SYLLABUS

Code: **MATH 015**   **Title**: **PREALGEBRA**

Institute: STEM   **Department: MATHEMATICS**

Course Description: This course prepares students for elementary algebra. Operations with whole numbers, fractions, decimals, and integers are reinforced through application problems. Other topics include organizing data in tables and graphs, formulas, ratio and proportion, percent, practical geometry, evaluating algebraic expressions, graphing in the rectangular coordinate system, making input/output tables, absolute value, measurement conversion between American and metric units, and solving simple algebraic equations. This is a developmental course and will not be counted towards degree requirements.
NOTE: Students taking MATH 015 may not enroll simultaneously in any other math course.

Prerequisites: None.

Credits: 4   **Lecture Hours:**   4   **Lab:** 0

REQUIRED TEXTBOOK/MATERIALS:

1. **Textbook:** Miller, Julie, O'Neill, Molly, and Hyde, Nancy, *Prealgebra*.

    Note: Connect Math will be required for online homework in some sections. Check with your instructor. The College bookstore sells the textbook in a bundle which includes a Connect Math access code.

2. **Notebook***:* You should use a loose-leaf notebook. Use a section of the notebook for class notes and in-class problem solving, and a different section for homework. A loose-leaf notebook is preferred over a spiral-bound notebook since your instructor may wish to collect assignments periodically. Returned assignments, labs, tests, and quizzes can be reinserted into their proper location in a loose-leaf notebook.

3. **Calculator:** You will need a scientific calculator for this course, like the TI-30x Multiview. Calculator based questions will be included throughout the course and the calculator will be used to explore and develop concepts. You will not be allowed to use your cell phone as a calculator.

4. **Ruler:** You will need a 6-inch or 12-inch ruler with a centimeter scale.

5. **Computer:** If your instructor uses computer components for the course, you must have access to a computer with internet capability. You may use the computers in the Bankier Library or the Math Lab.

SYLLABUS

ADDITIONAL TIME REQUIREMENTS:

OTHER TIME COMMITMENTS:
- In addition to the regular class hours, you will need to set aside time each week for homework. The weekly time will vary by topic and level of difficulty, but as an estimate, you should expect two homework hours for *each* class hour per week. For example, if your class meets for four hours per week, you should expect to spend about *eight* hours per week on homework.
- If you are having any difficulty with the course material, you may need to allow time to see your instructor during office hours or to get help in the Math Lab.

COURSE LEARNING OUTCOMES:
Upon completion of this course, students will be able to:
- Demonstrate the mathematical skills appropriate to this course.
- Analyze and solve application problems.
- Interpret solutions in the context of the situation.

COURSE GOAL:
Upon completion of this course, students will be able to:
- Successfully participate in subsequent related courses.

GRADING STANDARD: In this course, you will be evaluated by means of tests, labs, quizzes, and possibly homework.

A. TESTS

There will be three tests, one after each unit. Each test is cumulative and covers material from the beginning of the course. All supporting work must be shown on tests in order for your instructor to properly assess your understanding of the material. The tests will be given in class and it is expected that you will be in class to take the test on the day it is given. If you are very ill (verifiable with a doctor's note) or you have some other emergency, you *must* contact your instructor immediately.

Retesting for Test 1 and Test 2: If you pass a test with a grade of 70 or higher, you may not retest for a higher grade. For Test 1, if your grade is below 70, you have <u>one </u>opportunity for a retest. For Test 2, if your grade is below 70, you have <u>one </u>opportunity for a retest. The decision about retesting should be made in consultation with your instructor. A passing retest grade is recorded as a 70.   Before retesting you *must* meet with your instructor and be prepared to show all your homework and corrections on the test. Your instructor may require additional work and/or a special session in the Math Lab. Your instructor will determine when you are ready for the retest. The retest must be taken within two weeks of the day the test was given in class, unless your instructor has made different arrangements. The grade on the retest, which will not be recorded as higher than 70, will be the grade used to compute your average for the course.

B. QUIZZES/HOMEWORK

There are two or more in-class quizzes per unit and your instructor may also choose to use certain homework assignments for evaluation. At the end of the semester, your grades on the quizzes will be used to form your "Quiz Grade". Your instructor may choose to use online quizzes and online homework assignments as part of your course grade.

SYLLABUS

C. LABS

A portion of class time will be used for activities designed to help you learn. Some examples are: labs, group work, writing, and computer and calculator exercises. You will be graded on your participation and performance during each lab session and activity. At the end of the semester your grades will be used to form your "Lab Grade."

GRADING

Each test is graded on the basis of 100 points. The labs are averaged to form your "lab grade". The quizzes are averaged to form your "quiz grade." Your final course average is determined by a weighted average as follows:

Test 1	20%
Test 2	30%
Test 3	30%
Lab/Homework/Quiz Grade	20%

FINAL GRADE

Your final grade is determined as follows:

If your final course average is	Your final grade is
90 – 100	A
88 – 89	A-
86 – 87	B+
80 – 85	B
78 – 79	B-
76 – 77	C+
70 – 75	C
65– 69	F or INC (see below)
Below 65	F

Incomplete

INC is only given at the discretion of your instructor. This may occur:
1. If your final average is 65 – 69. In this case, you must pass a comprehensive final exam with a minimum grade of 70 to earn a grade of C for the course. Failure to pass this test will result in a grade of F.
OR
2. In documented cases of hardship or emergency. In this case, you must meet with your instructor to discuss the work that must be completed to earn a grade in the course.

All work must be completed within 21 days after the end of the term, exclusive of official college closings.

Withdrawal

You may withdraw from the course, without penalty, up to a date set by the College. If you do not withdraw from the course but stop attending, your grade at the end of the semester will be F.

SYLLABUS

COURSE CONTENT: **(TEXT SECTION)**

Unit 1: In this unit, you will perform arithmetic operations, solve equations, and solve application problems with whole numbers and integers. You will be introduced to algebraic expressions.

Unit 1 Outcomes: You will:
o   Learn tips on becoming a successful math student (1.1)
o   Identify place value, write numbers in standard notation, compare whole numbers on a number line (1.2)
o   Perform arithmetic operations with whole numbers using a calculator (1.3, 1.5, 1.6)
o   Recognize the properties of whole numbers (1.3, 1.5, 1.6)
o   Round and estimate whole numbers (1.4)
o   Find perimeter and area of geometric figures (1.3, 1.5)
o   Evaluate expressions with exponents and square roots; apply order of operations (1.7)
o   Solve application problems involving whole numbers; calculate the mean of a set of numbers (1.8)
o   Compare integers on a number line, find absolute values and opposites of integers (2.1)
o   Perform arithmetic operations with integers using a calculator (2.1 – 2.4)
o   Evaluate expressions, apply order of operations, and solve application problems using integers (2.5)
o   Recognize properties of real numbers applied to algebraic expressions (3.1)
o   Simplify algebraic expressions using the distributive property of multiplication over addition (3.1)
o   Solve linear equations in one variable (3.2, 3.3)
o   Solve linear equations with multiple steps (3.4)
o   Translate verbal statements into equations and solve applications of linear equations (3.5)

Unit 2: In this unit, you will perform arithmetic operations, solve equations, and solve application problems with fractions and decimals. You will be also be introduced to ratios and rates.

Unit 2 Outcomes: You will:
o   Locate fractions on a number line and represent them in a variety of ways: picture form, as equivalent fractions, as mixed numbers and improper fractions (4.1)
o   Simplify fractions (4.2)
o   Perform basic arithmetic operations with fractions by hand and with a calculator (4.2 – 4.5)
o   Compare and order fractions (4.4)
o   Estimate solutions of addition problems with mixed numbers (4.6)
o   Solve application problems involving fractions (4.2 – 4.6)
o   Evaluate and apply order of operations to expressions with fractions and simplify complex fractions (4.7)
o   Solve equations with fractions (4.8)
o   Read, write, estimate and round decimal numbers (5.1)
o   Perform basic arithmetic operations with decimals using a calculator (5.2 – 5.4)
o   Find the circumference and area of a circle (5.3)

SYLLABUS

- o Know how to use the π key on your calculator and round answers to the appropriate place value (5.3)
- o Write rational numbers in various forms: mixed number, fraction, decimal, whole number; evaluate and apply order of operations to expressions with rational numbers (5.5)
- o Determine if a number is rational or irrational (5.5)
- o Solve equations and solve application problems with rational numbers (5.6)
- o Evaluate the mean, median and mode of a set of numbers (5.7)
- o Interpret the meaning of a ratio (6.1)
- o Write a ratio in three different forms (6.1)
- o Write a ratio as a fraction in simplest form (6.1)
- o Solve application problems involving ratios (6.1)
- o Interpret the meaning of a rate and a unit rate (6.2)
- o Write a rate as a fraction in simplest form (6.2)
- o Solve application problems involving rates (6.2)

Unit 3: In this unit, you will study proportions. You will perform arithmetic operations, solve equations, and solve application problems using percents. You will apply metric units and convert to U.S. Customary units. You will apply the Pythagorean Theorem. You will also plot points in a rectangular coordinate system.

Unit 3 Outcomes: You will:
- o Use the cross product to determine if a true proportion exists and to solve a proportion (6.3)
- o Solve application problems involving proportions (6.4)
- o Convert among fractions, decimals, and percents (7.1)
- o Use mental math to solve percent problems (7.1)
- o Know the basic percent equation, Amount = (p%)(base), and identify the values that correspond to the amount, the percent and the base (7.3)
- o Solve application problems involving percents using the basic percent equation (7.3)
- o Solve the following types of percent problems using the basic percent equation: Percent Increase/Decrease, Commission, Sales Tax, and other consumer math applications (7.4)
- o Solve application problems for simple interest using I = Prt (7.5)
- o Apply and convert within the basic U. S. Customary measurement system (8.1)
- o Determine which metric unit is used for capacity, weight and length (8.2)
- o Apply and convert between the more commonly used units in the metric system (8.2)
- o Apply conversion factors between the metric system and U. S. Customary measurement system; solve application problems (8.3)
- o Solve application problems involving the Pythagorean Theorem (8.6)
- o Find the volume of a rectangular solid (8.8)
- o Graph points in a rectangular coordinate system and graph ordered pairs in an application (input-output table) (9.1)

SYLLABUS

The Math Department wants you to be successful in this course. Because of this, we have compiled a list of strategies and behaviors.

Attendance and class participation
- If you want to be successful in this course, attend every class.
- Come to class on time, and stay for the entire class period. If you are late or leave during class, you will miss important class material and you will also distract your classmates and your instructor. (See the Student Conduct Code)
- Turn off your cell phone during class. You and your classmates need to be free from distractions. (See the Student Conduct Code)
- Bring your book, notebook, calculator, and ruler to every class.
- Respect your classmates and your instructor. Listen carefully to questions asked and answers given. Treat all questions with respect.
- Participate fully in class. Volunteer answers, work problems, take careful notes, and engage in discussions about the material. Use computers only for designated work. Above all, stay on task.
- Contribute your share to your in-class group work and do your best to make the group experience a positive one for all members.
- Do your own work on tests and quizzes. Cheating will not be tolerated. (See the Academic Integrity Code.)

Homework
- Homework is the way you practice the ideas and skills that are introduced in class. To be successful on the tests, you must do the homework. Homework may be collected and homework questions may be included on quizzes or tests. All the homework assignments are on the Math 015 homework assignment sheets which your instructor will give you, or in Connect Math (see Required Materials). Homework may be online and may be graded.
- When you do the homework, write down all supporting work. Using the correct process is at least as important as getting the correct answer, so your work and steps are very important.
- Remember to check your answers. They will either be in the back of the text or in the homework assignment packet. There is a complete solutions manual for the textbook in the Math Lab.
- If there are questions you can't get or don't understand, ask about them at the beginning of the next class. If you have trouble with more than a few problems, try starting your homework in the Math Lab, where help is available.

Absence
- If you are sick and an absence is unavoidable, please call or email your instructor. You are still responsible for all material that was covered during your absence. You are expected to read the textbook and do the homework.
- Make time to see your instructor when you return so that you can get any papers you missed.
- You will not be able to make up labs or quizzes.
- Remember that you are expected to be in class for the tests.

SYLLABUS

Getting Help

After you have tried the homework, there are ways to get help:

- Look in your text and your class notes for examples similar to the problems you are finding difficult.
- See your instructor during office hours or make an appointment. Bring the work you have done.
- Go to the **Math Lab** to get extra help on your homework or simply go and do your homework there. Someone will be there if you get stuck. You don't need an appointment to use the Math Lab.
- Form a **study group** with other class members. Working with other students can be a great way to learn. If you have a group to work with, consider meeting and working together in the Math Lab.
- Your textbook may have a complete solutions manual available in the Math Lab, which can be used in the Math Lab.
- You can use the computers in the computer lab within the Math Lab to do work related to your math course.
- In the Math Lab, you can get help on how to use your calculator.

Visit the **Math Lab website** to view hours and other useful information about the Math Lab.

COLLEGE POLICIES:

For information regarding:
- ♦ Brookdale's Academic Integrity Code
- ♦ Student Conduct Code
- ♦ Student Grade Appeal Process

Please refer to the **BCC STUDENT HANDBOOK AND BCC CATALOG.**

NOTIFICATION FOR STUDENTS WITH DISABILITIES:

Brookdale Community College offers reasonable accommodations and/or services to persons with disabilities. Students with disabilities who wish to self-identify must contact the Disabilities Services Office at 732-224-2730 (voice) or 732-842-4211 (TTY) to provide appropriate documentation of the disability, and request specific accommodations or services. If a student qualifies, reasonable accommodations and/or services, which are appropriate for the college level and are recommended in the documentation, can be approved.