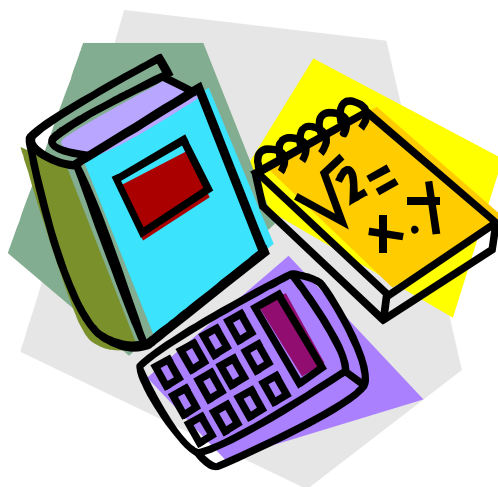# MAT 031 – 104: Introductory Algebra

Instructor: Sarah Sewell

Spring 2009
Mondays & Wednesdays
1 – 2:15 PM

E-mail: sarahsewell@cruiser.chesapeake.edu

I. Office Hours:
>   Location –   Academic Support Center in the LRC
>   Times –   Mon./Wed. 11:30 – 12:45
>   Tues. 5:00 – 6:15
>   Email – sarahsewell@cruiser.chespeake.edu
>   Phone – Contact Carolyn Causey at 410-822-5400 ext. 322, and she will contact me, or call the Academic Support Center at 410-822-5458

II. Course Description:
>   An introduction to algebra will contain topics such as solving equations and inequalities, graphing linear equations and inequalities, operations on polynomials, functions and their applications, and solving systems of equations.
>   Three hours per week. 3 load hours, 0 credits

III. Textbook:
>   *Foundations of Mathematics* by Marvin L. Bittinger and Judith A. Penna.
>   Addison Wesley. 2004   ISBN # 0-321-16856-9

IV. Introduction:
>   This course, Introductory Algebra, is approximately equivalent to the first year of high school algebra and is the first of two sequential courses in algebra taught at Chesapeake College in preparation for college level mathematics courses. Students must complete MAT 031. Students must also complete MAT 032 in order to gain entry to the credit level mathematics courses.
>
>   **In addition to the lectures, the average student should plan to spend six hours outside of class each week (2 hours for every hour spent in class).**
>   Students whose background in mathematics is below average, or who normally work at a slower than average pace, should schedule more time in order to keep up with the course materials.
>   **NOTE: College policy prohibits young children from accompanying parents to class.**

V. Attendance:
>   Students whose attendance is sporadic often do not do well because of the nature of the course. In addition, since in-class activities constitute 20% of the student's final grade, it is for the benefit of each student to be present at every class session. Most students need guidance in understanding the procedures involved in developing a new mathematical process. If you find yourself unable to keep up with the class, make an appointment to see me outside of class time. **It is the student's responsibility to make up any work missed due to an absence for any reason.**
>   Please do not schedule appointments during class time.

VI.   Classroom Etiquette:
>   It is assumed that all students will respect each other's rights to fully participate in the discussion of the day. To that end, it is expected that students will not engage in

behaviors that distract not only the instructor but also their fellow classmates. Students who engage in activities such as talking to each other, talking on cell phones or text messaging, leaving class for non-emergency needs, will be asked to leave. If you are unlucky enough to be one of these students, you will be required to meet with me prior to returning to class. I expect that all of my students will behave in an adult, respectful, and professional manner.

VII. **Cell Phones, IPods, etc.:**
Cell phones, IPods, Blackberrys, and any other piece of technology are to be turned off. If a student has an emergency and needs to leave their cell phone or pager on, then that student should let the instructor know ahead of time. Anyone using a cell phone during a test will receive a 0 on that test.

VIII. **Grades:**
This course consists of all or parts of chapters 7, 8, 9, 12, 13, and 14 in the assigned textbook. The following syllabus outlines in detail the material, which will be presented from each of the chapters and the intended order of presentations. The numerical final course grade will be computed as indicated in the following distribution, and letter grades will be assigned as follows.

Components of Final Grade		Letter Grade
In-Class Activities/		A: 90% - 100%
Homework/Attendance	20%	B: 80% - 89%
Test Average	60%	C: 70% - 79%
Final Examination	20%	*F: less than 69%

   ***please note that there are no "D" grades given in any developmental class.**

 IX. **Testing:**
Dates for the tests will be announced. It is my intention to give six tests during the semester including the final exam. Each test will cover material previously presented and the final exam will be cumulative. Students are expected to be present for class on test days. **A separate make-up test will be given only for an extreme emergency. The instructor reserves the right to request documentation before a make-up test is prepared.**
If you are absent prior to a scheduled test, you will still be expected to take the test at the scheduled time and **are expected to contact a classmate or me in advance to obtain the information required to prepare for the test.**

<u>TENTATIVE Class Schedule</u>

(This schedule is subject to change to fit the needs of the students and the instructor.)

<u>Week</u>	<u>Textbook Sections</u>
Week 1	Introduction to course, MML, 7.1, 7.2
Week 2	7.3, 7.4, 7.5
Week 3	7.6, 7.7, 7.8
Week 4	9.1, 9.2, Test 1 – Ch. 7
Week 5	9.3, 9.4, 9.5
Week 6	9.6, 9.7, 9.8
Week 7	8.1, 8.2, Test 2 - Ch. 9
Week 8	8.3, 8.4, 12.1
Week 9	12.2, 12.3, Test 3 – Ch. 8
Week 10	12.4, 12.5, 13.1
Week 11	13.2, 13.3, Test 4 – Ch. 12
Week 12	13.4, 14.1, 14.2,
Week 13	14.3, 14.4, Test 5 – Ch. 13
Week 14	Review for the final exam

MAT 031 Final Exam: Monday, May 11 from 12:30 – 2:30

<u>Important Dates</u>

March 11 – Midterm grades are due.

March 14 - 20 – Spring Break. No classes. Campus closed 3/14 – 3/17

April 15 – Last day to drop with a "W" (withdraw from a class)

End of March/Beginning of April – Pre-registration for current students

May 6 - 12 – Final Exams

<u>Homework Guidelines</u>

In order to effectively learn mathematics, you must be prepared to work the problems out for yourself. No amount of watching someone else perform mathematical manipulations will allow you to fully understand the process. Homework is to be done by you individually. If a student is caught copying someone else's homework, the instructor reserves the right to count that assignment as a zero.

Homework assignments for this class will be assigned and completed using the book. They will be discussed at each class meeting. It is expected that each student will be able to solve ALL of the exercise problems in each section covered.

After each class, you will need to complete (Part 1) the section(s) assignments from the book that were covered in class and (Part 2) the corresponding MyMathLab assignment found online at www.coursecompass.com. Also, be sure to READ the sections that were covered.

Part 1: Book Assignment

* Papers clearly headed with:
  - o   Student name
  - o   Assignment date
  - o   Text section # and page #
  - o   Assignment list
* No work, no credit – method must be shown even if calculator used.
* Written homework will always be due the next class period. <u>Homework may be turned in one class day late, but not all the time. Homework turned in later than one class day will be returned ungraded.</u>
* I will answer questions from the homework in class. If you find that the homework is causing you too many problems, be sure to see me outside of class.

Part 2: MyMathLab Assignment

* Go to www.coursecompass.com, click on the "Do Homework" tab, and complete the assigned section(s).
* MyMathLab assignments must be completed by the due date as posted online.

Signing up with Course Compass is a one-time process. After signing up, you will only need to **login** with your login name and password to complete the homework assignments.

To sign up with MyMathLab you will need an access code that should have come with your book, an email address, and the course number. The course number is sewell37886. Also, you will be prompted for the college's zip code, which is 21679.

Homework Grading:

Grading is done on a point system. Each question from the book and MyMathLab assignments are worth 1 point. The final percentage will be based on the total of all homework points.

Book Assignments

Chapter 7

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Sec. 7.1      11,22,23,32,35,41,46,49,63                    pp. 517-518
Sec. 7.2      10,16,19,24,31,41,49                          pp. 523-524
Sec. 7.3      3,12,15,27,41,45,50,54,59,75,85               pp. 533-536
Sec. 7.4      1,5,9,12,16,24,27,31,36,39,46,56              pp. 541-544
Sec. 7.5      3,6,11,20,27,35,40,43,51,51                   pp. 549-552
Sec. 7.6      2,6,7,12,19,22,25,33                          pp. 563-567
Sec. 7.7      8,11,18,25,36,48,55,60,77,82,83               pp. 576-579
Sec. 7.8      4,7,14,18,21,25,33,43,46                      pp. 584-588
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Chapter 9

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Sec. 9.1      2,12,23,29,32,35,42,43,49,57,64,68,73,
              77,89,96,103                                  pp. 665-668
Sec. 9.2      2,8,15,19,35,42,47,50,53,58,64,69,71,
              75,77,87,91                                   pp   677-681
Sec. 9.3      3,12,14,18,57,62,67,72,77,80,84,97,98         pp. 690-695
Sec. 9.4      7,11,14,19,24,33,37,40,42,46,52,62            pp. 700-703
Sec. 9.5      6,11,15,22,29,37,42,54,58,68,84               pp. 708-710
Sec. 9.6      2,10,23,30,39,58,62,72,79,83,97,105           pp. 717-720
Sec. 9.7      8,9,12,27,34,40,48,70                         pp. 725-729
Sec. 9.8      2,13,23,30,32,36,40,49,56,66                  pp. 736-739
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Chapter 8

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Sec. 8.1      1,3,8,10,11,15,21,24-34(even),43             pp. 602-605
Sec. 8.2      2,6,10,14,17,21,23,27,33,37,41,47             pp. 617-622
Sec. 8.3      1,6,11,13,17,27,28,35,38,39,43,45,51,54       pp. 628-633
Sec. 8.4      2,6,8,10,13,16,18,20,22,27,34,38,44,52        pp. 641-646
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Chapter 12

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Sec. 12.1     3,7,16,22,31,36,41,47,48,55,61                pp. 929-935
Sec. 12.2     4,8,13,27,30,37,38                            pp. 939-940
Sec. 12.3     4,11,16,20,23,29,30,43,47                     pp. 950-951
Sec. 12.4     8,15,20,31,46,52                              pp. 960-963
Sec. 12.5     3,6,20,26,31,36,41,45,52                      pp. 975-978
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Chapter 13

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Sec. 13.1     4,8,12,18,23,25                               pp. 995-997
Sec. 13.2     3,6,12,17,20,22                               pp. 1002-1003
Sec. 13.3     2,8,11,15,20,21,26,30,31                      pp. 1011-1013
Sec. 13.4     2,5,10,20,27,29                               pp. 1023-1026
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Chapter 14

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Sec. 14.1     3,7,14,26,30,39,48,53,66,68,70,74             pp. 1066-1071
Sec. 14.2     3,5,10,16,22,28,37,46,54,60                   pp. 1080-1083
Sec. 14.3     4,15,29,34,37,52,57,75,87,95,100              pp. 1091-1094
Sec. 14.4     1,7,12,19,32,40,45                            pp. 1105-1109
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Course Outline

Chapter	Title
Seven	Solving Equations and Inequalities
Nine	Polynomials: Operations
Eight	Graphs of Linear Equations
Twelve	Graphs, Functions, and Applications
Thirteen	Solving Systems of Equations
Fourteen	More On Inequalities

Although you will be tested on the subject matter of each chapter, tests for specific sections may be combined so as to maximize course effectiveness. A brief description of the objectives for each chapter is detailed on the following pages. After completing each chapter, students should be able to accomplish the following:

Chapter Seven – Solving Equations and Inequalities
Objectives:
  a) Solve an equation using the addition multiplication principle
  b) Solve equations using both principles
  c) Solve equations with no solution, or infinite solutions
  d) Evaluate a formula
  e) Solve a formula for a specified letter
  f) Solve applied problems by translating to an equation
  g) Solve inequalities by using the addition and multiplicative principles
  h) Solve and graph solution set for a given inequality
  i) Solve applied problems using inequalities

Chapter Nine – Polynomials: Operations
Objectives:
  a) Evaluate algebraic expressions containing exponents.
  b) Simplify expressions using various exponent rules.
  c) Write expressions without negative exponents.
  d) Express numbers in scientific notation and reverse.
  e) Collect like terms of a polynomial.
  f) Identify the degree of a polynomial and classify the polynomial.
  g) Add and subtract polynomials.
  h) Multiply and divide polynomials.

Chapter Eight - Graphs of Linear Equations
You will need graph paper for this chapter.
Objectives:
  a) Solve applied problems involving graphs.

b) Graph linear equations.
c) Find x and y intercepts and graph using intercepts.
d) Graph equations of the form x = a and y = b.
e) Given the coordinates of two points, find the slope of the line.
f) Find the slope of a line from an equation.

Chapter Twelve – Graphs, Functions, and Applications
You will need graph paper for this chapter.
Objectives:
a) Draw the graph of a function.
b) Use the vertical line test to determine if a graph is a function.
c) Find the domain and the range of a function.
d) Given an equation, derive the slope-intercept form and determine the slope and y-intercept.
e) Graph two equations, to determine whether they are parallel or perpendicular.
f) Given sufficient information, write the equation of a line.
g) Solve applied problems

Chapter Thirteen – Solving Systems of Equations
Objectives:
a) Determine if an ordered pair is a solution of a system of equations
b)   Solve a system of equations by graphing, by substitution and/or by addition.
c) Identify systems of equations that have no solution or an infinite number of solutions.
d) Classify a system of equations as either consistent or inconsistent and either dependent or independent.
e) Use a system of equations to solve application problems.
f)   Solve supply and demand problems, and break-even application problems.

Chapter Fourteen – More On Inequalities
Objectives:
a) Write interval notation for the solution set of an inequality.
b) Solve an inequality using the addition and multiplication properties.
c) Find the intersection and union of two sets, then graph the inequalities.
d) Find the distance between two points.
e) Solve equations containing absolute value expressions.
f)   Solve inequalities containing absolute value expressions.
g) Graph linear inequalities in two variables.
h) Graph systems of linear inequalities in two variables and find the coordinates of any vertices

REVIEW SHEET FOR THE FINAL EXAMINATION

The final examination for this course is cumulative. It will consist of multiple choice and written problems. The problems are similar to those that you have worked to complete each chapter and similar to the questions you experienced on each test. One way to review all the material from this course is to work the Chapter Review located at the end of each chapter. Further, you may find it beneficial to review the Chapter Highlights at the end of each chapter. There you will find an example of each of the concepts. If you have any difficulties you should review that section of the chapter more thoroughly. If you have any questions, be sure to ask before you take the final examination.

A suggested list of topics that you should review includes, but is not necessarily limited to:

Combine like terms in a given expression

Solve equations, linear inequalities, literal equations and absolute value equation

and inequalities

Evaluate expressions containing positive and/or negative exponents

Add and subtract monomials, binomials and trinomials

Multiply monomials, binomials and trinomials

Divide monomials and divide by binomials

Given sufficient information write the equation of a straight line

Given two points, find the slope of the line containing them

Solve systems of equations by various methods

Graph equations and inequalities

Solve systems of equations by graphing, substitution and / or addition.

Solve all types of application problems.

GOOD LUCK – STUDY HARD – WORK CAREFULLY