4. Solve real world applications involving whole numbers, fractions, decimals, and percents
5. Find the perimeter of polygons
6. Find the circumference of a circle
7. Find the area of a square, rectangle, triangle, parallelogram, circle, and trapezoid
8. Recognize and apply angle relationships within triangles, quadrilaterals, vertical and alternate interior angles
9. Translate an English phrase into a mathematical expression and a mathematical expression into an English phrase.
10. Interpret results displayed in bar graphs, line graphs, or pie graphs
EXPECTED EDUCATIONAL RESULTS
As a result of completing this course, the student will be able to do the following:
1. Apply or recognize properties of real numbers (commutative, associative, and distributive).
2. Classify real numbers as integers, rational, or irrational.
3. Perform the four arithmetic operations with signed numbers.
4. Determine the absolute value of a numerical expression.
5. Construct correct expressions using algebraic symbols and notations from statements.
6. Use algebraic symbols and notation to make meaningful statements. Understand and use function notation.
7. Solve applications for which linear equations, quadratic equations and linear systems are mathematical models.
8. Add, subtract, multiply and factor polynomials. Divide a polynomial by a monomial.
9. Solve the following types of equations:
   a. Linear and linear literal
   b. Quadratic with real and non-real solutions
   c. Absolute value of the form: absolute value = constant
   d. Rational leading to linear or quadratic
   e. Polynomial of degree higher than two by factoring
   f. Radical leading to linear or quadratic
10. Solve inequalities, write the solution set in interval notation and graph the solution set on the number line:
    a. Linear
    b. Factorable quadratic
    c. Absolute value < or > constant
    d. Factorable polynomial of degree higher than two
11. 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. State if lines are parallel or perpendicular
    e. Use the distance and midpoint formulas
12. Solve problems involving square roots, order of operations, and scientific notation with the aid of a calculator.
13. Apply properties of exponents with integral and rational exponents.
14. Solve geometric problems including area and perimeter of triangles, rectangles and circles. Find the volume of a box. Use the Pythagorean Theorem.
15. Recognize and apply angle relationships including vertical angles, supplementary and complementary angles, and those in triangles.
16. Add, subtract, multiply and divide rational expressions.
17. Solve a system of two linear equations in two variables (having no, one, or many solutions) by graphing, substitution or elimination.
18. Perform operations with complex numbers (excluding division).
19. Perform the four basic operations with radicals (excluding rationalizing).
20. Graph quadratic functions.
21. Use a graphing calculator.

COURSE REQUIREMENTS
To pass MATH 0098, students must satisfactorily meet the following requirements:
1. Complete ALEKS assignments, in-class assignments, and other course expectations
2. Achieve a coursework average of seventy percent (70%) or higher

NOTE: Grades of A, B, and C indicate satisfactory work.
POLICIES

1. Grades: Grades in Learning Support classes will be assigned as follows:
   A = 90-100
   B = 80-89
   C = 70-79
   IP = 60-69
   F = 0-59
   W = Withdrawal by mid-term
   WF = Student initiated withdrawal after mid-term

2. Attempts: Students must complete MATH 0098 in three attempts or they will be suspended from Georgia Perimeter College and all University System institutions for one (1) year. Attempts are cumulative within the Regent’s System.
   Students who earn a grade of IP, F, W or WF must repeat the course. All grades except W count as attempts. Grades of A, B, and C are successful attempts. Grades of IP, F, and WF are unsuccessful attempts.

3. Attendance: In accordance with GPC Policy, instructors will keep accurate attendance records. Students are expected to attend all classes regularly and punctually. Students who arrive late should report to the instructor at the end of class.

4. Withdrawals:
   Note: If you withdraw or are withdrawn from a class, your financial aid eligibility may be affected. Always check with a financial aid counselor before you stop attending a class.
   a. When withdrawals are initiated by the mid-term deadline, students will receive a grade of W.
   b. Students who are taking both Learning Support courses and collegiate-level courses and withdraw or are withdrawn from one or more required Learning Support course before mid-semester will also be withdrawn from all collegiate-level courses except GPCS 1010 and activity PE classes. They may, however, drop the collegiate-level course and remain in the Learning Support course(s).
   c. Students who are taking only Learning Support courses may withdraw from one or more of these courses to reduce course load.
   d. Students who withdraw from a Learning Support course after mid-term will receive a grade of WF.
   e. Learning Support mathematics instructors will not withdraw students from their classes under any circumstances. Withdrawals from Learning Support mathematics classes are solely the responsibility of the student.

5. Make-up work: The instructor will determine the make-up policy for this course.

6. State and federal legislation protect all copyrighted software. Any reproduction of this software without written permission is a violation of the law.

7. Academic Respect: The College exists to foster educational excellence. To this end, a classroom atmosphere, which supports learning, must be maintained. Students are expected to be active, attentive participants in the class. Students are also expected to abide by class policies and procedures and to treat faculty and other students in a professional, respectful manner. Students are expected to be familiar with the student conduct code published in the Student Handbook.

Effective Fall 2014