

FLORIDA STATE COLLEGE AT JACKSONVILLE

COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER:	MAT 1033
COURSE TITLE:	Intermediate Algebra
PREREQUISITE(S):	MAT 0024 with a grade of "C" or better or a satisfactory Score on the placement test (NOTE: Students must pass an Exit exam in order to satisfactorily complete the course.)
COREQUISITE(S):	None
CREDIT HOURS:	4
CONTACT HOURS/WEEK:	4
CONTACT HOUR BREAKDOWN:	
Lecture/Discussion:	4
Laboratory:	
Other _____:	
FACULTY WORKLOAD POINTS:	4
STANDARDIZED CLASS SIZE ALLOCATION:	25

CATALOG COURSE DESCRIPTION:

This course is designed for students who require additional skills in algebra before taking MAC 1105, MGF 1106 or MGF 1107. The major topics include sets, linear equations and inequalities with applications, absolute value, polynomials and factoring, rational expressions with applications, exponents, roots and radicals, quadratic equations with applications, relations and functions, graphs and systems of linear equations and inequalities. This course is an elective and will not apply towards the A.A. or A.S. mathematics General Education requirements. This course will count as an A.A. elective in both A.A. and A.S. requirements. (CBE)

SUGGESTED TEXT(S): Intermediate Algebra, Lial Addison-Wesley, Current Edition

Intermediate Algebra w/HM3 CDROM Smart Thinking Password Web, Aufmann Houghton-Mifflin, Current Edition,

SUGGESTED TEXT(S): (CONTINUED)

Intermediate Algebra, Martin-Gay Pearson Education (Prentice-Hall), Current Edition

Intermediate Algebra, A Graphing Approach, Martin-Gay/Greene, Pearson Prentice Hall.

Interactive Math - Intermediate Algebra, Martin-Gaye, Current Ed. Pearson Education (Prentice-Hall)

Intermediate Algebra, Johnston Thomson Learning, Current Edition

Intermediate Algebra, (Alternate) Lial Addison-Wesley, Current Edition

Intermediate Algebra for College Students, Angel, Current Edition Pearson Education (Prentice Hall)

Intermediate Algebra, Aufmann Houghton-Mifflin, Current Edition

Intermediate Algebra for College Students, Angel, Current Edition

Intermediate Algebra w/Applications, Wesner, Bernard J. Klein Publishing, Current Edition

Intermediate Algebra, Edward Burger Thinkwell, Current Edition

ELECTRONIC RESOURCES:

MyMathLab, Pearson Publishing ALEKS/Math Zone, Mcgraw Hill

IMPLEMENTATION DATE:

Winter Term, 1967 (672) (was MS 00103)

REVIEW OR MODIFICATION DATE:

Fall Term, 1998 (991)
Fall Term, 2002 (20031)
Spring Term, 2005 (20052)
Fall Term, 2005 (20061)
Fall Term 2008 (20091) - Outline Review 2007

COURSE TOPICS	CONTACT HOURS <u>PER TOPIC</u>
I. Sets	1
A. Sets, Notations, Symbolism, Set Operations	
B. Subsets of the Real Numbers	
C. Review of Operations with Real Numbers	
II. Linear Equations and Inequalities	9
A. Linear Equations, One Variable	
B. Formulas and Literal Equations	
C. Linear Inequalities, One Variable	
D. Equations and Inequalities Involving Absolute Value	
E. Applications	
III. Exponents, Polynomials and Factoring	7
A. Rules of Exponents	
B. Scientific Notation	
C. Fundamental Operations on Polynomials	
D. Factoring	
IV. Algebraic Fractions	7
A. Fundamental Operations	
B. Complex Fractions	
C. Equations with Algebraic Fractions	
D. Applications	
V. Roots and Radicals	8
A. Rational Exponents	
B. Roots and Radicals	
1. Simplification	
2. Operations on Radicals	
3. Equations Containing Radicals	
VI. Quadratic Equations and Inequalities	11
A. Solving Quadratic Equations	
1. Factoring	
2. Root Extraction	
3. Completing the Square	
4. Quadratic Formula	

COURSE TOPICS	CONTACT HOURS <u>PER TOPIC</u>
<ul style="list-style-type: none"> B. Complex Numbers as Solutions to Quadratic Equations C. Applications <ul style="list-style-type: none"> 1. Problems Involving Pythagorean Theorem 2. Other Applications D. Solving Quadratic Inequalities 	
VII. Relations and Functions	5
<ul style="list-style-type: none"> A. Basic Concepts B. Functional Notation C. Domain and Range D. Evaluate Functions 	
VIII. Graphs	8
<ul style="list-style-type: none"> A. The Rectangular Coordinate System B. Linear Equations <ul style="list-style-type: none"> 1. Slope <ul style="list-style-type: none"> a) slope as a rate of change b) applications of slope to real world problems 2. Perpendicular and Parallel Lines 3. Equations of the Line C. Linear Inequalities D. Introduction to Non-Linear Equations <ul style="list-style-type: none"> 1. Plot non-linear graphs including exponential functions 2. Associate equations with graph of functions <ul style="list-style-type: none"> a) Linear Function b) Absolute Value Function c) Parabola d) Cubic Function (Optional) e) Square Root Function (Optional) E. Domain and Range 	
IX. Systems of Linear Equations and Inequalities	4
<ul style="list-style-type: none"> A. In Two Variables B. Applications 	

*COURSE TOPICS NEED NOT BE PRESENTED IN THE INDICATED SEQUENCE.



**Florida State College
At Jacksonville**

**Course Learning Outcomes & Assessment
For All College Credit Courses**

NOTE: Use either the Tab key or mouse click to move from field to field. The box will expand to accommodate your entry.

Section 1 COURSE PREFIX AND NUMBER: MAT 1033	SEMESTER CREDIT HOURS: 4
COURSE TITLE: Intermediate Algebra	

Section 2

TYPE OF COURSE: (Click on the box to check all that apply)

<input checked="" type="checkbox"/> AA Elective	<input type="checkbox"/> AS Required Professional Course	<input checked="" type="checkbox"/> College Prep
<input type="checkbox"/> AS Professional Elective	<input type="checkbox"/> AAS Required Professional Course	<input type="checkbox"/> Technical Certificate
<input type="checkbox"/> Other _____		
<input type="checkbox"/> General Education: (For General Education courses, you must also complete Section 3 and Section 7)		

Section 3 (If applicable)

INDICATE BELOW THE DISCIPLINE AREA FOR GENERAL EDUCATION COURSES:

<input type="checkbox"/> Communication	<input type="checkbox"/> Social & Behavioral Sciences	<input checked="" type="checkbox"/> Mathematics
<input type="checkbox"/> Natural Sciences	<input type="checkbox"/> Humanities	

Section 4

INTELLECTUAL COMPETENCIES:

<input checked="" type="checkbox"/> Reading	<input checked="" type="checkbox"/> Speaking	<input checked="" type="checkbox"/> Critical Analysis	<input checked="" type="checkbox"/> Quantitative Skills	<input type="checkbox"/> Scientific Method of Inquiry
<input checked="" type="checkbox"/> Writing	<input checked="" type="checkbox"/> Listening	<input type="checkbox"/> Information Literacy	<input type="checkbox"/> Ethical Judgment	<input checked="" type="checkbox"/> Working Collaboratively

	Section 5 LEARNING OUTCOMES	METHOD OF ASSESSMENT
•	The successful student should develop:	Students are:
•	An appreciation of mathematics, confidence in their abilities to learn and use mathematics, a positive attitude towards mathematics, critical thinking skills	Confident in their abilities and have a more positive attitude towards mathematics as demonstrated by completing assigned homework, instructor observation, class assignments, quizzes and tests, cooperative learning and computer activities.
•	The successful student will be able to:	
•	Perform operations on sets and subsets and use proper notation and symbolism	
•	Evaluate formulas used in other disciplines such as science, business, statistics, geometry and other applied areas involving routine operations with real numbers.	Students will demonstrate critical thinking skills by successfully completing homework assignments, by solving problems on quizzes and tests, instructor observation, class assignments and discussions, cooperative learning and computer activities.
•	Demonstrate understanding of the concept of function by several means (verbally, numerically, graphically, and symbolically) and incorporate it as a central theme into the use of mathematics.	Students will demonstrate factual knowledge of algebraic principles and procedures through frequent and recurring tests and quizzes, instructor observation, assigned homework, class assignments and discussion, cooperative learning and computer activities.
•	Evaluate functions	

Section 5 (Continued)

Section 5		
LEARNING OUTCOMES		METHOD OF ASSESSMENT
•	Construct graphs of linear, quadratic, absolute value and cubic functions* (optional) by plotting points	Students will be able to connect mathematics to other disciplines and solve real-world application problems by frequent and recurring tests and quizzes, instructor observation, homework, class assignments and discussions, and cooperative learning and computer activities.
•	Identify the domain and range of a function	
•	Develop proficiency in solving linear equations and linear inequalities	
•	Solve quadratic equations by factoring, square-root property, completing the square and quadratic formula.	
•	Translate real-world problems using mathematical equations or inequalities and use the solution to solve the problem	
•	Solve absolute value equations and inequalities and represent the solutions using interval notation as well as graphically	
•	Translate a verbal or written statement into one which contains an absolute value expression.	
•	Develop proficiency in representing linear equations in various forms (point-slope form, slope intercept form, general form) and see the connection between these various equations	
•	See the connection between linear equations and real-world models	
•	See the connection between the slope of a line and its graph	
•	Interpret the slope of a line in several ways: rate of change, measure of steepness of a line and apply the concept of slope to various real-world applications	
•	Solve systems of linear equations and inequalities and be able to use these tools in the solution of practical applications	
•	Demonstrate proficiency in performing operations on polynomials including addition, subtraction, multiplication and division of polynomial expressions.	
•	Demonstrate proficiency in interpreting information from the graph of an equation.	
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•	Demonstrate proficiency in factoring polynomials	
•	Demonstrate proficiency in operations with rational expressions including adding, subtracting, multiplying and dividing rational expressions	
•	Simplify complex fractions	
•	Solve rational equations	
•	Represent radicals using rational exponents as well as the radical symbol	
•	Perform basic operations on radicals and simplify radical expressions	
•	Solve equations involving one or more radicals	
•	Distinguish between a quadratic equation and linear equation	
•	Simplify complex numbers of the form $\sqrt{-a}$ where $a > 0$	
•	See the connection between quadratic functions and one or more practical real-world applications	
•	Demonstrate mastery of appropriate mathematics terminology and symbols	
•		Summative evaluations may be administered to students and may include a midterm examination as well as a final examination. Summative evaluations should measure factual knowledge of skills, procedures, and principles needed to be successful in the subsequent college algebra class.

Section 6

Name of Person Completing This Form: William Radulovich

SECTION 7 MUST BE COMPLETED FOR ALL GENERAL EDUCATION COURSES.

<i>Section 7</i>	<i>Primary</i>	<i>Secondary</i>	<i>N/A</i>		<i>Primary</i>	<i>Secondary</i>	<i>N/A</i>
KNOWLEDGE				VALUE			
A. Global and Historical Knowledge & Understanding	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Intellectual honesty	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Comprehends a general knowledge of the nature, origins and contributions of major civilizations	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Curiosity and openness to new ideas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Comprehends the workings and interrelations of personal, business and government economies	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Recognition of one's own creative potential	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Comprehends political, social and economic systems and their effects upon society	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Acceptance of and respect for differences among people and cultures	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
B. Cultural and Aesthetic Knowledge and Understanding	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				
• Comprehends the contributions of the arts and humanities to the human experience on a personal, national or global level	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Civic Engagement	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Comprehends the historical development of the arts and sciences	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Lifelong Learning	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Comprehends religious and cultural systems and their effects upon society	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				
C. Human Awareness and Understanding	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				
• Comprehends the dynamics of human behavior and the process of increasing self-awareness, growth and development	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				
• Comprehends the stages of human development and the dynamics of human relationships in diverse cultures	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				
• Comprehends the factors that promote physical, mental and social well-being	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				
D. Mathematics, Science and Technology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
• Comprehends the basic concepts and investigative processes of the natural sciences	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
• Comprehends the breadth, significance and development of the mathematical sciences	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
• Comprehends the ways science and technology have shaped and continue to reshape human cultures and the environment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				