I. **Course Description:** Quadratic equations, functions and graphs, inequalities, systems of equations, exponential and logarithmic functions, theory of equations, sequences, and the Binomial Theorem.

II. **Pre-requisites:** Math0213 (Intermediate Algebra) or two years of high school algebra. The student must have a satisfactory COMPASS or ACT score.


The textbook is **required** for all sections of this course, regardless of the method of instruction.

IV. **Next Course in Sequence:** Trigonometry

V. **Course Objectives**

After completion of the course the student should be able to:

A. Use Laws of Exponents for integer and rational exponents.
B. Multiply and factor algebraic expressions.
C. Simplify, add, subtract, multiply, and divide algebraic fractions; simplify complex fractions.
D. Solve linear equations and applied problems; solve absolute value equations.
E. Perform operations with complex numbers.
F. Solve quadratic equations using the methods of factoring, completing the square, and the Quadratic Formula.
G. Solve linear inequalities, absolute value inequalities, and quadratic inequalities; use interval notation.
H. Understand the meaning of a function; determine the domain and range of a function; evaluate functions.
I. Use the Cartesian Coordinate System to graph functions; use symmetry, translation of axes, reflecting and stretching techniques to graph functions.
J. Add, subtract, multiply and divide functions; determine the composition function of two functions.
K. Recognize one-to-one functions; find the inverse function, \( f^{-1} \).
L. Find the slope of a line knowing two points on the line; find the average rate of change of a function \( f \) as its domain values vary from \( x_1 \) to \( x_2 \).
M. Recognize and use the point-slope and the slope-intercept forms of a linear function.
N. Identify and sketch the graph of a quadratic function.
O. Determine the zeros of a polynomial by applying techniques of factoring and synthetic division; graph a polynomial function.
P. Find vertical and horizontal asymptotes of the graph of a rational function; sketch the graph of a rational function.
Q. Graph the exponential function with base b; use the exponential function to solve word problems.
R. Graph the logarithm function; evaluate the logarithm function.
S. Solve exponential and logarithmic equations; solve word problems using the number e.
T. Graph and write the equation of a circle, ellipse, hyperbola, and parabola.
U. Determine the solutions of linear and nonlinear systems of equations using techniques such as substitution, addition-subtraction, and graphing.
V. Solve systems of equations using Cramer’s Rule, row operations on matrices, and the inverse matrix method.
W. Perform matrix addition, subtraction, multiplication; find the inverse of a matrix.
X. Identify sequences which are arithmetic, geometric, or neither; write specific terms, general terms, and find sums of arithmetic and geometric sequences.
Y. Use the Binomial Theorem to expand binomials; find a given term in a binomial expansion.

VI. Instructional Methods: Methods of instruction include discussion of homework, lecture on new material, class participation, and use of the computer program MyMathLab that accompanies your textbook. If you are a Math on Computer student, the computer will act as your lecturer and textbook. Keeping up with the assignments is the key to success in this course. You must take an active role in your own instruction to be successful in this course. This is not a self-paced course. There is a schedule that you must follow that includes due dates for both homework and quizzes. However, you are allowed and encouraged to work ahead of schedule. Free tutoring in math and additional computer time is available in the Learning Center.

VII. Attendance: Students will be expected to attend class, and to follow and maintain the schedule outlined in the syllabus. Students will be held accountable for all work covered in a course despite valid reasons for missing the work. Quizzes will be given in the classroom. Failure to attend class will result in making zeros on those quizzes.

VIII. Evaluation Techniques: Homework Assignments: There will be assigned homework exercises that will count as 5% of the final grade. Homework exercises may be done as often as needed, but will need to be completed by the due date.

Quizzes: There will be quizzes given in class on a regular basis, which will count as 5% of the final grade.

TESTS: There will be 3 tests and a comprehensive Final exam. Test #1 is an online exam. Test #2 and Test # 3 are written exams. The comprehensive Final exam is a written exam taken during Final exam week during the scheduled Final exam time. As a general principle, missing the deadline for a test will result in a zero for a score.

IX. Academic Dishonesty or Misconduct: Academic dishonesty or misconduct is not condoned or tolerated at institutions within the Oklahoma State University system. Academic dishonesty is behavior in which a deliberately fraudulent misrepresentation is employed in an attempt
to gain undeserved intellectual credit, either for oneself or for another. Academic misconduct is behavior that results in intellectual advantage obtained by violating specific standard, but without deliberate intent or use of fraudulent means. Academic dishonesty or misconduct cases are governed by the OSU-Oklahoma City Campus Student Rights and Responsibilities Code. Copies of the Student Rights and Responsibilities can be obtained from the Student Activities and Campus Life Office or an electronic version is also available online at http://www.osuokc.edu/rights/.

X. Grading: The first exam is an online test and will count as 15% of the final grade. Test #2 is taken in the classroom and will count as 25%. Test #3 is taken in class and will count as 25% of the final grade. The final exam is given at the scheduled Final Exam time and will count as 25% of the final grade. Assigned homework exercises will count as 5% of the final grade. The quizzes are given in class or on the computer and count as 5% of the final grade. Thus, the final grade is based on the following:

| Homework Assignments (on computer) | = 5% |
| Quiz scores (quizzes on the computer or in class) | = 5% |
| Exam #1 Online exam | = 15% |
| NOTE: The online exam must be taken by September 18th, 2011 or you will receive a zero |
| Exam #2 Written exam | = 25% |
| Test will be given in the classroom the week of October 24th |
| Test #3 Written exam | = 25% |
| Test will be given in the classroom the week of November 14th |
| Comprehensive Final (paper and pencil) | = 25% |
| Final exam will be given according to the University Finals Schedule. | |

<table>
<thead>
<tr>
<th>Total % Points</th>
<th>Letter Grade</th>
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<tbody>
<tr>
<td>90 - 100</td>
<td>A</td>
</tr>
<tr>
<td>80 - 89</td>
<td>B</td>
</tr>
<tr>
<td>70 - 79</td>
<td>C</td>
</tr>
<tr>
<td>60 - 69</td>
<td>D</td>
</tr>
<tr>
<td>0 - 59</td>
<td>F</td>
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XI. Withdrawals and Incompletes:

Withdrawal: Any student may drop, withdraw, or change to audit on or before the twelfth week (or the sixth week of an eight-week session) of classes. This must be processed through the Admissions Office and does not require the instructor's approval. All students remaining on the roll after the 12th week (or the sixth week for an eight-week session) of classes will receive a letter grade.

Administrative Withdrawal Policy: With department/division approval, faculty may choose to AW (administratively withdraw) a student who meets one more of the following criteria:

1. Has never attended class by the end of the first three weeks (the first two weeks for an eight-week course) of classes;
2. has consecutively missed 25 percent of the class meetings for a course; or,
3. for other reasons considered by the faculty to be special circumstances.

Students should not be given an AW who miss class intermittently. The specific guideline (1-3 above) that justifies an AW must be noted on the AW form; complete instructions for administrative withdrawal and the full AW policy are printed on the back of each Administrative Withdrawal form.

Incomplete: The incomplete grade "I" may not be used as a substitute for a failing grade. The "I" may be given only to a student who has completed more than 70% of the course work, is passing, has a valid excuse for being unable to complete the course, and has instructor's approval. An "Agreement for Incomplete Grade" form must be completed and signed by the student and the instructor. The contract will specify the time limits and the exact requirements for completing the course. One copy of the contract is retained by the student, one by the instructor, one by the Division, and one by the Registrar's Office.

XII. A.D.A. Policy: OSU-OKC complies with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. If any member of this class feels that he/she has a disability and needs special accommodations of any nature whatsoever, please request special accommodations by contacting the Office of Services to Students with Disabilities, located on the first floor of the Student Center, Office 112, or call 945-3385. All accommodations must be approved by the Services to Students with Disabilities Office.
XIII. **Electronic Device Policy:** Cell phones and other electronic devices are disruptive to the class. If a student’s work or family situation requires the student to keep the device turned on during class, the student must turn the phone to a silent or vibrate mode. If a student must receive a call during class, the student will leave the room. **A student may not make a call during class. Cell phones and all electronic devices may not be used during an exam unless stipulated by an instructor.** Use of a cell phone or electronic device during an exam is considered academic misconduct, and the student will be subject to the appropriate penalties. This policy may be strengthened by the instructor.

**Graphing Calculators:** Graphing calculators are considered electronic devices. Calculators with built-in Computer Algebra Systems (CAS) are **not allowed** in any math class. Prohibited calculators in this category include:

- Casio: model numbers that begin with CFX-9970G
- Texas Instruments: model numbers that begin with TI-89, TI-92 or TI-Nspire
- Hewlett-Packard: HP 48GII and model numbers that begin with HP 40G or HP 49G

This policy may be strengthened by the instructor.

XIV. **Unattended Children Policy:** “For personal safety of children and potential problems in supervision, children should not be at any location on campus without adult supervision. No children are permitted in classrooms, laboratories, teaching areas or the Library.”

OSU-OKC 2010-2011 Catalog, pg 12.

XV. **General Educational Goals:**

Upon completion of General Education Curriculum, students should be proficient in demonstrating the following competencies:

**Goal #1: Critical Thinking:**

Critical thinking skills include, but are not limited to, the ability to comprehend complex ideas, data, and concepts; to make inferences based on careful observation; to make judgments based on specific and appropriate criteria; to solve problems using specific processes and techniques; to recognize relationships among the arts, culture, and society; to develop new ideas by synthesizing related and/or fragmented information; to apply knowledge and understanding to different contexts, situations, and/or specific endeavors; and to recognize the need to acquire new information.

*All courses will contain assignments that demonstrate critical thinking, but not all courses will include all listed critical thinking elements.
Goal #2: Effective Communications

Effective communication is the ability to develop organized, coherent, unified written or oral presentations for various audiences and situations.

Goal #3: Computer Proficiency

Computer proficiency includes a basic knowledge of operating systems, word processing, and Internet research capabilities.

Goal #4: Civic Responsibility

Preparation for civic responsibility in the democratic society of the United States includes acquiring knowledge of the social, political, economic, and historical structures of the nation in order to function effectively as citizens in a country that is increasingly diverse and multicultural in its population and more global in its view and functions.

Goal #5: Global Awareness

Global awareness includes knowledge of the geography, history, cultures, values, ecologies, languages, and present day issues of different peoples and countries, as well as an understanding of the global economic, political and technological forces which define the interconnectedness and shape the lives of the world’s citizen.
XVI. **Honors Credit:** A student who meets the following criteria may receive Honors credit by completing a Request for Honors Credit by Contract – Conditions form with the instructor’s permission and submitting it to the program coordinator. You must achieve a “B” or above and satisfactorily complete your contract to earn the Honors designation for the course.

**Requirements for new Freshmen:**
A. ACT composite score of 23 or higher, or a high school grade point average of 3.5 or higher.
B. Students other than new freshmen will be eligible on the basis of OSU-OKC retention grade point averages which meet eligibility requirements for continued honors enrollment.

**Continued Eligibility Requirements for students with previous college credit:**
A. Fewer than 30 credit hours – 3.0 minimum retention grade point average
B. Thirty or more credit hours – 3.25 minimum retention grade point average

**Petition to Participate in Honors Program:** Students who do not meet the eligibility requirements may petition the committee coordinator/co-chairs for an exception to the minimum GPA requirement. Consideration of the petition will be based upon performance during the prior semester at OSU-OKC.

XVII. **Institutional Statement:** Each student is responsible for being aware of the information contained in the OSU-OKC Catalog, Class Schedule and Student Handbook.

XVIII. **Syllabus Modification Statement:** Faculty has the right to change or modify the course syllabus materials during the academic year. Any changes will be shared with students. All changes in the instructor’s policies after the semester has begun must be made in writing as part of a written addendum to the course syllabus; this addendum should be clearly labeled as such and dated.

XIX. **Global Education Mission:** Global Education is an institutional commitment to providing learning environments that provide a cross-cultural global perspective through all facets of the educational process. This institutional commitment to Global Education shall manifest itself throughout the entire institution, providing support for diversity, international, and intercultural education opportunities. These opportunities will be institutionalized through curricular and co-curricular activities. This institutional commitment to Global Education will assist OSU-OKC in accomplishing its mission of preparing the student for an increasingly technological and global society.
XX. OUTLINE AND TENTATIVE SCHEDULE:
The schedule below has several sections marked with a “*”. This indicates that the section is a prerequisite subject to College Algebra and will only be briefly discussed by your instructor. If you need additional work in these areas you may need to visit the tutors in the TLC.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
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| 1    | * 1.4 Complex Numbers  
* 1.5 Quadratic Equations  
* 1.7 Linear Inequalities and Absolute Value Inequalities |
| 2    | *2.1 Basics of Functions and Their Graphs  
2.2 More on Functions and Their Graphs  
*2.3 Linear Functions and Slope |
| 3    | *2.4 More on Slope  
2.5 Transformations of Functions |
| 4    | Review  
EXAM 1 – Online Exam covering sections 1.4 to 2.5 |
| 5    | 2.6 Combinations of Functions; Composite Functions  
2.7 Inverse Functions  
2.8 Distance and Midpoint Formulas; Circles |
| 6    | 3.1 Quadratic Functions  
3.2 Polynomial Functions and Their Graphs  
3.3 Dividing Polynomials; Remainder and Factor Theorems |
| 7    | 3.4 Zeros of Polynomial Functions  
3.5 Rational Functions and Their Graphs |
| 8    | 4.1 Exponential Functions  
4.2 Logarithmic Functions  
4.3 Properties of Logarithms |
| 9 | 4.4  | Exponential and Logarithmic Equations |
|   | 4.5  | Exponential Growth and Decay; Modeling Data |
|   |      | Fall Break |
| 10 |      | Review |
|    | 4.5  | Exponential Growth and Decay; Modeling Data |
|    |      | Fall Break |
|    | 5.1  | Systems of Linear Equations in Two Variables |
|    | 5.4  | Systems of Nonlinear Equations in Two Variables |
| 12 | 6.3  | Matrix Operations and Their Applications |
|    | 6.4  | Multiplicative Inverses of Matrices and Matrix Equations |
|    | 6.5  | Determinants and Cramer’s Rule |
| 13 |      | Review |
|    |      | EXAM 2 - Taken in the classroom |
|    |      | Covering 2.6 to 2.8, Chapter 3, and Chapter 4 |
| 14 | 8.1  | Sequences and Summation Notation |
|    |      | Thanksgiving Break |
| 15 | 8.2  | Arithmetic Sequences |
|    | 8.3  | Geometric Sequences and Series |
| 16 | 8.5  | The Binomial Theorem |
|    |      | Review for Final Exam |
| 17 |      | Comprehensive FINAL EXAM (at scheduled time) |

FALL 2011