

# Fundamentals of College Mathematics Course Overview

Content Area: **Math**  
Course(s): **FUNDAMENTALS OF COLLEGE MATHEMATICS**  
Time Period:  
Length: **Full Year**  
Status: **Published**

## Cover

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### **EAST BRUNSWICK PUBLIC SCHOOLS**

**East Brunswick New Jersey**

**Superintendent of Schools**

Dr. Victor P. Valeski

**Mathematics**

**Fundamentals of College Mathematics-Course Number: 1169**

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**Revisions Prepared By**

**Course Adoption: 3/9/2000**

**Curriculum Adoption: 11/2/2017**

**Date of Last Revision Adoption: 9/1/2017**

## **Course Overview**

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### **COURSE DESCRIPTION:**

This course will specifically address the skills necessary for a student to be successful on a college placement examination and in entry-level college mathematics courses. The review of foundational mathematical skills will be intertwined with a study of application and real-life problems that will allow the student to see theory in practice. Algebraic and arithmetic operations and manipulations will be stressed throughout the course. Technology via the use of calculators and internet resources will also be implemented as a way of promoting student understanding and focus.

## **Textbooks and other resources**

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**Textbook:** Algebra & Trigonometry 3<sup>rd</sup> edition by Blitzer (2007)



- Print and web-based textbook resources
- Scientific and TI-83 graphing calculators
- Teacher designed worksheets and resources
- Print and online *Accuplacer* resources
- Mathhelp Online app for individualized instruction

## Scope and Sequence

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Sequential Unit Description:	Marking Period Guide	Other Pacing Guide References	Proficiency (Summative) Assessments
<p style="text-align: center;"><b>Unit 1 -Signed Numbers</b></p> <p>Students will be able to add, subtract, multiply, and divide signed numbers. They will use these concepts to simplify algebraic expressions and solve equations.</p>	1	September	<p style="text-align: center;">Unit Assessment</p> <p style="text-align: center;">Accuplacer Test</p>
<p style="text-align: center;"><b>Unit 2 -Evaluating and Translating Algebraic Expressions</b></p> <p>Students will be able to translate words into algebraic expressions. They use substitution to evaluate algebraic expressions.</p>	1	September/October	Unit Assessment
<p style="text-align: center;"><b>Unit 3 -Solving Equations and Inequalities</b></p> <p>Students will be able to graph linear equations. They will use the slope and intercept to analyze and create graphs. Students will solve equations and inequalities.</p>	1	October	<p style="text-align: center;">Unit Assessment</p> <p style="text-align: center;">Accuplacer Test</p>
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<p style="text-align: center;"><b>Unit 4: Systems of Equations</b></p> <p>Students will be able to graph lines in order to determine their point of intersection. They will use algebraic methods to find the solution to the system of linear equations.</p>		November	Unit Assessment
<p style="text-align: center;"><b>Unit 5: Operations on Polynomials</b></p> <p>Students will be able to perform operations on polynomials including adding, subtracting, multiplying and factoring. The use of the distributive property will be reviewed.</p>	2	November/December	Unit Assessment  Accuplacer Test
<p style="text-align: center;"><b>Unit 6: Rational Expressions</b></p> <p>Students will be able to perform operations on rational expressions, including simplifying, multiplying and dividing and finding common denominators in order to add and subtract rational expressions. Students will also solve rational equations with and without a variable in the denominator.</p>	2/3	January/February	Unit Assessment  Accuplacer Test
<p style="text-align: center;"><b>Unit 7: Radical Expressions</b></p> <p>Students will simplify square roots and cube roots. Students will add and subtract expressions with radicals and multiply variables with exponents.</p>	3	March/April	Unit Assessment  Accuplacer Test

<p style="text-align: center;"><b>Unit 8: Functions and Their Graphs</b></p> <p>Students will be able to find the distance and midpoint between two points on the coordinate plane. They will be able to identify a parabola and its graph. They will be able to write and graph circle equations.</p>	4	April	Unit Assessment
<p style="text-align: center;"><b>Unit 9: Statistics and Probability</b></p> <p>Students will use the Fundamental Counting Principle to model and solve probability problems. Students will interpret scatterplots using correlation.</p>	4	May	Unit Assessment  Accuplacer Test
<p style="text-align: center;"><b>Unit 10: Geometry</b></p> <p>Students will use surface area and volume formulas. They will apply their knowledge to real world scenarios.</p>	4	May/June	Project

MA.K-12.1	Make sense of problems and persevere in solving them.
MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
MA.K-12.6	Attend to precision.
MA.K-12.7	Look for and make use of structure.
MA.K-12.8	Look for and express regularity in repeated reasoning.

## **Grading and Evaluation Guidelines**

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### **GRADING GUIDELINES:**

As per Math Department Policy, grades will be determined by a variety of assessment strategies, including Major Assessments, Minor Assessments, and Performance Assessments. In addition to tests and quizzes, students will be evaluated on a combination of performance assessment instruments, including homework completions, cooperative group participation, note-taking, open ended question responses, lab reports and/or supplemental projects.

### **GRADING PROCEDURES:**

Grading procedures must be described in sufficient detail so that a pupil will understand, the minimal to advanced proficiency, expected of him/her as the outcome of each unit, for the marking period and for the course as a whole. Benchmark level assessments associated with the course also need to be identified. While assessments of proficiency levels must be valid and reliable they do not need to be the same for all students.

Other criteria to be considered in grading must be identified and the degree to which such criteria will be considered in a grade. Each pupil must receive a copy of the grading procedures, proficiencies and criteria for each unit and/or marking period.

### **COURSE EVALUATION:**

Course achievement will be evaluated as the percent of all pupils who achieve the minimum level of proficiency (final average grade) in the course. Student achievement levels above minimum proficiency will also be reported. Final grades, and where relevant mid-term and final exams, will be analyzed by staff for the total cohort and for sub-groups of students to determine course areas requiring greater support or modification.

**In terms of proficiency the East Brunswick grades are as follows:**

<b>A</b>	<b>Excellent</b>	<b>Advanced Proficient</b>
<b>B</b>	<b>Good</b>	<b>Above Average Proficient</b>
<b>C</b>	<b>Fair</b>	<b>Proficient</b>
<b>D</b>	<b>Poor</b>	<b>Minimally Proficient</b>
<b>F</b>	<b>Failing</b>	<b>Partially Proficient</b>

In this course the goal is that a minimum of 95% of the pupil's will meet at least the minimum proficiency level (D or better) set for the course. The department will analyze the achievement of students on Unit Assessments, Mid-term and Final Exams and Final Course Grades, and for Final Course Grades the achievement of sub-groups identified by the state to determine if modifications in the curriculum and instructional methods are needed. In addition, the course curriculum is compared with students' achievement on the ACCUPLACER, the college placement examination used throughout the state.

**Course evaluation requires the answering of the following questions:**

1. Are course content, instruction and assessments aligned with the required NJSLs?
2. Is instruction sufficient for students to achieve the Standards?
3. Do all students achieve the set proficiencies/benchmarks set for the course?

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**Other Details**

**SCED**

**02057 Fundamentals of College Math**

This course reviews and extend algebraic concepts for students who have already taken Algebra II. Course topics include (but are not limited to) operations with rational and irrational expressions, factoring of rational expressions, linear equations and inequalities, quadratic equations, solving systems of linear and quadratic

equations, properties of higher degree equations, and operations with rational and irrational exponents. The courses may introduce topics in discrete math, elementary probability and statistics; matrices and determinants; and sequences and series.