LAKELAND COMMUNITY COLLEGE – COURSE OUTLINE FORM

ORIGINATION DATE:	10/24/05	**APPROVAL DATE:**	3/28/12		
LAST MODIFICATION DATE:	5/24/12	**EFFECTIVE TERM/YEAR:**	FALL/ 12		

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COURSE ID: MATH0950
COURSE TITLE: Intermediate Algebra

	LECTURE	LAB	CLINICAL	TOTAL	OBR MIN	OBR MAX
CREDITS:	3.00	0.00	0.00	3.00	3.00	3.00
CONTACT HOURS:	3.00	0.00	0.00	3.00		

PREREQUISITE:

a grade of "SC" or better in MATH 0850 or placement test

COURSE DESCRIPTION:

This course continues the development of basic algebra concepts. Topics include factoring polynomials, solving polynomial equations, rational expressions, rational equations, radical expressions, radical equations, solving quadratic equations, graphing quadratic equations, and an introduction to the complex number system.

RATIONALE FOR COURSE:

This course continues to develop basic algebra concepts for application in college-level mathematics courses. In addition, problem-solving skills are continued to be developed that are useful in other disciplines.

GENERAL COURSE GOALS:
The course will

1. Further students' knowledge of mathematics as a symbolic language and structure that is useful in solving real-world problems.

2. Develop a basic understanding of how to use algebraic skills to model and solve real-world problems.

3. Develop students' ability to translate between English and Math.

4. Develop students' confidence to solve problems analytically.

5. Develop algebraic, graphical, and numerical techniques for solving problems.

COURSE OBJECTIVES:
Upon completion of the course, the student should be able to

1. Factor a polynomial by using appropriate methods: Factoring out a common monomial factor, difference of two squares, difference and sum of two cubes, perfect trinomial square, other trinomial methods, and grouping.

2. Solve polynomial equations by factoring.

3. Use polynomial equations to solve appropriate application problems.

4. Add, subtract, multiply, and divide rational expressions.

5. Simplify complex rational expressions.

6. Solve equations involving rational expressions.

7. Use equations involving rational expressions to solve appropriate application problems.

8. Simplify expressions involving radicals and rational exponents.

9. Solve equations involving radicals and rational exponents.

10. Use equations involving radicals to solve appropriate application problems.

11. Simplify expressions involving complex numbers.

12. Solve quadratic equations in one variable using an appropriate method: Extracting the square root, factoring, completing the square, or applying the quadratic formula.

13. Use the discriminant of the quadratic equation to determine the nature of solutions.

14. Complete the square as a means to transform a quadratic equation in two variables into standard form.

15. Graph a quadratic equation in two variables using the vertex, axis of symmetry, and end behavior.

16. Use quadratic equations to solve appropriate application problems.

17. Solve equations that are quadratic in form (as time permits).

18. Solve quadratic inequalities analytically, and interpret graphically (as time permits).

19. Communicate about algebra/mathematics both orally and in writing.

COURSE OUTLINE:

I.   Polynomials
     A.   Factoring
          1.   Greatest common factor
          2.   Factoring trinomials
               a.   Guess and check
               b.   Special forms
                    (1)   Perfect square trinomials
                    (2)   Difference of squares
                    (3)   Sum and difference of cubes
               c.   Factoring by grouping
          3.   Solving polynomial equations by factoring
          4.   Applications involving polynomials

II. Rational Expressions
     A.   Arithmetic of rational expressions
          1.   Multiplication and division
          2.   Addition and subtraction
               a.   "Like" denominators
               b.   "Unlike" denominators
     B.   Solving equations involving rational expressions
          1.   Identifying extraneous solutions
     C.   Simplifying complex fractions

D.   Applications involving rational expressions (including ratio, proportion, and variation)

III. Exponents and Radicals
    A.   Definition of nth root
    B.   Simplifying expression involving radicals
        1.   Product rule
        2.   Quotient rule
        3.   "Like" terms
        4.   Rationalizing numerators and denominators
    C.   Solving equations involving radical expressions
        1.   Identifying extraneous solutions
    D.   Definition and properties of rational exponents
    E.   Solving equations involving rational exponents
        1.   Identifying extraneous solutions
    F.   Applications involving radicals and rational exponents

IV.   The Complex Number System
    A.   Definition and standard form of a complex number
    B.   Arithmetic of complex numbers
        1.   Addition and subtraction
        2.   Multiplication
        3.   Division
            a.   Rationalizing the denominator

V.   Quadratic Equations
    A.   Solving quadratic equations
        1.   Extracting the square root
        2.   Factoring
        3.   Completing the square and the quadratic formula
            a.   Using the discriminant to determine the nature of solutions
            b.   Complex number solutions
    B.   Graphing quadratic equations in two variables
        1.   Finding the vertex, axis of symmetry, and determining end behavior from standard form
        2.   Completing the square to write a given quadratic in standard form
        3.   The vertex formula
    C.   Applications involving quadratic equations (including optimization problems)
    D.   Solving equations which are quadratic in form (as time permits)
    E.   Solving quadratic inequalities (as time permits)
        1.   Using a sign diagram
        2.   Graphical interpretation

INSTRUCTIONAL PROCEDURES THAT MAY BE UTILIZED:

Lecture/discussion sessions
Collaborative/group activities
Laboratory activities with worksheets, graphing calculators, or computer
Modeling a problem situation with data from the Internet or other source
Problem-solving sessions at the blackboard
Video tapes and tutorial instruction
Student projects and presentations and written reports

GRADING PROCEDURES:

1.   A grade of C or better is required for successful completion of the course.

2.   Instructors must abide by the following departmental guidelines:
    a.   80% or more of any test, midterm, or final exam must be without the aid of books, notes, cheat sheets, other people, etc.

b.   80% or more of every student's final grade is based on exams and quizzes that were conducted in class without the use of notes, books, cheat sheets, other people, etc.

COURSE EVALUATION PROCEDURES:

Formal and informal feedback from students and faculty
Review of student performance in subsequent mathematics courses

LAKELAND LEARNING OUTCOMES

		Methods of Assessment								
LEARNS ACTIVELY		1	2	3	4	5	6	7	8	9
1.	Takes responsibility for his/her own learning									
2.	Uses effective learning strategies									
3.	Reflects on effectiveness of his/her own learning strategies									

THINKS CRITICALLY		1	2	3	4	5	6	7	8	9
4.	Identifies an issue or idea									
5.	Explores perspectives relevant to an issue or idea									
6a.	Identifies options or positions									
6b.	Critiques options or positions									
7.	Selects an option or position	1								
8a.	Implements a selected option or position									
8b.	Reflects on a selected option or position									

COMMUNICATES CLEARLY		1	2	3	4	5	6	7	8	9
9a.	Uses correct spoken English									
9b.	Uses correct written English									
10.	Conveys a clear purpose									
11.	Presents ideas logically									
12a.	Comprehends the appropriate form(s) of expression									
12b.	Uses the appropriate form(s) of expression									
13.	Engages in an exchange of ideas									

USES INFORMATION EFFECTIVELY		1	2	3	4	5	6	7	8	9
14.	Develops an effective search strategy									
15a.	Uses technology to access information									
15b.	Uses technology to manage information									
16.	Uses selection criteria to choose appropriate information									
17.	Uses information responsibly									

INTERACTS IN DIVERSE ENVIRONMENTS		1	2	3	4	5	6	7	8	9
18a.	Demonstrates knowledge of diverse ideas									
18b.	Demonstrates knowledge of diverse values									
19.	Describes ways in which issues are embedded in relevant contexts									
20a.	Collaborates with others									
20b.	Collaborates with others in a variety of situations									
21.	Acts with respect for others									

Methods of Assessment Codes:		
1. Test/Examination	4. Collaborative Writing	7. Portfolio
2. Homework/Written Assignment	5. Presentation	8. Demonstration of Skills
3. Research Project	6. Lab Project	9. Other (Specify in Grading Procedures)