Quinsigamond Community College
School of Math and Science

Instructor's Information:
Instructor: <Professor John Smith>
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Course Information:
Course: MAT 099 Intermediate Algebra – Section ##
Meets on: <Mondays, Wednesdays, Fridays from 8:00am – 8:50am>
Credits: 3 credit hours

Course Description:
The course covers major topics in the study of algebra. Students learn to factor polynomials (common factor, grouping, difference of squares and trinomials), perform arithmetic operations on rational expressions and complex fractions, and solve rational, quadratic (by factoring and formula) and literal equations. The course also covers applications including the use of the Pythagorean Theorem, understanding the definition of radical expressions, simplifying radical expressions containing numerical and variable radicands, graphing linear equations using slope-intercept concepts, and solving 2x2 systems of linear equations by graphing and elimination. Technology tools are utilized in this course. **Taking the departmental final examination is a requirement of the course. The minimum passing grade for developmental mathematics courses is a "C".**

Please Note: This developmental mathematics course cannot be used to satisfy degree or certificate requirements.

Pre-requisite:
MAT 095 with a grade of “C” or higher; or appropriate placement score

Required Textbook/Materials/Website:
Materials: Scientific calculator; graphing calculators are not allowed
Website: Access to www.mymathlab.com

Student Learning Outcomes & Instructional Objectives:
This course is designed to achieve the following student outcomes and objectives:
- Find the GCF of a list of numbers.
- Find the GCF of a list of variable terms.
- Factor out the GCF. Factor by grouping.
- Factor trinomials with a coefficient of 1 for the squared term.
- Factor trinomials after factoring out the GCF.
- Factor trinomials using FOIL.
• Factor trinomials by grouping when the coefficient of the squared term is not 1.
• Factor a difference of squares.
• Factor a perfect square trinomial.
• Solve quadratic equations by factoring.
• Find the values of the variable for which a rational expression is undefined.
• Simplify rational expressions.
• Multiply and divide rational expressions.
• Add and subtract rational expressions with the same denominator.
• Find the LCD.
• Add and subtract rational expressions with different denominators.
• Solve equations containing rational expressions.
• Simplify complex fractions and complex rational expressions.
• Find the slope of a line given two points and from the equation of a line.
• Determine if two lines are parallel, perpendicular, or neither using slope.
• Write an equation of a line and graph it given its slope and y-intercept, its slope and a point on the line, or given two points on the line.
• Solve linear systems by graphing.
• Solve linear systems by elimination.
• Find square roots.
• Distinguish between rational, irrational, and non-real roots.
• Simplify radicals.
• Simplify higher roots.
• Multiply and divide radicals using the product rule and quotient rule, and involving variables.
• Use the Pythagorean formula.
• Solve quadratic equations by the Square Root Property.
• Identify the values of $a$, $b$, and $c$ in a quadratic equation.
• Use the quadratic formula to solve quadratic equations.

**Teaching Procedures:**
Most classes will be a combination of lecture, group activities, and in-class assignments. You will be given homework assignments to be completed outside of class, with due dates/times. There will occasionally be a quiz or exam given in class.

**Course Topics & Required Assignments/Readings:**

**Factoring Polynomials**
- The Greatest Common Factor and Factoring by Grouping
- Factoring Trinomials of the Form $x^2 + bx + c$
- Factoring Trinomials of the Form $ax^2 + bx + c$
- Factoring Trinomials of the Form $ax^2 + bx + c$ by Grouping
- Factoring Perfect Square Trinomials and the Difference of Two Squares
• Solving Quadratic Equations by Factoring

Rational Expressions
• Simplifying Rational Expressions
• Multiplying and Dividing Rational Expressions
• Adding and Subtracting Rational Expressions with the Same Denominator and Least Common Denominator
• Adding and Subtracting Rational Expressions with the Different Denominators
• Solving Equations Containing Rational Expressions
• Simplifying Complex Fractions

Graphing Equations and Inequalities
• Slope and Rate of Change
• Equations of Lines

Systems of Equations
• Solving Systems of Linear Equations by Graphing
• Solving Systems of Linear Equations by Addition

Roots and Radicals
• Introduction to Radicals
• Simplifying Radicals
• Multiplying and Dividing Radicals
• Radical Equations and Problem Solving (Pythagorean Theorem)

Quadratic Equations
• Solving Quadratic Equations by the Square Root Property
• Solving Quadratic Equations by the Quadratic Formula

Assignment & Test Schedule:
<list all assignments, quizzes, & exam dates>

Grading Breakdown:
<25% Homework >
<15% Quizzes>
<10% Attendance>
<20% Exams>
<30% Final Exam>

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

Attendance Policy:
Students are expected to attend all classes, for the entire period. Attendance will be taken during every class, and counts towards your final course grade. If you are absent from class, a doctor's note will excuse your absence.

Disability Statement:
If you have a disability which may require an accommodation, please notify me as soon as possible. You are responsible for forwarding your Accommodation Letter to me and discussing arrangements for this course. Your accommodations for this course begin upon my receipt of your Accommodation Letter; accommodations are not retroactive. You may request accommodations at any time during the semester, but instructors must be provided with reasonable notice prior to exams or deadlines. Disability Services works to promote access to ensure an accessible college experience for students. If you have further questions, contact Disability Services. All discussions are confidential.

**Contact Information for Disability Services & Assistive Technology:**
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 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 in the classroom 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 the 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.

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