Intermediate Algebra (MAT 137)

Fall 2011 – Monday and Wednesday 5 – 6:15 pm

Jennifer Adriano, Ed.D

Office Hours: Wednesday 3:45 – 4:45 or by appointment

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Prerequisite: MAT 095 or acceptable placement score

Textbook: *Intermediate Algebra – Functions and Authentic Applications (4th Edition)* by Jay Lehmann. A graphing calculator is strongly recommended for this course. Instructor will use a Texas Instrument calculator (TI83). If students are unable to obtain a graphing calculator, at least a scientific calculator is required.

Course Description: This course continues the development of algebraic skills and concepts. The topics include: linear equations, functions and graphs, applications of systems of equations, inequalities, rational expressions and equations, operations of radical and rational exponents, quadratic equations, exponential and logarithmic functions.

Disabilities Statement: Students with disabilities who may require special accommodations or modifications are encouraged to notify the instructor within the first two weeks of class and Chris Scarborough, Learning Disabilities Specialist.

Academic Integrity Statement: Academic integrity is essential to a useful education. Failure to act with academic integrity severely limits a person's ability to succeed in the classroom and beyond. Furthermore, academic dishonesty erodes the legitimacy of every degree awarded by the College. In this class and in the course of your academic career, present only your own best work; clearly document the sources of the material you use from others; and act at all times with honor.

Class Cancellation: If the college is closed for inclement weather, the decision will be communicated on local radio and television channels, the Three River's website, and the myCommnet Alert Notfication System.

Attendance: Attendance is extremely important. Students should notify the instructor prior to class when unable to attend.

Requirements: Homework will be assigned on a daily basis and the instructor will give credit for completed assignments. Tests will be announced but unannounced quizzes will be given at the discretion of the instructor. Four tests will be given in addition to a final exam. The lowest test grade (not the final exam) will be dropped. Final grades will be computed by a point system. Students will earn points for homework, quizzes, projects, and tests. Grade Equivalents: A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D+ (67-69), D (63-66), D- (60-62), F (below 60).

MAT137 Course Outcomes:

1. Factor an algebraic expression using a combination of greatest common factor, difference of two squares, sum or difference of two cubes, and/or trinomial factoring.
2. Use factoring procedures to solve equations and problems.
3. Solve compound linear inequalities of the form C<ax + b <d. Express answer algebraically, graphically, and using interval notation.
4. Isolate a particular variable in a literal equation.
5. Use quadratic formula to find exact values of a quadratic equation with irrational or imaginary solutions. Approximate the irrational solutions.
6. Solve basic exponential and logarithmic equations.
7. Evaluate basic logarithmic expressions, and convert between logarithmic and exponential form.
8. Solve an exponential equation that requires the use of logarithms.
9. Graph a quadratic function by finding the vertex, x- and y-intercepts.
10. Relate the discriminant in the quadratic formula to the graph of a parabola.
11. Graph a basic exponential or logarithmic function.
12. Know the graphical relationship between exponential and logarithmic functions.
13. Express the slope as a rate of change using appropriate units.
14. Write the equation of a linear function given data. Use functional notation in the answer.
15. Write the equation of an exponential function given data. Use functional notation in the answer.
16. Solve a 2 x 2 and 3 x 3 system of equations.
17. State the domain of linear, quadratic, exponential and logarithmic functions.
18. Evaluate functions using numerical and algebraic values.
19. Identify domain (inputs) and range (outputs) graphically for basic functions.
20. Interpret functional notation in a variety of application problems.
21. Determine if a relation is a function by looking at a graph, table, or equation.
22. Solve a rational equation and check for extraneous solutions.
23. Solve a radical equation that produces a second-degree equation. Check for extraneous solutions.
24. Know and apply the rules of integer and fractional exponents
25. Add, subtract, multiply, divide rational expressions. Reduce the answers.
26. Simplify a complex fraction.
27. Know the meaning of rational exponents and their relationship to radical form.
28. Simplify radical expressions with emphasis on cube roots and lower.
29. Rewrite radical expressions by rationalizing numerator or denominator.
30. Add, subtract, multiply, and divide radical expressions.
31. Solve application problems involving the Pythagorean Theorem.
32. Given a quadratic model, find and interpret the maximum or minimum values, and the intercepts.
33. Solve an application problem involving quadratic equations.
34. Solve an application problem that involves rational expressions.
35. Solve an application problem involving a given exponential or logarithmic model.
36. Solve applications involving linear systems.
37. Find the six trigonometric values of an acute angle
38. Solve triangles using right triangle trig, distinguish between the angle of depression and elevation.
39. Solve applied problems using right triangle trigonometry

Class Schedule (Tentative):

M 8/29	Welcome and Review	
W 8/31	Functions	1.6
M 9/5	Labor Day – No Class	
W 9/7	Linear Functions	2.1 – 2.3
M 9/12	Trigonometry	Handout
W 9/14	Trigonometry Continued	Handout
M 9/19	Systems of Linear Equations	3.2 & 3.3
W 9/21	Systems of Linear Equations Continued	3.2 & 3.3
M 9/26	**Test #1**	
W 9/28	Exponential Functions	4.1 & 4.2
M 10/3	Exponential Functions Continued	4.3 – 4.5
W 10/5	Logarithmic Functions	5.2 & 5.3
M 10/10	Logarithmic Functions Continued	5.4 – 5.6
W 10/12	Review for Test #2	
M 10/17	**Test #2**	
W 10/19	Polynomial Functions	6.1 & 6.2
M 10/24	Polynomial Functions Continued	6.3 & 6.4
W 10/26	Polynomial Functions Continued	6.5 & 6.6
M 10/31	Quadratic Functions	7.1 & 7.2
W 11/2	Quadratic Functions Continued	7.3 & 7.5
M 11/7	Quadratic Functions Continued	7.6 & 7.7
W 11/9	Review for Test #3	
M 11/14	**Test #3**	
W 11/16	Rational Functions	8.1 & 8.2
M 11/21	Rational Functions Continued	8.3
W 11/23	Thanksgiving Break – No Class	
M 11/28	Rational Functions Continued	8.5 & 8.6
W 11/30	Radical Functions	9.1 & 9.2
M 12/5	Radical Functions Continued	9.5
W 12/7	**Test #4**	
M 12/12	Exam Review	
W 12/14	**Final Exam**	

Homework Assignments: This is a tentative schedule; the assignments may vary

Date Assigned	Section(s)	Assignment	Due Date
W 8/31	1.6	Pgs. 48-50 (1-27 odd, 31-41 odd)	W 9/7
W 9/7	2.1 – 2.3	Pg. 63 (1), Pgs. 71-72 (1-11 odd), and Pgs. 84-85 (1-33 odd, 47, 57-59, 61)	M 9/12
M 9/12	Trigonometry	Handout (1-20)	W 9/14
W 9/14	Trignometry	Handout (21-31)	M 9/19
M 9/19	3.2 & 3.3	Pg. 122 (1, 3, 9, 13, 17-25 odd)	W 9/21
W 9/21	3.2 & 3.3	Pg. 122 (43, 49, 51, 55, 57) and Pgs. 129-131 (1, 3, 5, 7, 11 a & b, 13 a & c)	M 9/26
W 9/28	4.1 & 4.2	Pgs. 173-175 (1-67 odd, 71, 77, 85, 89) and Pgs. 182-183 (1-69 odd)	M 10/3
M 10/3	4.3 – 4.5	Pgs. 190-191 (1, 5, 11, 13, 19, 27, 33), Pgs. 198-199 (1, 5-21 odd, 27-33 odd), and Pgs. 207-208 (1, 9, 15, 17, 21)	W 10/5
W 10/5	5.2 & 5.3	Pg. 234 (1-39 odd) and Pgs. 241-242 (1-53 odd)	M 10/10
M 10/10	5.4 – 5.6	Pgs. 248-249 (5, 9, 13, 15), Pgs. 258-259 (1-29 odd), and Pg. 265 (1-19 odd)	W 10/12
W 10/12	Review	Pgs. 216-217 (1-27, 31, 32, 34-37) and Pg. 269 (8-15, 21, 22, 35, 36)	Optional
W 10/19	6.1 & 6.2	Pgs. 282-283 (15, 17, 23, 25, 31-55 odd, 67-73 odd) and Pg. 293 (1-91 every other odd: 1, 5, 9,…)	M 10/24
M 10/24	6.3 & 6.4	Pg. 303 (1-57 every other odd) and Pgs. 310-311 (1-75 every other odd)	W 10/26
W 10/26	6.5 & 6.6	Pg. 316 (1-85 every other odd) and Pgs. 326-327 (1-65 every other odd)	M 10/31
M 10/31	7.1 & 7.2	Pg. 343 (1-19 odd) and Pgs. 355-357 (5, 11, 17, 37, 41, 43, 47, 55)	W 11/2
W 11/2	7.3 – 7.5	Pgs. 368-369 (3, 7, 9, 11, 19-67 odd) and Pgs. 385-386 (1, 3, 5, 29, 33, 39-43 odd, 63-67 odd)	M 11/7
M 11/7	7.6 & 7.7	Pg. 394 (1, 5, 9, 21, 23, 25) and Pgs. 400-401 (5, 11)	W 11/9
W 11/9	Review	Pg. 333 (1-37) and Pgs. 416-417 (1-25, 31, 36-39, 42, 43)	Optional

Date Assigned	Section(s)	Assignment	Due Date
W 11/16	8.1 & 8.2	Pg. 430 (1-49 every other odd) and Pgs. 437-438 (7, 9, 13-21 odd, 27, 35)	M 11/21
M 11/21	8.3	Pgs. 448-449 (1-7 odd, 15-23 odd, 29, 37, 39, 43)	M 11/28
M 11/28	8.5 & 8.6	Pg. 465 (3-9 odd, 13, 15, 27, 33) and Pg. 475 (1, 3)	W 11/30
W 11/30	9.1 & 9.2	Pg. 508 (1-53 odd) and Pg. 516 (1-53 odd)	M 12/5
M 12/5	9.5	Pg. 538 (1, 9, 13, 15, 19, 25, 27, 33, 37, 39)	W 12/7