**Essex County College – Mathematics Department**

**MTH 092 Section 024 – Elementary Algebra**

**Spring 2010 Syllabus**



**Instructor**: Dr. Susan Gaulden

**Office**: Room 2165 (Blue Area near Nursing)

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**Office Hours**: Regular – Tuesdays, Thursdays & Fridays from 7:50 am to 8:20 am

& from 11:35 am to 12:20 pm

 By Appointment – Tuesdays & Thursdays from 4:00 pm to 4:50 pm

 & Fridays from 2:30 pm to 3:00 pm

**Classroom**: Room 2102

**Class Meeting Times**: Tuesdays, Thursdays & Fridays from 1:00 pm to 2:20 pm,

 from January 12 to April 23, 2010

**Required Textbook**: Introductory Algebra, An Applied Approach*,* by Aufmann/Barker/ Lockwood, 7th edition; published by Houghton Mifflin, Boston, MA, 2006

Please note: This textbook is sold in the ECC bookstore. See me if you are unable to purchase the book during the first week of classes. Copies of the textbook are available on reserve in the Library and for use in the Learning Center.

**Other Suggested Supplies**: Please note: Calculators **may not** be used in this course.

**Course Prerequisite**: a grade of ‘C’ or better in MTH 086 or placement

**Course Co-requisite**: MTH 092T

**Course Description**: In this course, algebraic concepts introduced in MTH 086, such as simplifying variable expressions and solving first-degree equations in one variable, are fully developed.  In addition, the algebra curriculum is extended to include operations on polynomials, rational expressions, and exponential expressions as well as solving quadratic equations, rational equations, and literal equations.  Linear equations and their graphs as well as various problem solving applications are also covered.

**Course Goals**: This course is the second of a sequence of two courses designed to bring students to a level of proficiency in computation and algebra, which will enable them to enter a college-level math course. Upon successful completion of this course, students should be able to:

1. demonstrate knowledge of the fundamental concepts and theories from algebra and geometry;
2. utilize problem-solving and critical-thinking techniques to set up and solve real-world applications; and
3. communicate accurate mathematical terminology and notation in written and/or oral form in order to explain strategies to solve problems as well as to interpret found solutions.

**Measurable Course**

**Performance Objectives**: Upon successful completion of this course, students should specifically be able to do the following:

1. Demonstrate knowledge of the fundamental concepts and theories from algebra and geometry:

* 1. *simplify and evaluate variable expressions*;
	2. *translate verbal expressions into variable expressions*;
	3. *perform basic operations on polynomial, rational, and exponential expressions*;
	4. *factor polynomial expressions*;
	5. *solve linear, literal and quadratic equations that are factorable*;
	6. *graph a line in the Rectangular Coordinate System*;
	7. *identify and find the slope and intercepts of a line*;and
	8. *find the equation of a line based on given geometric properties*

2. Utilize problem-solving and critical-thinking techniques to set up and solve real-world applications:

2.1 *apply algebraic methods to solve varied real-world applications (such as integer problems, uniform motion problems, and perimeter and area problems) that can be modeled by a linear equation or a quadratic equation*

3. Communicate accurate mathematical terminology and notation in written and/or oral form in order to explain strategies to solve problems as well as to interpret found solutions:

3.1   *write and explain solutions to application problems related to the course material using appropriate mathematical terminology and notation*

**Methods of Instruction**: The instruction will consist of a combination of lectures, class discussions, group work, board work, computer lab work, and individual study.

**Outcomes Assessment:** All test and exam questions are blueprinted to course objectives.  Data is collected and analyzed to determine the level of student performance on these assessment instruments in regards to meeting course objectives.  The results of this data analysis are used to guide necessary pedagogical and/or curricular revisions.

**Course Requirements:** All students are required to:

1. Maintain regular attendance.

2. Complete assigned homework or projects in a timely manner.

3. Take part in class discussions and do problems on the board when required.

4. Take all tests and quizzes, when scheduled; these include a minimum of two class tests as well as a cumulative departmental midterm exam and a cumulative departmental final exam.

**Grading**: 5 Class Tests (12 % each) = 60 %

These tests will show evidence of the extent to which

 students meet the course objectives, including but not

 limited to identifying and applying concepts, analyzing

 and solving problems, estimating and interpreting results,

 and stating appropriate conclusions using the correct

 mathematics terminology.

 1 Departmental Midterm Exam = 20 %

The midterm exam will show evidence of the

 extent to which students have understood and synthesized

 the first half of the course content and achieved the

 first half of the course objectives.

 1 Departmental Final Exam = 20 %

The comprehensive final exam will show evidence of the

 extent to which students have understood and synthesized

 all course content and achieved all course objectives.

 Total = 100 %

Please note the following items that pertain to grading in this course:

* There are NO MAKE-UP TESTS or EXAMS. You will be excused from a missed test or exam only if you contact me immediately to explain reasonable circumstances. If you are not excused, then you will receive a grade of ZERO for all missed tests or exams.
* You must score at least 70 % on the MTH 092 Departmental Final Exam to obtain a grade of ‘C’ or higher for the course.
* In determining final course grades, consideration will be given to class attendance, punctuality, assignment completion and participation.
* Incomplete grades will only be given to students with a ‘C’ average or better who are unable to take the departmental final exam. You must contact me immediately if you miss the exam and give a valid explanation of why you were unable to take the final.
* In order to enroll in any 100-level mathematics course, you must earn a ‘C’ or higher in MTH 092.

**Academic Integrity:** Dishonesty disrupts the search for truth that is inherent in the learning process and so devalues the purpose and the mission of the College. Academic dishonesty includes, but is not limited to, the following:

* plagiarism – the failure to acknowledge another writer’s words or ideas or to give proper credit to sources of information;
* cheating – knowingly obtaining or giving unauthorized information on any test/exam or any other academic assignment;
* interference – any interruption of the academic process that prevents others from the proper engagement in learning or teaching; and
* fraud – any act or instance of willful deceit or trickery.

 Violations of academic integrity will be dealt with by imposing appropriate sanctions. Sanctions for acts of academic dishonesty could include the resubmission of an assignment, failure of the test/exam, failure in the course, probation, suspension from the College, and even expulsion from the College.

**Student Code of Conduct:** All students are expected to conduct themselves as responsible and considerate adults who respect the rights of others. Disruptive behavior will not be tolerated. All students are also expected to attend and be on time for all class meetings. No cell phones or similar electronic devices are permitted in class. Please refer to the Essex County College student handbook, *Lifeline*, for more specific information about the College’s Code of Conduct and attendance requirements.

**Class Expectations**: Some of the expectations that you, the students, may have of me, the

instructor, and some of the expectations that I, the instructor, will have of you, the students, in this class are given below.

You may expect me to:

* Arrive to class on time and be prepared.
* Provide clear instruction.
* Respect you as individuals and encourage you to work hard.
* Grade each test/exam fairly on the quality of your completed test/exam and not on the amount of time and effort you spent preparing for the test/exam.
* Return graded tests in a timely manner.

I will expect you to:

* Concentrate exclusively on this course during class hours.
* Do not receive or make phone calls or text messages. **TURN OFF all cell phones and other electronic devices** (iPods, MP3s, etc.) before entering the classroom. If you use a cell phone in class, you must leave for the remainder of the class session and see me during my office hours before attending the next class. If you repeatedly forget to turn off your cell phone and it rings and interrupts the class, you must leave for the remainder of the class session and see me during my office hours before attending the next class.
* Arrive to class on time. Late students are responsible for all missed material. If you are repeatedly late, you must see me during my office hours to discuss this matter.
	+ - * Come to class prepared. Reviewing notes from the previous class, reading appropriate sections of the textbook, and completing homework will enormously increase your understanding of the math topics covered in this course. It is especially *strongly* suggested that you do the homework in a timely manner!
* Ask questions. Questions should be asked in class or during my office hours. Please ask for help *before* you fall behind.
* Respect me and all of your classmates.
* Call if sick or unable to attend class, especially when a test or exam is scheduled.

**Students with Special Needs**: If you are a student with documented physical or learning disabilities, you are entitled to receive appropriate accommodations as recommended by the Office of Disability Support Services, which will occur once you provide the necessary documentation to this office. It is not enough for you to request such accommodations directly from me. You must contact Mr. Victor Stolberg, a counselor who coordinates disability support services, as soon as possible to receive valuable guidance and support. His office is Room 1124 and his phone number is 973-877-3129.

On the following pages is a TENTATIVE content distribution outline. This schedule is subject to change at any time. Please be aware of any changes that are announced in class by either contacting a classmate or else by contacting me via e-mail or by phone during my office hours.

Day / Date Class Material

# T 1/12 Introduction to the course; expectations will be discussed

**Chapter 1: Prealgebra Review**

R 1/14 1.2 Addition and Subtraction of Integers, Objectives A & B (# 3,7,11,15,

19,21,23,25,27,29,31,42,43,51,55,59,63,67,69)

 1.3 Multiplication and Division of Integers (# 3,7,11,13,15,17,19,20,21,29,

31,33,39,41,43,45,47,51,63,67)

F 1/15 1.4 Exponents and the Order of Operations Agreement (# 3,5,6,9,13,19,21,

31,33,35,39,43,45,47,49,55)

1.6 Addition and Subtraction of Rational Numbers, Objectives A, B & C

(# 37,39,42,49,53,59,78,81,83,85,89,95,97,99)

T 1/19 1.7 Multiplication and Division of Rational Numbers, Objectives A & B

(# 9,11,13,17,21,23,37,39,43,53,55,71,75,79)

**Chapter 2: Variable Expressions**

2.1 Evaluating Variable Expressions (# 1,5,9,13,17,21,25,29,35,37,39,43,47)

R 1/21 2.2 Simplifying Variable Expressions (# 5,9,11,17,25,27,33,37,43,53,63,69,

77,79,89,93,99,103,107,113,117,119,125,129,135)

F 1/22 2.3 Translating Verbal Expressions into Variable Expressions, Objectives A

& B (# 1,3,9,13,17,21,31,33,39,43,49,51,55)

**Chapter 3: Solving Equations**

T 1/26 3.1 Introduction to Equations, Objectives A, B & C (# 5,11,15,19,25,29,37,

40,47,55,59,67,73,79,85,93,99,103)

 3.2 General Equations – Part I, Objective A (#3,5,11,17,21,27,31,35,43,47,

53,59,63)

R 1/28 3.3 General Equations – Part II, Objectives A & B (# 1,5,9,11,15,21,27,35,

39,43,47,49)

F 1/29 **Test #1** on Sections 1.2 – 1.4, 1.6, 1.7, & 2.1 – 2.3

T 2/2 3.4 Translating Sentences into Equations (# 1,3,7,11,13,15,17,19,21,23,25,

29,30,37,38)

R 2/4 3.5 Geometry Problems, Objective A (# 1,3,5,7)

3.6 Mixture and Uniform Motion Problems, Objective C (# 37,39,45,47,

49,51)

**Chapter 4: Polynomials**

F 2/5 4.1 Addition and Subtraction of Polynomials (# 5,8,9,11,13,14,19,25,29,33,

45,51,55,57,61)

T 2/9 4.2 Multiplication of Monomials (# 7,15,17,25,31,37,41,45,51,55,63,65,69,

73,75,76,77,78,79)

 4.3 Multiplication of Polynomials, Objectives A & B (# 1,9,13,21,27,29,31,

33,41,45,51)

R 2/11 4.3 Multiplication of Polynomials, Objectives C & D (# 55,61,67,71,75,81,

87,89,91,99,101)

F 2/12 **Test #2** on Sections 3.1 – 3.6 & 4.1 – 4.2

Day / Date Class Material

T 2/16 4.4 Integer Exponents and Scientific Notation, Objective A (# 1,5,9,17,25,

27,33,39,41,53,59,63,67,71,73,81,89,93)

R 2/18 4.5 Division of Polynomials (# 5,7,11,19,21,23,25,27,29,33,37,39,47,

51,53,55)

F 2/19 Review for Midterm Exam

T 2/23 **Departmental Midterm Exam** (covering Sections 1.2 – 1.4, 1.6 – 1.7, 2.1 –

2.3, 3.1 – 3.6 & 4.1 – 4.5)

**Chapter 5: Factoring**

R 2/25 5.1 Common Factors (# 11,13,23,27,33,39,43,47,51,53,61,67)

F 2/26 5.2 Factoring Polynomials of the Form (# 7,13,15,21,27,31,39,

41,47,53,59,73)

 5.3 Factoring Polynomials of the Form  (# 3,11,13,19,21,23,29,

35,73,74,87,99,103)

T 3/2 5.2 Factoring Polynomials of the Form (continued) (# 79,83,91,

101,103,109,113,125,137,143)

 5.3 Factoring Polynomials of the Form (continued) (# 41,47,59,

63,123,129,133,139)

R 3/4 Review of 5.2 & 5.3 Factoring Polynomials

F 3/5 5.4 Special Factoring (# 5,9,13,19,25,29,35,37,43,45,52,57,61,63,65,73,81,

93,97,107,121,125)

T 3/9 5.5 Solving Equations (# 2,7,13,15,19,21,27,29,35,41,45,53,57,59,61,63,

67,69,73,77,85,87)

**Chapter 6: Rational Expressions**

R 3/11 6.1 Multiplication and Division of Rational Expressions (# 5,7,11,17,19,21,

25,29,33,37,41,45,53,59,67,69,71,73,77)

F 3/12 **Test #3** on Sections 5.1 – 5.5

T 3/16 6.2 Expressing Fractions in Terms of the Least Common Multiple (LCM)

(# 7,11,15,19,23,27,37,41,47,51,53,54)

R 3/18 6.3 Addition and Subtraction of Rational Expressions (# 9,11,15,19,27,37,41,

45,55,69,73)

F 3/19 (**Last Day to Withdraw!!**) 6.5 Solving Equations Containing Fractions (# 5,

11,13,17,19,23,27,37)

T 3/23 6.6 Ratio and Proportion, Objectives A & B (# 7,11,13,19,21,23,27)

R 3/25 6.7 Literal Equations (# 3,5,17,19,22,23,25,27,29,32,33)

**Chapter 7: Linear Equations in Two Variables**

F 3/26 7.1 The Rectangular Coordinate System, Objectives A & B (# 7,11,15,21,

25,27)

T 3/30 **Test #4** on Sections 6.1, 6.3, & 6.5 – 6.7

Day / Date Class Material

R 4/1 7.2 Linear Equations in Two Variables, Objectives A & B (# 1,3,7,11,17,19,

23,25,29,30,31,35)

F 4/2 no class today – school is closed for Spring Holiday (Good Friday)

T 4/6 7.3 Intercepts and Slopes of Straight Lines (# 3,7,9,11,13,17,20,21,23,27,

33,35)

R 4/8 7.3 Intercepts and Slopes of Straight Lines (continued) (# 45,47,49,57,59,

63,65)

F 4/9 7.4 Equations of Straight Lines, Objectives A & B (# 3,7,11,15,19,21,23,

25,26)

T 4/13 Review of Chapter 7

R 4/15 **Test #5** on Sections 7.1 – 7.4

F 4/16 Review for Final Exam

T 4/20 Review for Final Exam

R 4/22 **Departmental** **Final Exam** on all course material covered

F 4/23 Last day of class – individual discussion of final exam scores and

course grades