Course Number and Title:_____ MDE 60 Intermediate Algebra_____

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Prepared by: __NRCC Math Faculty_____   _____Fall 2025_____
                                                                                              (Date)

Approved by:_____   _____Fall 2025_____
                        (Dean)   (Date)

Course Description

Covers topics in algebra.
Lecture 3 hours. Total 3 hours per week.
3 credits

Introduction

This developmental math course is a foundational course to help prepare the student for future developmental and/or credit math courses. This course may be a prerequisite for other courses or programs but does not satisfy any degree requirements.

Student Learning Outcomes

Upon successful completion of this course, the student will be able to:

Course Major Units	Upon completion of this course, the students will be able to:

Algebra	- Solve first degree equations using the Addition Property and the Multiplication Property of Equality. - Solve first degree equations in one variable with the variable on both sides of the equal sign. - Solve formulas using the Addition Property and the Multiplication Property of Equality. - Solve first degree inequalities in one variable stating the solution using inequality and interval notation. - Solve first degree inequalities in one variable and graph the solution on a real number line. - Solve first degree inequalities in one variable stating the solution using inequality and interval notation. - Solve first degree inequalities in one variable and graph the solution on a real number line.
Graphing & Equations	- Find the equation of the line passing through two ordered pairs - Graph equations of lines, including horizontal lines, vertical lines, and lines in slope-intercept form
	- Graph a linear inequality in two variables. - Find the slope of a line given two points on the line. - Find the slope of a line given its equation in general or slope-intercept form. - Write an equation of a line in slope-intercept form given the slope and the y-intercept. - Write an equation of a line in slope-intercept form given the slope and a point on the line. - Write an equation of a line in slope-intercept form given two points on the line. - Evaluate $y = f(x)$ for specific values of x. - Given the graph of $y = f(x)$, evaluate $f(x)$ for specific values of x. - Given the graph of $y = f(x)$, find x for specific values of $f(x)$. - Given the equation of $y = f(x)$, find x for specific values of $f(x)$.
Exponents	- Use the product rule to simplify expressions containing exponents - Use the quotient rule to simplify expressions containing exponents - Use the power rule to simplify expressions containing exponents - Use and apply negative exponents - Multiple two monomials - Divide two monomials - Evaluate expressions containing products, quotients, power of a power, and negative exponents. - Multiply/divide numbers in scientific notation.

Radicals	• Convert between square root and $a^{1/2}$ forms. • Convert between n^{th} root and $a^{1/n}$ forms. • Calculate square roots and n^{th} roots via calculator. • Simplify using the properties of rational exponents. • Simplify radicals by using the multiplication property of radicals. • Combine and simplify like radicals. • Multiply and simplify radicals. • Simplify radicals by rationalizing a denominator with one or two terms. • Solve radical equations.
Polynomials	• Identify an expression as a monomial, binomial, trinomial or polynomial. • Add, subtract, multiply and divide monomials using the rules of exponents. • Add, subtract, and multiply polynomials. • Divide polynomials using long division. • Divide polynomials using synthetic division. • Find the greatest common factor from a list of terms. • Factor a polynomial by finding the greatest common factor. • Factor a polynomial by grouping. • Factor trinomials of the form x^2+bx+c • Factor trinomials of the form ax^2+bx+c, $a \neq 1$. • Factor a difference of squares. • Factor a sum of two cubes. • Factor a difference of two cubes. • Solve polynomial equations using factoring techniques.

Complex Numbers	• Define $i = \sqrt{-1}$ • Define imaginary numbers (e.g. $\sqrt{-25}$) • Simplify square roots of negative numbers using the imaginary unit. • Add, subtract, multiply complex numbers.
Quadratics	• Describe the roots of a quadratic based upon the discriminant in all cases. • Find the roots of quadratic equations of the form $ax^2+c=0$ • Find the roots of quadratic equations of the form $ax^2+bx+c=0$ • Determine whether the parabola opens upward or downward. • Use completing the square to write a quadratic expression in the form $a(x-h)^2+k$. • Find the vertex of a quadratic equation $y=ax^2+bx+c$ • Determine the axis of symmetry for a parabola. • Graph a parabola using intercepts, vertex, and axis of symmetry.

General Education Student Learning Outcomes Included in Course

General education at NRCC provides the educational foundation necessary to promote intellectual and personal development. Upon completing the associate degree, graduates will demonstrate competency in student learning outcomes in 1) civic engagement, 2) critical thinking, 3) professional readiness, 4) quantitative literacy, 5) scientific literacy, and 6) written communication.

This course includes the following general education student learning outcomes: critical thinking and quantitative literacy.

Instructional Methods

The instructional procedures for this course may include lecture, discussions, in-class work, homework, projects, reviews, quizzes, and tests. Details are provided on the course Syllabus.

Instructional Materials

Required textbook: *Developmental Mathematics 2nd Edition* (web-based software & e- book), Hawkes Learning, ISBN 978-1-64277-001-8

Additional materials: scientific calculator (TI-30XIIS or equivalent)

Internet access is required to complete homework assignments.

Course Content
- Algebra
- Graphing & Equations
- Exponents
- Radicals
- Polynomials
- Complex Numbers
- Quadratics

Grading/Evaluation

Students are evaluated on the following and other work as considered appropriate by the instructor:

The grade for the course will be calculated from assigned assessments as deemed

appropriate by the instructor and is outlined in detail in the Syllabus for the course. A grade of "S" will be awarded to students earning at least a 70% weighted total on course assignments. Students receiving less than a 70% will receive a "U" grade.

See the course syllabus for details on how grades for this course will be calculated using percentages or points.

Grading scale: S = Satisfactory; U = Unsatisfactory

Attendance

Regular attendance at classes is required. When absence from a class becomes necessary, it is the responsibility of the student to inform the instructor prior to the absence whenever possible. The student is responsible for the completion of all study missed during an absence. Any instruction missed and not completed will affect the grade of the student regardless of the reason for the absence.

Cheating/Plagiarism Policy

Students are expected to complete their own work and maintain complete academic honesty. Honesty develops into integrity. All aspects of the course are covered by the Academic Honesty section in the New River Community College Student Handbook.

Any student found cheating or plagiarizing will receive a zero for that work and it could result in an "F" for the course. This includes plagiarism, which is defined as "To present another's words or ideas as one's own or without attribution" (American Heritage Dictionary, 2019). Remember that plagiarism includes using words or ideas from Internet sites, as well as copying from print sources.

AI Usage

Different instructors will have different expectations around students' usage of artificial intelligence (AI) tools depending upon the goals and learning outcomes of a course. Students should refer to the class syllabus/addendum for more specific guidelines. It is important to understand that using unauthorized AI tools to complete course work may result in an academic honesty violation. Students should always ask their instructor for guidance if they have any questions about the appropriateness of using a tool.

Withdrawal Policy

Student Initiated Withdrawal Policy

A student may drop or withdraw from a class without academic penalty during the first 60 percent of a session. For purposes of enrollment reporting, the following procedures apply:

If a student withdraws from a class prior to the termination of the add/drop period for the session, the student will be removed from the class roll and no grade will be awarded.

After the add/drop period, but prior to completion of 60 percent of a session, a student who withdraws from a class will be assigned a grade of "W." A grade of "W" implies that the student was making satisfactory progress in the class at the time of withdrawal, that the withdrawal was officially made before the deadline published in the college calendar, or that the student was administratively transferred to a different program.
After that time, if a student withdraws from a class, a grade of "F" or "U" will be assigned. Exceptions to this policy may be made under documented mitigating circumstances if the student was passing the course at the last date of attendance.

A retroactive grade of "W" may be awarded only if the student would have been eligible under the previously stated policy to receive a "W" on the last date of class attendance. The last date of attendance for a distance education course will be the last date that work was submitted.

Students requesting a late withdrawal due to documented mitigating circumstances should contact the Coordinator of Admissions and Records.

No-Show Policy

A student must either attend face-to-face courses or demonstrate participation in online courses by the last date to drop for a refund. A student who does not meet this deadline will be reported to the Admissions and Records Office and will be withdrawn as a no-show student. No refund will be applicable, and the student will not be allowed to attend/participate in the class or submit assignments. Failure to attend or participate in a course will adversely impact a student's financial aid award.

Instructor Initiated Withdrawal

A student who adds a class or registers after the first day of class is counted absent from all class meetings missed. Each instructor is responsible for keeping a record of student attendance (face-to-face classes) or performance/participation (online classes) in each class throughout the semester.

When a student's absences equal twice the number of weekly meetings of a class (equivalent amount of time for summer session), the student may be dropped for unsatisfactory attendance in the class by the instructor.

Since attendance is not a valid measurement for online courses, a student may be withdrawn due to non-performance. A student should refer to his/her online course plan for the instructor's policy.

In accordance with the No-Show Policy, a student who has not attended class or requested/accessed online learning materials by the last day to drop the class and receive a refund must be withdrawn by the instructor during the following week. No refund will be applicable.

When an instructor withdraws a student for unsatisfactory attendance (face-to-face class) or non-performance (online class), the last date of attendance/participation will be documented. Withdrawal must be completed within five days of a student's meeting the withdrawal criteria. A grade of "W" will be recorded during the first sixty percent (60%) period of a course. A student withdrawn after the sixty percent (60%) period will receive a grade of "F" or "U" except under documented mitigating circumstances when a letter of appeal has been submitted by the student. A copy of this documentation must be placed in the student's academic file.

The student will be notified of the withdrawal by the Admissions and Records Office. An appeal of reinstatement into the class may be approved only by the instructor.

Non-Discrimination Statement

This College promotes and maintains educational opportunities without regard to race, color, national origin, religion, disability, sex, sexual orientation, gender identity, ethnicity, marital status, pregnancy, childbirth or related medical conditions including lactation, age (except when age is a bona fide occupational qualification), veteran status, or other non-merit factors.

Disability Statement

If you are a student with a disability and in need of accommodations for this course, please contact the Center for Disability Services (CDS) for assistance. CDS is located within the Advising Center in Rooker Hall. For more information about disabilities services, see Center for Disability Services Policies and Procedures.

Academic Success Center (Tutoring Center)

Free tutoring is available to all NRCC students in any subject area. In-person, one-on- one, and group tutoring sessions are available both in Dublin (Godbey 131) and at the mall site (room 202). Online tutoring sessions are also available to accommodate students who are unable to attend an in-person tutoring session. In addition, the Academic Success Center offers several online tutorials which are posted in Canvas on the NRCC Tutoring Services tab. For more information about the Academic Success Center at NRCC, please visit

https://www.nr.edu/asc/ or call 1-540-674-3664.

General Health Guidelines and Student Expectations

In guarding against the transmission of infectious illnesses, it is imperative that we follow specific health-related best practices.

As a condition for attending class or otherwise using NRCC facilities, I, as a student, agree to the following conditions:

I will follow all CDC, state, and local guidelines pertaining to diseases and health conditions. More information can be found at the links below.

   a   CDC Diseases and Conditions: https://www.cdc.gov/nchs/fastats/diseases-and-conditions.htm

   b   Virginia Department of Health: https://www.vdh.virginia.gov/

   c   New River Health District: https://www.nrvroadtowellness.com/

In the event of health threats or changes in guidelines, I understand in-person classes may be moved online, fully or partially, and I will need to be prepared to access technology and the internet with as little as 24 hours' notice.

By continuing my enrollment in class(es), **I agree to meet each of the expectations outlined above.**

New River Community College encourages all students to fully vaccinate against transmissible illnesses. Information about vaccinations can be found on the Virginia Department of Health website at www.vdh.virginia.gov.

Required Safety Training

Virginia law, effective August 1, 2024, requires campus safety and emergency preparedness training for all students enrolled in on-campus classes at public colleges and universities. The training must focus on an active shooter event and be completed by the last day of their first term in college.

To comply with this legislation, students will view a college-provided awareness and training video during the first two weeks of class for this course.

Evacuation Procedure

Please note the evacuation route posted at the classroom doorway. **Two routes are marked in case one route might be blocked.**