# COURSE OUTLINE

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MAT043</td>
<td>Foundation Math III</td>
<td>1 (5 weeks)</td>
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<table>
<thead>
<tr>
<th>Hours:</th>
<th>Co- or Pre-requisite</th>
<th>Implementation</th>
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<tbody>
<tr>
<td>lecture/Lab/Other</td>
<td>MAT042</td>
<td></td>
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<tr>
<td>0/2/0</td>
<td></td>
<td>Fall 2013</td>
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**Catalog description:** Developmental mathematics course designed for students needing additional topics in algebra. Students work through the material – operations on rational and radical expressions, systems of equations, and linear models – in mastery-based modules in a lab setting. Those who complete this course may register for MAT135 or MAT140. [Does not fulfill mathematics elective requirements.]

**Is course New, Revised, or Modified?** Modified Fall 2014 (Software only)

**Required texts/other materials:** ALEKS Software

**Revision date:** Spring 2019  
**Course coordinator:** Jamie Fleischner  
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**Information resources:** The Mercer County Community College Library has a wide assortment of reference books that students may use. Students may access tutoring resources from the Carnegie Learning System. Tutors are available during lab periods and at the West Windsor and James Kerney Learning Center.

As this is a foundations level mathematics course, the objective of the course is to prepare students to take a college-level mathematics course. Crucial to success in a mathematics course is the ability to think “algebraically”; that is, to be able to demonstrate an ability to move beyond following prescribed algorithms into abstract reasoning.

A minimum grade of "C" is required for movement from one developmental course to another and for the completion of developmental requirements to qualify for credit-bearing mathematics courses.
**Course-specific General Education Knowledge Goals and Core Skills:**

**General Education Knowledge Goals**

**Goal 2. Mathematics.** Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.

**MCCC Core Skills**

**Goal B. Critical Thinking and Problem-solving.** Students will use critical thinking and problem solving skills in analyzing information.

**Goal E. Computer Literacy.** Students will use computers to access, analyze or present information, solve problems, and communicate with others.

In the list below, GE refers to General Education Knowledge Goals and Core refers to MCCC Core Skills.

**Course Competencies/Goals:**

Students will be able to demonstrate through tests and assignments the ability to:

1. define and solve quadratic equations by the zero product property using factoring. (GE2, Core B,E)
2. perform arithmetic operations on rational expressions. (GE2, Core B,E)
3. solve rational equations. (GE2, Core B,E)
4. perform arithmetic operations on radical expressions. (GE2, Core B,E)
5. solve linear systems of equations having solutions. (GE2, Core B,E)
6. define, calculate and interpret slope, especially as a rate of change. (GE2, Core B,E)
7. determine relationship between slope and horizontal, vertical, parallel, and perpendicular lines. (GE2, Core B,E)
8. use linear modeling to find the equation of a line through two given points, or a slope and y-intercept. (GE2, Core B,E)
9. read, interpret, and explain trends in graphs which model applications. (GE2, Core B,E)
In the following outline of the units of study, CG matches each objective with its course goal and the associated general education and MCCC core skills.

**Units of study in detail:**

**Unit I  Quadratic Equations and Rational Expressions**

The student will be able to:
- solve quadratic equations by factoring. (CG 1)
- model ratios as a rational expression. (CG 2)
- simplify rational expressions. (CG 2)
- perform arithmetic operations with rational expressions and simplify the answers. ((CG 2)
- solve rational equations that result in linear or quadratic equations. (CG 3)

**Unit II  Radical Expressions**

The student will be able to:
- simplify radicals. (CG 4)
- perform arithmetic operations with radical expressions and simplify the answers. (CG 4)

**Unit III  Linear Modeling and Systems of Equations**

The student will be able to:
- graph a line that passes through a given point and has a given slope. (CG 6,8)
- determine whether two given lines are parallel or perpendicular. (CG 7)
- determine the $x$- and $y$-intercept of linear equations. (CG 6,8)
- solve application problems involving linear equations. (CG 8,9)
- solve a system of two linear equations with two unknowns. (CG 5)

**Evaluation of student learning:**

Achievement of the course objectives will be evaluated through the following methods:
- Assessments covering all course objectives throughout the course (CG 1-9).
- A comprehensive final examination to demonstrate a student’s ability to retain and apply course objectives (CG 1-9).

A suggested grading scheme follows.
- Passing the final with a 70% or higher will earn the student a C.
- Rubric is provided to students for additional points towards higher grades in the course. Hours logged into the software and attendance count heavily towards higher grades than a C.

Other course policies:
- Students must pass the comprehensive final to pass the class.
• Students who cannot complete the course in one semester can re-register and continue where s/he left off. There is no need to repeat modules already completed unless the curriculum has not been retained.

**Academic Integrity Statement:**

Mercer County Community College is committed to academic integrity – the honest, fair and continuing pursuit of knowledge, free from fraud or deception.

Students should never:
- knowingly represent the work of others as their own
- knowingly represent previously completed academic work as current
- fabricate data to support academic work
- use or obtain unauthorized assistance in the execution of any academic work
- give fraudulent assistance to other students
- unethically use technological means to gain academic advantages

Violators of the above actions will be penalized. The student will be reported to the Academic Integrity Committee, who may impose other penalties for a second (or later) violation. The student has right to a hearing and also to appeal any decisions. These rights are outlined in the student handbook.