Cuyamaca College

Mathematics Fall 2009

Intermediate Algebra

Math 110 Sec 1445 & 1446

Units: 5

Instructor:	Bryan Elliott
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	1445	1446
Days:	Mon & Wed	Tue & Thur
Time:	9:30 -12:20	9:30 – 12:20
Location:	F506 (L103,Wed @ 11:30)	D403 (L103, Thur @ 11:30)

OFFICE HOURS: My office hours are M-Th 7am-730am;1230pm-1pm; WTh 1pm – 130pm. I am also available by appointment. Please be sure to call or email me **(EMAIL IS BEST)** if you are going to miss class to get the homework assignment so you can be prepared for the next class.

COURSE DESCRIPTION

Application of numeric, analytical, and graphical methods to model, interpret and solve real-world problems involving: linear, quadratic, rational, radical, exponential and logarithmic function; systems of linear, quadratic, and absolute value equations and inequalities. Additional topics include conic section, matrices and determinants and maybe sequence and series. Graphing calculators and computer software are interspersed throughout to aid in interpretation, analysis and modeling of collected data and application problems. This class is appropriate for students with knowledge of Beginning Algebra or who have had at least two years of successful high school algebra but have not used it for some time. Maximum number of units for Math 103 and Math 110 is five units.

CLASS POLICIES

Show respect to all students, the teacher and the learning process. This includes:

1) Be patient with the questions of other students
2) Be in your seat ready to work before 9:30am. Being ready means having your pencils sharpened, notes out and ready and your brain engaged to think mathematically.
3) Do your assignments on time and be prepared with any necessary materials.
4) Do NOT talk, throw away trash, sharpen pencils during teacher's presentation.
5) Turn off cell phones and put away MP3/Music players.
6) No cell phone calculators allowed for tests even if you forgot your calculator.

STUDENT LEARNING OUTCOMES

The student will:

a. Analyze linear, quadratic, rational, radical, exponential and logarithmic functions from a graphic, numeric, and analytic perspective.
b. Analyze and solve linear and non-linear systems of equations and inequalities.
c. Use matrices and determinants to solve systems of two or three equations.
d. Analyze and solve applied problems using linear, quadratic, rational, radical, absolute value, exponential, and logarithmic equations.
e. Apply principles of rational exponents.
f. Apply critical thinking and mathematical reasoning skills necessary in algebraic problem solving.

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g. Analyze functional relationships.
h. Extract and interpret information from the graph of a function.

COURSE MATERIALS

Text: *Intermediate Algebra*, REQUIRED
8th edition by Marvin Bittinger
If you buy a new book, look for the red and yellow insert which contains your web site access code.

Note Packet: Lecture Notes packet available in bookstore, REQUIRED

Calculator: A Graphing Calculator is REQUIRED.
Cuyamaca College recommends the TI Nspire(nonCAS) if you plan to major in a hard science, you should consider the TI-89.

COURSE WORK

Completing the course successfully involves satisfactory performance on tests, quizzes, homework, lecture notes, group, and computer lab work. This 5-unit course requires **at least 10 hours of homework per week**. If you don't have 15 hours per week for this class, RECONSIDER your plans and priorities so you can succeed.

Tests - The class will have five 100-minute tests. All tests are worth 100 points and a comprehensive final worth 200 points. You must get 60% or 120 points on the final to get credit for the class. If you fail the final, you fail the class. You **CAN NOT** make-up a missed test! However, each student will have there lowest exam score dropped.

Homework - Success in this class depends on doing homework routinely. Refer to the assignment schedule for the required homework problems. However, take responsibility for your own learning and do as many problems as you need to become confident with the material. Also you are responsible for any changes to the homework schedule that are announced in class.

Homework quizzes HW quizzes will be given once a week unless otherwise stated by the instructor. On these quizzes you will be provided with a section number and problem number. You must write down the problem, show your work and the answer correctly to receive credit. You will be allowed to use your HOMEWORK only on these quizzes. Often I will collect all of your homework problems on test days, so always bring all your HW papers neat and organized and ready to turn in before the start of each test.

Computer Lab Work –Computer lab assignments will be given as the semester progress. Points earned for lab work contribute to the total grade that is roughly the same as one test, but may vary (100 pts.) Any assignment not completed during the lab time must be finished within one week of the assignment. Take note of computer open lab times.

Lecture Notes – are sometimes collected before the start of each test. Always bring your lecture notes on tests days and be prepared to turn them in.

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Group Work/Projects/Quizzes –Students are expected to solve problems and work together with other students in groups on some special assignment and projects

ATTENDANCE

I expect you to attend every class and remain for the entire time. I must drop students with "excessive", absences. Three tardies counts as one absence. Rationale:

- Mathematical content is progressive (It depends on earlier content.)
- Mathematics requires a disciplined thinking process.
- Disciplined attendance encourages the development of this thinking process.
- If you miss class, you lose the opportunity to earn points toward your grade.
- You **CAN NOT** make up missed quizzes and **NO** late papers accepted.

TUTORING

To support your efforts to succeed in this class, I refer you to Supervised Tutoring services that are available. All Supervised Tutoring sections are **FREE** to you. You need only enroll to receive services – no units or grades are given. Ask at front desk in room L-104.

GRADING PROCESS

Points are earned for successfully completing tests, quizzes, homework, computer lab work, lecture notes, group work and projects. Grades are determined on a percentage of the total points. The total points are subject to change.

The following grading scale is used:

90-100%	A	Excellent Achievement of Course Objectives
80-89%	B	High Achievement of Course Objectives
70-79%	C	Satisfactory Achievement of Course Objectives
60-69%	D	Minimal Achievement of Course Objectives
below 60%	F	Failure

Your grade is determined by weighted points. The Final is 20% of your grade, tests are 60%, homework quizzes and lecture notes are 10% and computer labs are 10%. Each parts makes up to 100% of your grade.

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TIPS FOR SUCCESS

Ponder these success principles so you can achieve your best from this class.

- Your attitude determines your achievements
- Apathy destroys learning
- The Mathematical Chain Reaction:
  Hard work --> Experience --> Confidence --> Fulfillment/Enjoyment.
- Every time - Come on time and stay the whole time.
- Read the new material **BEFORE** it is presented in class.
- Learning is **YOUR** responsibility.
- Ask questions. Who cares what other people think.
- Make friends and do your homework in groups.
- Have fun - at least try to make it fun.
- Remember - YOU CAN DO IT! ☺

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Day	Section	Topic	Homework	Due
1	1.1 1.2 1.3 1.4	Basics of Algebra Operations and Properties of Real Numbers Solving Equations Intro to Problem Solving	**P 10:** 11,15,23,29,37,41,45,51,57,61,69 **pp. 20:** 15,39,51,57,63,73,87,99,107, 115,123,135,139,143,151 **pp. 27:** 5,13,21,23,31,39,45, 53,57,63,75,81 **pp. 38:** 1,5,7,9,11,17,21,29,37	
2	1.5 1.6 1.7	Formulas, Models, and Geometry Properties of Exponents Scientific Notation	**pp. 46:** 11,17,23,27,35,41, 47,49,53,59,63,81 **pp. 57:** 3,7,11,17,19,25,29,35,37, 39,49,53,59,61,69,73,79,85,91,99,107,111 **pp. 64:** 3,7,11,17,19,21,25,33,37,39, 43,49,55,57,61,65,67,71	
3	2.1 2.2 2.3	Graphs Functions Linear Functions: Slope, Graphs, and Models	**pp. 80:** 7,11,15,19,21,25,27,35,39, 43,47,53 **pp. 91:** 9,15,17,21,25,29,35,39,43,47, 49,51,55,59,61,63,65,67,69 **pp. 104:** 7,11,15,19,23,25,27,31,35, 41,47,51,55,57,59, 63, 67, 71, 73	
4	2.4 2.5 2.6	Another Look at Linear Graphs Other Equations of Lines The Algebra of Functions	**pp. 116:** 11,15,19,25,29,35,39, 45,51,55,61,63, 67, 71,75,81,87 **pp. 124:** 5,11,15,19,23,27,31,35, 37,43,45,47, 51,55, 57,63,69,73,75,79, 85 **pp. 134:** 7,11,17,19,25,29,31,33, 35,41,45,49,51,59,63, 67	
5	1.1-1.7 2.1-2.6	Test Chapters 1 & 2		
6	3.1 3.2 3.3	Systems of Equations in Two Variables Solving by Substitution or Elimination Solving Applications: Systems of Two Equations	**pp. 155:** 9,11,15,17,23,29,33, 41,45,49, 51,53 **pp. 163:** 7,13,19,21,25,31, 37,41,47,53,59,61 **pp. 174:** 15,17,19,21,23,25,29, 33,35,39,45,47	
7	3.4 3.5 3.6	Systems of Equations in Three Variables Solving Applications: Systems of Three Equations Elimination Using Matrices	**pp. 185:** 7,9,13,19,23,27,31,37 **pp. 190:** 3,5,7,9,,13,15,17,19,23 **p. 197:** 7,11,15,19,21,23,25	
8	3.7 3.8	Determinants and Cramer's Rule Business and Economic Applications	**pp. 202:** 7,11,15,17,21,25,31,33 **pp. 207:** 9,13,15,17,19,23,27,29	
9	4.1 4.2	Inequalities and Applications Intersections, Unions, and Compound Inequalities	**pp. 228:** 3,9,11,15,19,23,29, 35,41,47,51,55,59,61,65,69,73,79 **pp. 238:** 11,15,19,23,25,31, 35,43,45,47,51,57,63,69,73,79,95,99	
10	4.3 4.4	Absolute-Value Equations and Inequalities Inequalities in Two Variables	**pp. 248:** 9,17,23,29,31,37,41, 45,47,51,53,55,61,69,79,85,89 **pp. 259:** 7,11,15,21,27,31,35,39,45, 49,55,59,61	
11	3.1 – 3.8 4.1-4.4	Test Chapters 3 & 4		

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12	5.1	Intro to Polynomials and Polynomial Functions	**pp. 284:** 11,15,17,19,21,23,25,29,31, 33,35,39,41,45,47,51,53,55,57,61,65,69,71, 75,79,89,95	
	5.2	Multiplication of Polynomials	**pp. 296:** 9,13,17,21,25,29,31,35, 37,39,41,43,47,51,53,57,61,65,69,73,77,79	
	5.3	Common Factors and Factoring by Grouping	**pp. 302:** 9,13,19,23,25,31,39,43,47,51, 55,57,59,63,67	
13	5.4	Factoring Trinomials	**pp. 314:** 9,15,21,27,35,41,51,57,63,69, 77,85,98,105	
	5.5	Factoring Perfect Square Trinomials and Difference of Squares	**pp. 319:** 11,17,23,,27,31,37,45,51, 57,65,69,85	
	5.6	Factoring Sums or Differences of Cubes	**pp. 324:** 11,15,19,25,29,35,41,45,61,67	
14	5.7	Factoring: A General Strategy	**p. 328:** 7,11,17,21,27,31,37,41,49,53,59,69	
	5.8	Applications of Polynomial Equations	**pp. 339:** 7,13,17,23,27,35,41,47, 51,57,61,63,73,77,81,85,89,91,95	
	6.1	Rational Expressions and Functions: Multiplying and Dividing	**pp. 360:** 13,17,21,25,29,31,35,41,49,53, 57,61,67,71,73,77	
15	6.2	Rational Expressions and Functions: Adding and Subtracting	**pp. 369:** 9,15,19,21,23,27,31,37,43,47,53, 61	
	6.3	Complex Rational Expressions	**pp. 378:** 7,11,19,23,29,31,39,49	
	6.4	Rational Equations	**pp. 385:** 5,13,19,27,37,45,49,53	
16	6.5	Applications	**p. 395:** 7, 15, 21, 29, 33	
	6.6	Division of Polynomials	**pp. 402:** 9,13,19,23,27,31,37,39,43,45	
	6.7	Synthetic Division	**pp. 407:** 9,13,15,19,23,27	
17	5.1-5.8 6.1-6.8	Test Chapters 5 & 6		
18	7.1	Radical Expressions and Functions	**pp. 437:** 9,13,19,25,27,31,35,37,39,47, 53,59,67,73,79,85,89,93	
	7.2	Rational Numbers as Exponents	**pp. 443:** 9,15,21,27,31,37,45,49,55,61, 65,71,79,87,97	
	7.3	Multiplying Radical Expressions	**pp. 450:** 7,13,19,23,27,33,41,45,47,53,59 65,71,75	
19	7.4	Dividing Radical Exp.	**pp. 456:** 9,15,21,27,33,39,41,47,53,59,65	
	7.5	Expressions Containing Several Radical Terms	**pp. 462:** 7,11,15,19,23,27,31,37,43,47,51 55,59,61,67,71,87,97,103,107	
	7.6	Solving Radical Equations	**pp. 469:** 5,7,11,17,23,29,35,41,45,49,53	
20	7.8	The Complex Numbers	**pp. 489:** 9,15,21,27,33,41,47,57,59,65,69 75,77,81,89,95	
	8.1	Quadratic Equations	**pp. 508:** 7,11,17,25,27,29,33,37,41,47, 49,53,55,61,65,71	
	8.2	The Quadratic Formula	**pp. 515:** 7,11,17,23,27,31,35,39,43,47	
	8.3	Solutions of Quadratics	**pp. 519**: 1-6,7,11,15,19,33,42,45,47	
21	8.4	Studying Solutions of Quadratic Equations	**pp. 525:** 7,13,19,25,29,35,41,49,53	
	8.5	Equations Reducible to Quadratic	**pp. 533:** 9,13,17,19,23,27,31,35,39,41	
	8.6	Quadratic Functions and Their Graphs	**pp. 542:** 7,9,13,19,25,33,39,45,49,51,55, 57	

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22	8.7 8.8	More About Graphing Quadratic Functions Problem Solving and Quadratic Functions	**pp. 550:** 9,13,17,21,25,29,31,33,39 **pp. 556:** 5,7,13,15,19,23,2941	
23	7.1-7.8 8.1-8.9	Test Chapters 7 & 8		
24	9.1 9.2	Composite and Inverse Functions Exponential Functions	**pp. 588:** 9,13,17,21,25,27,33,39,43,47, 53,59,65,71,73 **pp. 596:** 1,7,13,19,25,31,35,39,41,45,49	
25	9.3 9.4	Logarithmic Functions Properties of Logarithmic Functions	**pp. 604:** 9,13,15,21,27,35,37,41,45,47,53 59,63,69,75,79,85,89 **pp. 611:** 7,11,13,17,21,23,27,31,33, 39,43, 47,51,53,57,61,65	
26	9.5 9.6	Common and Natural Logarithms Solving Exponential and Logarithmic Functions	**pp. 619:** 9,15,21,33,39,45,51,57,63, 65,69,75 **pp. 626:** 9,13,19,25,31,37,45,49,53,57,	
27	10.1 10.2	Conic Sections: Parabolas and Circles Conic Sections: Ellipses	**pp. 656:** 3,9,15,21,27,29,33,37,41,43,47, 49,53,55,59,63,67,71,75,77,83 **pp. 663:** 5,9,13,15,17,21,25,29,31	
28	10.3 10.4	Conic Sections: Hyperbolas Nonlinear Systems of Equations	**pp. 672:** 9,13,17,21,25,27,31,35,39,43 **pp. 682:** 7,13,19,23,29,35,41,47,51,53,55	
29	9.1-9.7 10.1-10.4	Test Chapters 9 & 10		
30	11.1 11.2	Sequences and Series Arithmetic Sequences and Series	**pp. 696:** 7,11,17,19,23,27,29,33,37, 41,45,49,53,59,61,65,67,69 **pp. 704:** 9,13,17,21,25,29,33,35,39, 43,45,47,51	
31	11.3 11.4	Geometric Sequences and Series The Binomial Theorem	**pp. 713:** 3,7,9,13,19,23,27,33,37,41, 47,51,53,57,61,65,69 **pp. 725:** 9,15,21,25,33,41,43,49	
32		Practice Final		
33		Final Exam 12:00 – 2:00 pm		

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