Quinsigamond Community College School of Math, Science, & Engineering

Instructor's Information
Instructor: Professor XX (she/her/hers)
Office: 200A
Email: xxxxx@qcc.mass.edu
Telephone: 508-854-xxxx

Course Information
Course: MAT 100 College Algebra – Section XX **+** MAT 097 College Algebra Corequisite
Meets: Mondays, Wednesdays from 11:00am – 12:20pm and
                Fridays from 11:00am – 12:30pm
Room: 179A
Credits: 3 credits for college-level MAT 100 **+** 2 credits for MAT 097 corequisite remediation
Semester: Fall 2024

Course Description
MAT 100: This course covers advanced algebra topics. Students perform arithmetic operations on rational expressions; solve equations with fractions; factor expressions; simplify complex fractions; simplify exponential expressions, roots, radicals, and rational exponents; solve linear systems using several techniques; use the midpoint and distance formulas; recognize and graph the equation of a circle; solve linear and absolute value inequalities; solve quadratic equations by completing the square and by using the quadratic formula; solve equations containing radicals or absolute values; and perform arithmetic operations on radical expressions and complex numbers.

MAT 097: This course covers various topics in developmental mathematics to support students enrolled in MAT 100. Students learn remedial mathematics topics such as factoring techniques, define and simplify radical expressions, graph linear equations using slope-intercept concepts, apply the use of the Pythagorean Theorem, and solve rational, quadratic, and literal equations to strengthen comprehension of college level topics in MAT 100. This course requires co-enrollment with MAT 100. Please Note: This developmental course cannot be used to satisfy degree or certificate requirements.

MAT 100 Prerequisite or Corequisite
Prerequisite: QMAT placement score > 32 *or*
Corequisite: MAT 097 College Algebra Corequisite

MAT 097 Prerequisite
Prerequisite: MAT 095 with a grade of "C" or higher; or QMAT placement score > 21

Required Textbook/Materials/Website
Textbook: *Algebra for College Students*, by Blitzer, Pearson Pub., 8th edition, © 2017
Materials: Scientific calculator
Website: Access to Pearson's MyLab Math

Student Learning Outcomes

Upon completion of this course students will be able to:

1. Solve systems of linear equations for two and three variables.
2. Solve compound and absolute value equations and inequalities.
3. Factor polynomial expressions.
4. Perform and simplify the basic operations with rational expressions, radical expressions, and complex numbers.
5. Find the equation of a circle and identify its radius and the coordinates of its center.
6. Solve equations with rational expressions, radicals, and quadratic equations.

Corequisite Model

This course contains the college-level College Algebra course along with remediation of particular developmental math topics as well as some math-related soft skills (i.e., Growth Mindset) to support the necessary learning of college-level math. For example, before learning how to solve systems of 2x2 and 3x3 linear equations using substitution, students will spend time learning solving systems of 2x2 linear equations by graphing and elimination. The remediation topics/skills are specifically chosen to help students be successful in the college-level math material. To cover these remediation topics, extra time is required in class. Therefore, two (2) extra credit hours are required as a corequisite to the 3-credit College Algebra course.

Grading Policy for MAT 097: At the end of the term, students will receive a Pass/Fail grade for MAT 097. If a student passes MAT 100, then the student will receive a (P)ass grade for MAT 097. But if a student fails MAT 100, then the student will receive an (F)ail grade for MAT 097. Students who do not pass MAT 100 must retake both MAT 100 and its corequisite MAT 097.

Remediation Topics Include, but are not limited to:

- Solve linear and literal equations
- Solve linear inequalities
- Operations on polynomials
- Factoring techniques: GCF and factoring
- Pythagorean theorem
- Rectangular coordinate system
- Graph lines in slope intercept form
- Determine if two lines are parallel or perpendicular by their slopes
- Graphs of systems of linear equations in two variables
- Simplify radicals
- Operations with rational numbers

Course Topics & Required Section Readings/Assignments

This course covers the following instructional objectives and topics. *Italicized font indicates remedial topics to be reviewed.*

<u>Systems of Linear Equations</u>

- *Rectangular Coordinate System (Review)*
- *Graph lines using slope-intercept form (Review)*
- *Applications of linear equations (Review)*
- *Graphs of Systems of Linear Equations in Two Variables (Review)*

- Systems of Linear Equations in Two Variables using addition/elimination and substitution
- Systems of Linear Equations in Three Variables
- Determinants and Cramer's Rule

Inequalities and Problem Solving
- *Linear Equations in One Variable (Review)*
- *Solve Linear Inequalities (Review)*
- Compound Inequalities
- Equations and Inequalities Involving Absolute Value

Polynomials, Polynomial Functions, and Factoring
- *Operations on Polynomials (Review)*
- *Greatest Common Factors and Factor by Grouping (Review)*
- Factoring Trinomials
- Factoring Special Forms
- A General Factoring Strategy: Solving Quadratic Equations by Factoring

Rational Expressions, Functions, and Equations
- *Fractions: simply fractions, operations with fractions (Review)*
- Multiplying and Dividing Rational Expressions
- Adding and Subtracting Rational Expressions
- Complex Rational Expressions
- Rational Equations

Radicals, Radical Functions, and Rational Exponents
- *Simplify radicals; operations with radicals (Review)*
- Radical Expressions
- Rational Exponents
- Multiplying and Simplifying Radical Expressions
- Adding, Subtracting, and Dividing Radical Expressions
- Multiplying with More Than One Term and Rationalizing Denominators
- Radical Equations
- Complex Numbers

Quadratic Equations and Functions
- *Pythagorean Theorem (Review)*
- The Square Root Property and Completing the Square
- The Quadratic Formula

Conic Sections and Systems of Nonlinear Equations
- Distance and Midpoint Formulas; Circles

MAT 100 Grading Breakdown

20%   Homework
10%   Quizzes
10%   Attendance/Other
35%   Exams
25%   Comprehensive Final Exam

Grade	Range	Grade	Range	Grade	Range
A	95 – 100	B –	80 – 82	D +	67 – 69
A –	90 – 94	C +	77 – 79	D	63 – 66
B +	87 – 89	C	73 – 76	D –	60 – 62

| B | 83 – 86 | C – | 70 – 72 | F | 0 – 59 |

Note: Students will receive a P/F grade for MAT 097.

Attendance Policy
Students are expected to attend all classes for the entire period. Attendance will be taken in every class. If you are absent from class, proper documentation will excuse your absence.

Teaching Procedures
Most classes will be a combination of lectures, group activities, and in-class assignments. You will be given homework assignments to be completed outside of class. Occasionally, a quiz or exam will be given in class.

Diversity, Equity, and Inclusion Statement for the School of Math & Science
The School of Math and Science is motivated to teach and learn from the diverse community we have at QCC. In Science, Technology, Engineering, and Mathematics (STEM), it is advantageous to approach problems from multiple perspectives. The power of diversity, equity and inclusion allows us to persevere and overcome challenges.

The faculty of the School of Math and Science pledge to help students meet the demands of STEM regardless of race/ethnicity, gender identity and expression, sexual orientation, faith, abilities/disabilities, age, socioeconomic background, political leaning, ancestry, national origin, home language and all other identities. We are dedicated to nurturing a culture of collaboration, mutual respect and understanding; and to empowering members of our community to embrace their full potential.

Accessibility Statement
Quinsigamond Community College is committed to providing access and inclusion for all persons with disabilities. Students who require an accommodation in this course should notify the professor as soon as possible. Students are responsible for forwarding the Accommodation Letter to the professor (via email or hard copy). Students may request accommodations at any time during the semester, which begin upon receipt (accommodations are not retroactive). Please discuss any barriers which may arise during the semester with your professor or coordinator in the Student Accessibility Services office.

Contact Information for Student Accessibility Services (SAS):
Call: 508-854-4471
Sorenson Video Phone: 508-502-7647
Email: disabilityservices@qcc.mass.edu

Services for Veterans
If you are a veteran of the US Armed Forces, please visit the Veteran Affairs Office located in 258A (Administration Building) or contact them at veteranaffairs@qcc.mass.edu.

Academic Honesty and Plagiarism
Our purpose of education is to seek the truth; this work requires trust and honesty between teacher and student. If we are not honest about what we know and don't know, our learning will always be impaired. Because our teaching and learning depends on this honest communication, we expect all students to understand what plagiarism is and why it is unacceptable.

Plagiarism means taking someone else's ideas or words and presenting them as one's own. The offense can take many forms including cheating on a test, passing in a paper taken from the Internet or from another student, or failing to properly use and credit sources in an essay. Sometimes the issue is subtle, involving getting too much help on an assignment from someone else. In every instance, plagiarism means cheating both oneself and the owner of the source. Since cheating sabotages a student's learning experience, consequences range from no credit for the assignment to failure for the course and possible expulsion from the college.

The penalty for getting caught cheating in this course is a failure of the quiz or test, or failure of the entire course. This is solely at the discretion of the instructor.

For further information concerning plagiarism, refer to the QCC Student Handbook.

Math Center & QCC Math YouTube Channel

The Math Center provides free, drop-in tutoring assistance for students in any QCC mathematics course. Located on the second floor of the Harrington Learning Center (HLC), the Math Center is a welcoming place where students have the opportunity to work collaboratively with tutors and classmates. Students can work intensively to improve their mathematical skills or simply drop by to ask a few questions. In addition to tutoring, the Math Center houses various math-related resources, and computers and software for math coursework. Visit their website for details and the semester schedule:
https://www.qcc.edu/services/tutoring/math-center

For further help, visit the QCC Math YouTube channel. This channel has a playlist specifically for this course, with many short videos created with students like you in mind, covering many of the topics in this course:
https://www.youtube.com/user/QCCmath