

MATH 081 – Pre-Algebra covers fractions, decimals, ratios, rates, proportions, percent, basic statistics, U.S. and Metric units of measurement, perimeter, area, volume, operations on signed numbers, and basic algebraic expressions and equations. Successful participation and completion of this course require that student skills be at the secondary level.

MATH 082 – Introductory Algebra covers first degree equations and inequalities, linear equations, systems of equations, polynomials, and factoring.

Prerequisite: ASE MATH or a satisfactory score on the math placement test, and RDNG 051.

I. Basic Course Information

A. Professor's Name: **Sarah "Kate" Abromaitis**

B. Instructor's office room number: **MASH 401**

Contact Information: **Phone- 443-840-2644**

E-mail: sabromaitis@ccbcmd.edu

C. Instructor's office hours: **MWF: 9:30-10:10am, 12-1pm**

Tuesday: 9:30-11am, 2-2:30pm

Thursday: 9:30-11am, 2-3:00pm

D. Mathematics Department Phone Number (Essex): 443-840-2662

E. Class meeting day(s), time(s) and location(s):

Tuesday and Thursday 11:10-2pm

F. Out of Class Work Expectations:

This is a **6 credit/billable hour course offered over 14 weeks**. The student is expected to complete **at least 12 hours** of work **per week** outside of the class including reading, class preparation, homework, studying, etc.

G. Materials

1. Textbook(s):

Math 081: We will be using supplement worksheets for 081 material. You may purchase (it is not required) the Math 081 text book at our bookstore if you would like to have all the practice problems and practice tests; *Math 081, Basic Mathematics for College Students, 3rd Edition*.

Math 082: *Introductory and Intermediate Algebra; For College Students*, (4th ed.) by Blitzer. **THIS BOOK IS REQUIRED**

2. Calculator:

A calculator can be used in Math 081/082. The following calculators will be useful in Math 081/082/083; TI-83, TI-84, or TI-30XIIS. Calculators with advanced capabilities, such as a TI-89 are not permitted for use. You can not use your cell phone on any proctored tests or quizzes.

II. Course Goals Overall

A. Course objectives

Math 081:

Upon completion of this course students will be able to:

1. Perform operations on fractions and decimals.
2. Solve fraction and decimal word problems.
3. Interpret ratios.
4. Solve proportions.
5. Solve percent problems.
6. Conversion to percents from fractions and decimals.
7. Evaluate whole numbers with exponents.
8. Calculate perimeter, area, and volume of geometric figures.
9. Use Order of Operations to simplify expressions.
10. Convert units of measurement within both the U.S. and Metric systems.
11. Calculate mean, median, and mode.
12. Read and interpret graphs (bar, circle, line).
13. Perform arithmetic operations on signed numbers
14. Use Order of Operations on signed numbers
15. Solve equations using the Addition Property
16. Solve equations using the Multiplication Property
17. Solve equations using both properties
18. Translate English sentences to mathematics
19. Translate and solve equations

Math 082:

Upon completion of this course students will be able to:

1. solve linear equations in one variable;
2. solve application problems using linear equations;
3. solve linear inequalities in one variable;
4. solve application problems using linear inequalities;
5. interpret and calculate slopes;
6. determine equations of lines;
7. apply rules of integer exponents;
8. perform operations on polynomials;
9. factor polynomials and trinomials of the form $ax^2 + bx + c$;
10. solve quadratic equations by factoring;
11. graph linear equations;
12. solve systems of linear equations; and
13. solve application problems using linear systems.

B. Major Topics as listed on the official Common Course Outline

Math 081:

- I. Signed Numbers
 - a. Simplify expressions with integers
 - b. Simplify expressions with fractions
 - c. Simplify expressions with decimals
 - d. Solve applications problems
 - e. Use order of operations to simplify expressions
- II. Ratio and Proportion
 - a. Calculate using ratios, rates, and proportions
 - b. Solve proportion problems
- III. Percent
 - a. Define and convert percent
 - b. Solve percent problems
 - c. Solve application problems
- IV. Units of Measurement and Geometry
 - a. Use units of length, mass, and capacity
 - b. Calculate perimeter, area, and volume of geometric figures
- V. Statistics
 - a. Read and interpret graphs
 - b. Calculate measures of central tendency
- VI. Introduction to Algebra
 - a. Introduce concept of variables
 - b. Simplify algebraic expressions
 - c. Solve basic algebraic equations

Math 082:

- I. Linear Equations in One Variable
 - A. Solve linear equations using algebraic properties.
 - B. Solve application problems.
 - C. Solve literal equations including formulas.
- II. Linear Inequalities in One Variable
 - A. Solve linear inequalities.
 - B. Solve compound inequalities.
- III. Graphs of Linear Equations
 - A. Use rectangular coordinate system.
 - B. Find slope of a line.
 - C. Graph linear equations.
- IV. Systems of Linear Equations
 - A. Solve systems by the graphing method.
 - B. Solve systems by the substitution method.
 - C. Solve systems by the addition method.
 - D. Solve application problems using systems of equations.

V. Exponents

- A. Use product, quotient, and power rules.
- B. Use negative exponents.
- C. Use scientific notation.

VI. Polynomials

- A. Add and subtract polynomials.
- B. Multiply polynomials.
- C. Divide monomials.

VII. Factoring

- A. Find greatest common factor.
- B. Factor trinomials of the form $ax^2 + bx + ac$, $a \neq 0$.
- C. Factor perfect square binomials.
- D. Factor perfect square trinomials.
- E. Solve quadratic equations by factoring.

C. Rationale

This course provides the student with a foundation in the basic concepts and methods of algebra needed to pursue more advanced mathematics courses. This course is the first and second of three non-credit courses designed to prepare students with the mathematical background necessary for college-level mathematics. The course does not transfer and will not satisfy the mathematics requirement for an Associate Degree. Students completing both these courses will be prepared to advance into MATH 083 Intermediate Algebra.

III. Evaluation

A. Requirements and grading policy

Math 081/082 REQUIREMENTS

Tests 100pts each: There will be six chapter tests throughout the semester. (The specific sections are broken down on last page of the syllabus)

- Chapters 1,2, 3 (081), Ch1 (082)
- Section 1.6 and Chapter 4 and 5.1-5.3(081), Ch 1 and 5(082)
- Chapter 5.4-5.7(081), Chapter 2 and 4(082)
- Chapter 5 and 6(082)
- Chapters 6,Conversions 3.7,Chapter 7, and section 2.3, 2.5 (081)
- Chapters 3 and 4.1(082)

Quizzes 10pts: There will be at least one quiz per class. I will drop your lowest Math 081 and your lowest Math 082 quiz grades at the end of the semester. There will be three questions on each quiz that you will have to answer without notes. The questions will be very similar to the homework given during the previous class. You do your homework, you will be able to do the quiz. **There are no make up quizzes!** If you are absent for a quiz, that quiz will be one of the dropped quizzes at the end of the semester. Quizzes are given during the first 15minutes of class. If you are late and miss the quiz, this will be one of your dropped quizzes.

Final Exam 250pts: Final exam Review and Answer

Key: http://www.cbcemd.edu/math_science/math/mathreviews.html

The comprehensive final exams are scheduled for

081: Thursday April 16th, 12-2pm

082: Thursday, May21st, 12-2

Math 081 GRADING POLICY

- A 100%-90%**
- B 89%-80%**
- C 79%-70%**
- F Below 70%**

Math 082 Grading policy

- A 100%-90%**
- B 89%-80%**
- C 79%-70%**
- F Below 70% or F in Math 081**

- B. Math Department Attendance policy:
- i. You are expected to attend ALL scheduled classes.
 - ii. Attendance is critical to student success in college.
 - iii. Satisfactory attendance is defined to be at most 6 hours of unexcused absences.
 - iv. Documentation of the reason for your absence(s) may be required.
 - v. The instructor may count each unexcused tardy arrival as an absence and each unexcused early departure as an absence.
- C. Math Department Audit policy: Students may change from credit to audit only during the published 50% refund period, as indicated in the CCBC academic calendar. Students who audit are required to attend class, participate in course activities, and complete assignments (except for tests and the final exam) in accordance with instructor guidelines and due dates. For students who do not meet these requirements, the instructor may change their grade from AU to W.

IV. Course Procedures

- A. Course related policies and procedures:

STUDENT RESPONSIBILITIES:

- ❖ It is imperative that you do not fall behind in this course. Attendance is mandatory for every class. YOU are responsible for all missed work. **TURN YOUR CELL PHONE OFF!**
 - ❖ Questions are encouraged, at all times and the more the better! Class participation, including active involvement in in-class group-work is a must!
 - ❖ NO make-up tests will be given except under *unusual* circumstances. If you miss a test due to illness or other emergency, you must notify me **before** the scheduled test, and *documentation may be required*. Any make-up test must be taken **before** the first class after which the actual test was given. If these conditions are not met, your score on the test will be zero.
- B. College wide syllabus policies: [“For college wide syllabus policies such as the Code of Conduct related to Academic Integrity and Classroom Behavior or the Audit/ Withdrawal policy, please go to the Syllabus Tab on the MyCCBC page.”](#)
- C. Contact information for course-related concerns: Students should first attempt to take concerns to the faculty member. If students are unable to resolve course-related concerns with the instructor, they should contact the Math Department Coordinator at the Essex campus, Sylvia Sorkin, at 443-840-2661 or at ssorkin@cCBCmd.edu.
- D. Course calendar/schedule:
Fall 2014 Academic Calendar and final exam schedule:
http://www.cCBCmd.edu/registration/academic_calendars.html

TENTATIVE ORDER OF TOPICS COVERED IN MATH 081/082

3 weeks

- a. Order of Operations and Absolute Value
- b. Integers
- c. Rational Numbers (Including Geometry Application)
- d. Decimals (Including Geometry Application)

2 weeks

- a. Exponents, Scientific Notation, and Metric Conversion
- b. Simplify Algebraic Expressions

3 weeks

- a. Solving Equations
- b. Solving Inequalities
- c. Formulas
- d. Solving Systems of Equations

2 weeks

- a. Multiplying Polynomials
- b. Factoring
- c. Solving Quadratic Equations by Factoring

2 week

- a. Ratios/Rates/Proportions/US Conversions
- b. Mean/Median/Mode
- c. Percentages
- d. Financial Applications of Percents
- e. Bar/Circle/Line Graphs

2 weeks

- a. Graphing Linear Equations
- b. Solving Systems of Equations(graphing)

Week	Sections 082	Section 081	Problems from 082 Textbook
1	1.3 1.5 1.6 1.7	Absolute Value and Integers (1.1-1.7,2.1,2.2)	71-80 1-15,21-25,27-41,71-78 5-25,51-61 1-9,19-33,47-65
2	1.2	Rational Numbers (3.1-3.6,3.8)	1-11, 29-89

3	Test 1		
	1.3	Decimals 4.1-4.6	21-31
	1.5		27-30, 45, 46
	1.6		39-46, 65, 66
	1.7		19-22, 67, 68
4	1.8	Exponents and Scientific Notation 1.6	1-58, 73-86
	5.5		1-20, 25-52
	5.7		1-126
	1.1	Simplify Algebraic Expressions (5.1-5.3)	1-35, 43-53, 59-69
	1.4		1-63, 67-75
	1.5		47-60
	1.6		69-84
1.7	77-105		
5	Test 2		
	2.1	Solving Equations (5.4-5.7)	11-53
	2.2		1-54, 59-66
	2.3		1-73
6	2.4	Solving Equations Continues	1-25, 43,46
	2.5		1-20
	2.7	Solving Inequalities and Solving Compound Inequalities	1-80, 107-112
	9.2		7-20, 25-32, 45-50
7	4.2	Solving Systems of Equations	1-32
	4.3		1-56
	4.4		1-4, 7-17, 21-23, 29, 31, 35, 39, 41, 43, 45
8	Test 3		
	5.1	Adding and Subtracting Polynomials	17-32, 39-42, 55-72, 75-86
	5.2		1, 3, 5, 11-12, 15-64, 67-72
	5.3	Multiplying Polynomials	1-78
	5.4		1-78

9	6.1	Factoring Polynomials	13-86
	6.2		1-74
	6.4		1-78
	6.6	Solve Equations by Factoring	1-32, 37-44
10	Test 4		
		Ratios, Rates, Proportions / Conversions of US Chapter 6, 3.7 in the 081 Textbook	Supplemental Material
11		Statistics 2.3 and 2.5 in the 081 Text book	Supplemental Material
	Test 5	Percents, Bar/Circle/Line Graphs Chapter 7 in Math 081 Textbook Review for Math 081 Final Exam	Supplemental Material
12	Final Exam for Math 081		
	3.1	Graphing Linear Equations	9-32, 37-80
	3.2		1-62, 76,77
	3.3		1-22
13	3.4	Graphing Linear Equations Continues	1-46
	3.5		1-28
	4.1	Solving Systems of Equations by Graphing	1, 5, 11-50
14	Test 6		
	Review for 082 Final Exam		
15			
	Math 082 Final Exam		

This syllabus may be changed with notification to the class