

MONTGOMERY COUNTY COMMUNITY COLLEGE  
Mat 100 – Intermediate Algebra – 3 credits  
Spring 2005

**Marion Graziano**  
**Phone: (215) 641-6607**  
**E-mail address: [mgrazia@mc3.edu](mailto:mgrazia@mc3.edu)**

**Math Office: PH143**  
**School Cancellation #**  
**Day: 320 Evening: 2320**

**Office Hours: posted on the door; all others by appointment**

M _____	Th _____
T _____	F _____
W _____	

**Course Title:** Intermediate Algebra

**Course Prefix and Number:** MAT 100

**Prerequisites** MAT 011 with a minimum grade of "C," UND MAT 116" on the math placement exam

**Course Description:** An intermediate algebra course which reviews and extends the material taught in MAT 011. It is appropriate for students who have taken MAT 011 or who have had an elementary algebra course in high school. It will prepare students for MAT 125, MAT 131, MAT 140 and/or MAT 161. Topics include a brief review of introductory algebra, introduction to functions, factoring, algebraic fractions, radicals, fractional exponents, the Pythagorean theorem, functional notation, graphing, quadratic equations, logarithms, systems of linear equations, and word problems applications. A graphing calculator is required. Instruction will be presented using a TI-83/83+.

**Textbook:** *Intermediate Algebra Graphs and Models*, 2<sup>nd</sup> edition, Bittinger, Ellenbogen, Johnson, Addison-Wesley, 2003.

**Required Materials:** A TI-83, TI-83 Plus, TI-83 Plus Silver, or TI-84 graphing calculator

**Learning Goals:**

This course is designed to bring the student's background up to proficiency sufficient to enter more advanced math courses. Upon completing this course, students should:

1. Obtain a knowledge of basic algebraic operations.
2. Understand the concepts of function, domain, range, inverse function.
3. Be able to graph linear functions and vertical lines.
4. Be able to evaluate function notation.
5. Be able to factor and apply this technique to simplifying expressions and solving equations.
6. Be able to simplify rational expressions and solve rational equations.
7. Be able to solve quadratic equations and graph quadratic functions.
8. Be able to simplify radicals and interpret i-notation.
9. Be able to solve systems of linear equations.
10. Be able to graph exponential and logarithmic functions.
11. Be able to solve word problems involving distance, rate, time, variation, investment, Pythagorean's Theorem, and regression.
12. Be able to use the TI-83 graphing calculator in relevant intermediate algebra concepts.

**Lateness Policy:** A lateness is treated the same way as an absence.

### **Assignment/Test Make-Up Policy**

No make-ups on quizzes or tests. If a student misses a test, the grade he/she receives on the final will be substituted. This will only be done once. If one has been there for all four tests, the final will replace the lowest test grade.

**Late Assignment Policy:** Assignments will be deducted one letter grade per class missed.

**Class Participation:** Students are encouraged to participate in class.

### **Withdrawal Policy**

If a student wishes to withdraw from the course, the student must complete a formal withdrawal form. This form must be signed by me. Any student who fails to officially withdraw from a course will receive a grade of "F." Withdrawals will be signed up to the sixth week of class.

**Cheating and Plagiarism Policy:** See College policy.

**Academic Discipline:** See page 21 of the College catalogue

**Grade Changes and Challenges:** See page 19 of the college catalogue

### **Methods of Evaluation**

There will be four (4) major tests as indicated in the syllabus. There will be quizzes and homework assignments that will be turned in and graded. I will drop the lowest two grades. There will be a final exam scheduled at the end of the semester during finals week.

### **Criteria for Evaluation**

Tests will be worth 100 points each, quizzes and worksheets will be worth 10 points each, and the final will be worth 100 points.

A = 90-100                  B = 80-89                  C = 70-79                  D = 60-69                  F = below 60

**Class Cancellation Policy:** For instructor illness - phone chain. For inclement weather—radio: 320 (day), 2320 (evening)

**Available Support Systems:** Disk Supplement, Learning Assistance Lab (LAL), Library, Computer labs, etc.

### **Classroom Expectations**

1. Arrive on time.
2. No sharpening pencils during class.
3. No cell phones or pagers turned on.
4. Seek help **immediately** if you don't understand.

### **Students with Disabilities**

Students with disabilities may be eligible for accommodations in this course. Please contact the Director of Services for Students with Disabilities in the Counseling Center, College Hall, at 215-641-6576 or 6577 for more information.

See web page for sample tests, review sheets and class notes.

MONTGOMERY COUNTY COMMUNITY COLLEGE

MAT100 Course Outline

COURSE TITLE: Intermediate Algebra  
 CREDIT HOURS: 3  
 PREREQUISITE: MAT011 with a minimum grade of "C", or two years of high school mathematics which includes one year of algebra  
 TEXTBOOK: *Intermediate Algebra, Graphs and Models*, 2<sup>nd</sup> edition, Bittenger, Ellenbogen, Johnson, Addison Wesley Publishers, 2003.  
 CALCULATOR: Texas Instruments 83, 83+, 83+ Silver Edition

Topic	Section in Text	Assignment
1. Review algebra	1.1	p. 11, #1, 5, 9, 17, 19, 27, 31, 49, 53
2. Operations with Real Numbers	1.2, 1.3	p. 20, #1, 22, 21, 27, 29, 31, 35, 59, 61; p. 21, #69, 79, 83, 105, 107, 113, 115; p. 29, #3, 7, 15, 43, 53
3. Exponential and scientific notation	1.4	pp. 41-42, #1, 3, 7, 9, 13, 17, 19, 21, 25, 33, 37, 41, 48, 51, 61, 69, 73, 81, 83, 89, 91, 97, 99, 105, 111
4. Graphs	1.5	p. 52, #1, 3, 13, 15, 21, 35, 37, 43, 45, 47
5. Functions and function notation	2.1	pp. 89-93, # 1, 3, 7, 9, 13, 21, 27, 31, 35, 39
6. Solving linear equations	2.2	pp. 105-107, #1, 3, 7, 39, 45, 55, 59, 63, 73, 75-77
7. Solving formula equations	2.3	p. 117, #33, 43, 47, 49, 53, 57, 61, 65
8. Linear functions: slope, graphs and models	2.4	p. 130, #7, 9, 17, 21, 25, 27, 31; 41, 45, 47, 53
9. Another look at linear graphs	2.5	p. 145, #3, 5, 11, 13, 19, 21, 31, 35, 39, 49, 51, 53, 55-57, 59, 61, 65, 67, 69
10. Point-slope formula	2.6	pp. 155-156, #1, 3, 11, 15, 19, 23, 27, 31, 35
11. Linear regression	2.6	P. 158, #53, 55
12. <b>Test #1</b> - Chapters 1 and 2		
13. Systems of equations	3.1 3.2	p. 188, #1, 4, 9 pp. 198-199, #1, 5, 7, 13, 15, 17, 25, 27, 33, 37
14. Investment, DRT application Break even analysis	3.3 3.7	p. 212, #19, 27, 28, 35, 37 p. 241, #1-9 odd, 19, 21
15. Inequalities	4.1	pp. 263, 264, #5, 7, 31, 33
16. Intro. to polynomial functions	5.1	p. 317, #1, 5, 19, 22, 27 p. 320, #65, 81, 87, 89, 93

Topic	Section in Text	Assignment
17. Multiplication of polynomials	5.2	p. 330, #5, 9, 15, 19, 27, 35, 39, 57, 65
18. Polynomial equations and factoring	5.3	p. 343-344, #1, 3, 5, 8, 21, 23, 25, 31, 33, 35, 37-47 odd, 51, 55, 65, 69, 71, 75, 83 a and b
19. Factoring trinomials	5.4 5.5 5.6	p. 354, #1, 5, 15, 27, 41, 42, 55 p. 363, #1, 15, 19, 57 p. 371, #1, 7, 25, 31, 35, 43, 55
20. Equations containing sums or differences of cubes	5.7	p. 376-377, #1, 5, 9, 17, 21, 23, 37
21. Applications of polynomial equations	5.8	p. 385-388, #5, 17, 25, 29 a and b
22. <b>Test #2</b> - Chapters 3, 4, 5		
23. Rational expressions and functions; multiplying and dividing	6.1	pp.408-410, #11, 13, 15, 17, 25, 27, 31, 35, 41, 43, 47, 55, 57, 65, 79, 83, 87, 89
24. Rational expressions and functions: Adding and subtracting	6.2	pp. 418-419, #, 3, 5, 9, 11, 15, 17, 23, 33, 35, 41, 45, 51
25. Rational equations	6.4	pp. 436-437, #1, 3, 9, 11, 17, 19, 21, 31
26. Applications	6.5	pp. 447-448, #1, 3, 23, 25, 31, 35
27. Formulas, applications and variations	6.8	pp. 470-473, #1, 3, 5, 7, 11, 17, 19, 21, 25, 31, 33, 37, 39, 41, 45, 47, 49, 51, 53, 57, 59, 61, 63, 66
28. Radical expressions, functions and models	7.1	pp. 497-499, #7, 9, 15, 25, 27, 39, 49, 65, 69, 76, 79, 85, 91, 103, 105, 109, 110
29. Rational exponents	7.2	pp. 505-506, #1, 3, 5, 11, 13, 17, 23, 25, 29, 31, 33, 37, 41, 43, 47, 55, 57, 59, 67, 71, 73, 75, 77, 79, 87-97 odd
30. Simplifying radicals	7.3-7.5	p. 514, #1, 5, 21, 23, 41, 51; p. 520, #1, 3, 19, 21; pp. 527-528, #1, 7, 13, 15, 65
31. Solving radical equations and applications	7.6-7.7	pp. 536-537, #1, 9, 15, 17, 19, 23, 25, 31, 32, 33, 34; p./ 544, #1, 3, 11, 13, 14, 17, 19; p. 546, #37
32. Complex numbers	7.8	p. 554, #1, 3, 5, 7, 8, 21, 23
33. <b>Test #3</b> - Chapters 6 and 7		
34. Quadratic equations	8.1, 8.2	p. 573, #1, 3, 5; p. 580, #1-9 odd, 13, 17, 21
35. Graphing quadratic functions	8.6, 8.7	p. 607, #1, 3, 5; p. 616, #7, 11, 13, 15, 17; p. 617, #33, 39

<b>Topic</b>	<b>Section in Text</b>	<b>Assignment</b>
36. Problem solving and quadratic functions	8.8	p. 627-632, #1, 3; 4, 17, 19, 21, #37 a and b
37. Inverse function	9.1	P. 662, #27, 29, 31, 35, 37, 41, 43, 45, 47, 49, 59
38. Exponential functions	9.2	P. 673, #5, 7, 31, 45, 47, 49, 50, 52a
39. Logarithmic functions	9.3	P. 684, #1, 3, 7, 11, 13, 15, 17, 21, 23, 25, 31, 37, 39, 41, 45, 47, 57, 61, 63, 65, 69, 71, 73,-81 odd, 87, 89-103 odd,123
40. Natural logs	9.5	P. 699, #1-5 odd; 13-17 odd, 19-25 odd, 31
41. Solving exponential and logarithmic equation	9.6	P. 706-707, #1, 5, 7, 11, 15, 19, 31, 37, 41, 63
42. Application of exponential and logarithmic functions	9.7	P. 722, #7, 9, 15, P. 725-727 #41 a & b, 46, 61 a & b
43. <b>Test #4</b> – Chapters 8 and 9		
44. Review		
45. FINAL EXAM by department (Date and time will be announced)		