**STEM Division**  
College Algebra Corequisite

**MATH 1314-48411**, 3 Credit Hours  
**SEMESTER YEAR**

Co Req Course taken with  
DMAT 0315

**ONLINE**

<table>
<thead>
<tr>
<th>INSTRUCTOR(s):</th>
<th>Rose Deike</th>
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<tbody>
<tr>
<td>EMAIL(s):</td>
<td><a href="mailto:roseedike@dcccd.edu">roseedike@dcccd.edu</a></td>
</tr>
<tr>
<td>EMAIL POLICY(s):</td>
<td>I will respond within 24 to 48 hours</td>
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**INSTRUCTOR CONTACT INFORMATION:**  
My preferred method of contact is __________. Please keep in mind that it is against the law (FERPA) for me to discuss grades with you via phone or email. See me in person if you need to discuss your personal academic progress or grades in this course.

**MATH 1314 COURSE DESCRIPTION:**  
This course is an in-depth study and applications of polynomial, rational, radical, exponential, logarithmic, absolute value and piecewise-defined functions, and systems of equations using matrices. Also covered are the graphing calculator, non-linear inequalities, sequences and series, circles, the Binomial Theorem and a review of the classification of the real number system. MATH 1314 is the prerequisite for MATH 1316. The corequisite for this course is DMAT 0315-47411. Online

**COREQUISITE/CONCURRENT**  
This is a corequisite course and requires continuous concurrent enrollment with DMAT 0315.
STUDENT LEARNING OUTCOMES:
Upon successful completion of this course, students will:

1. Demonstrate and apply knowledge of properties of functions, including domain and range, operations, compositions, and inverses.

2. Recognize and apply knowledge of polynomial, rational, radical, exponential, logarithmic, absolute value and piecewise-defined functions.
   - Solve polynomial (including equations reducible to quadratic), rational, radical, exponential (including same base and different bases), logarithmic and absolute value equations related to these functions.
   - Solve polynomial, rational and absolute value inequalities.

3. Use graphing techniques, including, but not limited to, the use of a graphing calculator: increasing/decreasing/constant intervals, symmetry, even/odd functions, transformations (including translations, reflections, stretching and shrinking), completing the square, and finding relative maxima and minima graphically.
   - Recognize and be able to graph the basic equation of a circle.

4. Use the different theorems of polynomials (including the Rational Zeros Theorem) to evaluate all roots of higher degree polynomial and rational functions.

5. Recognize and solve systems of linear equations and their applications using matrices.

6. Demonstrate an understanding of sequences and series, including finding nth term & partial sums for arithmetic and geometric sequences.

7. Use the Binomial Theorem to expand binomials.

8. Recognize the different classifications within the real and complex number systems.

CORE OBJECTIVES:
MATH 1314 develops the following Core Objectives:

1. Critical Thinking -to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.

2. Communication -to include effective development, interpretation and expression of ideas through written and visual communication.

3. Empirical and Quantitative Skills - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

Core Objective Development Statements: MATH 1314 develops Critical Thinking, Communication, and Empirical and Quantitative Skills by requiring students to solve and analyze applications of various functions and systems of equation.

COURSE MATERIALS:
- Required: MyMathLab Student Access Kit
MYMATHLAB TECHNICAL SUPPORT:
- It is the responsibility of the student to contact MyMathLab Technical Support to resolve any technical issues. Please visit the following website for assistance:
  - https://www.pearsonmylabandmastering.com/northamerica/mymathlab/students/support/technical-support/index.html

CALCULATOR
A graphing calculator is required for this course. You may choose your own graphing calculator model; however, TI 83 or TI 84 version is strongly preferred. Graphing calculators may not be allowed during some examinations.

GRADING POLICY  Your grade will be determined as follows:

<table>
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<tr>
<th>Category</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework and Review Tests</td>
<td>20%</td>
</tr>
<tr>
<td>Module Tests (4 total)</td>
<td>20%</td>
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<tr>
<td>Proctored Final Exam</td>
<td>60%</td>
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MASTERY LEARNING  Mastery learning is a major tenant of this course. This means that you will not be able to proceed to the next topic until you have mastered the skills being covered. All homework and quizzes require mastery. For the purpose of this course, mastery is defined as a minimum score of 80%.

POLICY ON MISSED TESTS AND ASSIGNMENTS  All assignments have strict deadlines. Due dates are can be viewed in My Math Lab. After the deadline for homework and quizzes, you will have the opportunity to complete the work with a 10% penalty. If you miss the test deadline, you still have the opportunity to take a 2nd and 3rd attempt. The midterm and final exams have strict deadlines which must be met.

POLICY ON PROCTORED EXAM  Please note that you are required to take a proctored Final exam on campus. The Exam will be administered at the Eastfield College Testing Center or prearranged Testing Center. It will count as 60% of your grade. Please go to http://www.eastfieldcollege.edu/ari/testing.asp for more information about testing center hours, policies, procedures, etc.

ATTENDANCE POLICY  Classroom attendance is not required for this course; however, students are required to remain actively engaged with course curriculum. Any student that has NOT registered on MyMathLab AND has NOT completed the orientation assignment by 8pm on October 27, 2019, will NOT be certified as having attended and consequently may be dropped from the class. If a student is unable to complete a course (or courses) in which he/she is registered, it is the responsibility of the student to withdraw from the course by November 29, 2019. (The date is published in the academic calendar each year and in each semester’s class schedule). If a student does not withdraw, he/she will receive a performance grade, usually a grade of “F”. Students who are absent from class for the observance of a religious holiday may take an examination or complete an assignment scheduled for that day within a reasonable time after the absence if, not later than the 15th day of the semester, the student notified the instructor(s) that the student would be absent for a religious holiday.
Sec. 51.911 TX Educ. Code.

Policy on Missed Tests and Assignments: Assignments and Review tests may be completed past the due date until the last week of class with a 10% penalty. You are given an opportunity to take a 2nd and if necessary, a 3rd attempt for each Module Test.

ADDITIONAL RESOURCES:
The Math Tutoring Center provides FREE TUTORING to current Eastfield College students enrolled in a Mathematics or Developmental Mathematics course. Students are encouraged to take advantage of this free resource for additional help in their course work. Please visit the Math Tutoring Center located in the Learning Commons in L200, check eastfieldcollege.edu/tutoring, or call 972-860-7174 for more information.

INSTITUTIONAL POLICY AND SERVICES:
Institutional Policies relating to this course can be accessed from the following link:
https://www.eastfieldcollege.edu/syllabipolicies

LEARNING GOALS:
This is a mathematics course in which you will learn to use, understand, and communicate about mathematical information. The course has five goals:

- **Communication goal:** You will interpret and communicate quantitative information and mathematical concepts using language appropriate to the context and intended audience.
- **Problem Solving goal:** You will make sense of problems, develop strategies to find solutions, and persevere in solving them.
- **Reasoning goal:** You will reason, model, and make decisions with mathematical and quantitative information.
- **Evaluation goal:** You will critique and evaluate quantitative arguments that utilize mathematical and quantitative information.
- **Technology goal:** You will use appropriate technology in a given context.

COURSE COVERAGE:

<table>
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<tr>
<th>Sections</th>
<th>Topics</th>
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<tbody>
<tr>
<td>R1 – R7; 1.1 – 1.2, 1.4-1.6</td>
<td>The Set of Real Numbers; Operations with Real Numbers; Exponential Notation and Order of Operations; Introduction to Algebraic Expressions; Equivalent Algebraic Expressions; Simplifying Algebraic Expressions; Properties of Exponents and Scientific Notation; Solving Equations; Formulas and Applications; Sets; Inequalities; Interval Notation; Intersections and Unions; Compound Inequalities; Absolute-Value Equations and Inequalities</td>
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<tr>
<td>Section Range</td>
<td>Topics</td>
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<tr>
<td>2.1 – 2.7; 3.1 – 3.4, 3.7</td>
<td>Graphs of Equations and Functions; Finding Domain and Range; The Algebra of Functions; Linear Functions: Graphs and Slope; Finding Equations of Lines; Applications; Systems of Equations in Two Variables; Solving systems of Equations by Substitution and Elimination; Applied Problems: Two Equations; Systems of Inequalities in Two variables</td>
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<tr>
<td>10.1 – 10.4</td>
<td>Matrices, Matrix Operations, Inverse of Matrices, Determinants and Cramer's Rule</td>
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<tr>
<td>4.1 – 4.6, 4.8; 5.1 – 5.5</td>
<td>Introduction to Polynomials and Polynomial Functions; Multiplication of Polynomials; Introduction to Factoring; Factoring Trinomials and Special Factoring; Applications of Polynomial Equations and Functions: The Principle of Zero Product; Rational Expressions and Functions: Multiplying, Dividing, and Simplifying; LCMs, LCDs, Addition, and Subtraction of rational expressions; Division of Polynomials; Complex Rational Expressions; Solving Rational Equations</td>
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<tr>
<td>6.1 – 6.8</td>
<td>Radical Expressions and Functions; Rational Numbers as Exponents; Simplifying Radical Expressions, Addition, Subtraction, Multiplication and Division of Radical Expressions; Solving Radical Equations; Applications Involving Powers and Roots: Pythagorean Theorem; Increasing, Decreasing, and Piecewise Functions</td>
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<td>7.1 – 7.5; 8.1 – 8.6</td>
<td>Symmetry; Transformations; The Complex Numbers; Quadratic Equations, Functions, Zeros, and Models; Analyzing Graphs of Quadratic Functions; Polynomial Functions and Models; Graphing Polynomial Functions; Polynomial Division; The Remainder Theorem and the Factor Theorem; Theorems about Zeros of Polynomial Functions; Rational Functions; Polynomial and Rational Inequalities</td>
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<td>9.1 – 9.7</td>
<td>The Composition of Functions; Inverse Functions; Exponential Functions and Graphs; Logarithmic Functions and Graphs; Properties of Logarithmic Functions; Solving Exponential and Logarithmic Equations; Applications and Models; Growth and Decay; Compound Interest</td>
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<td>11.2; 12.1 – 12.3, 12.7</td>
<td>Circles; Sequences and Series; Arithmetic Sequences; Geometric Sequences and Series; The Binomial Theorem</td>
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**SYLLABUS REVISION:**
The guideline in this syllabus may be changed, deleted, or amended any time by the instructor. The attached course outline is intended as an aid in helping you know your responsibilities for the semester. It is possible that some changes in the course outline or class policies will be made during the semester. Any changes that are made to the class policies or course outline will be announced in class.

Last Revised: 08/02/2018