

**NEW RIVER COMMUNITY COLLEGE  
DUBLIN, VIRGINIA**

**COURSE PLAN**

**Course Number and Title:** MTH 158—College Algebra

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**Prepared by:** Mathematics Department Fall, 2015  
(Date)

**Approved by:** \_\_\_\_\_ Fall, 2015  
(Date)

**I. Course Description**

This course covers the structure of complex number systems, polynomials, rational expressions, graphing, systems of equations and inequalities and functions, and quadratic and rational equations and inequalities. Lecture 3 hours per week. 3 credits.

**II. Introduction**

MTH 158 expands upon the topics of Algebra II including rational expressions, radicals and exponents, linear and quadratic equations, linear and quadratic inequalities, and applications. Students successfully completing the course will be prepared for a precalculus course.

**III. Specific Objectives**

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

1. Use correct order of operations to simplify expressions involving real numbers.
2. Perform operations on fractions, including complex fractions.
3. Work with integral, rational, and negative exponents.
4. Use the laws of operations with exponents to simplify expressions.
5. Rewrite radical expressions using exponents.
6. Perform operations on expressions involving radicals and exponents.
7. Add, subtract, multiply, and divide polynomials.
8. Completely factor polynomials.
9. Evaluate polynomials given a specific value for the variable.
10. Add, subtract, multiply, and divide rational expressions.
11. Reduce rational expressions to lowest terms.
12. Simplify complex fractions involving rational expressions.
13. Solve linear equations.
14. Find real and complex solutions of quadratic equations by factoring, completing the square, and by using the quadratic formula.
15. Solve equations containing rational expressions.
16. Solve linear absolute value equations.
17. Solve radical equations.
18. Solve literal equations.
19. Solve application problems involving equations of all types listed above.
20. Solve linear inequalities.
21. Solve absolute value inequalities.

22. Find the slope and intercepts of a line.
23. Know the relationship between the slopes of parallel and perpendicular lines.
24. Write equations for lines in point-slope form, slope-intercept form, and general form.
25. Graph lines.
26. Graph parabolas.
27. Solve systems of linear equations (2x2 and 3x3 systems).
28. Evaluate functions.
29. Find the domain and range of a given function.
30. Recognize the graphs of linear, quadratic, square root, and absolute value functions.
31. Graph linear inequalities.
32. Graph the solution to linear systems of inequalities.

#### **IV. Instructional Materials**

Textbook: College Algebra. 3/e 2014  
Stitz and Zeager.  
Book available free: <http://stitz-zeager.com/>

Software: <https://www.myopenmath.com/>

Calculator: Students are allowed to use a TI 30XIIS or equivalent.

Other: Pencils and paper. Ink is not to be used for any graded work

#### **V. Instructional Procedures**

The instructional procedures will include lectures, discussions, in class work, homework, reviews and tests

#### **VI. Course Content**

- Functions and their graphs
- Lines and linear functions
- Polynomial and rational functions
- Complex number systems
- systems of equations
- quadratic and rational equations and inequalities.

#### **VII. Evaluation**

The grade for the course will be calculated from Tests, WebAssign homework, a final exam and other work as deemed appropriate by the instructor. See individual syllabus for details on percentages/points

### **VIII. 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 subsequent completion of all study missed during an absence. Any instruction missed and not subsequently completed will necessarily affect the grade of the student regardless of the reason for the absence.

### **IX. 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:

- a. 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.
- b. 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.
- c. 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.

Late withdrawal appeals will be reviewed and a decision made by the Director of Student Services.

#### **No-Show Policy**

A student must either attend face-to-face courses or demonstrate participation in distance learning 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 (DE 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 Distance Education (DE) courses, a student may be withdrawn due to non-performance. A student should refer to his/her DE course plan for the instructor's policy.

In accordance with the No-Show Policy, a student who has not attended class or requested/accessed distance 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 (DE 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.

**X. Cheating**

Suspected honor code violations should be reported to the instructor immediately. Penalties may include, but are not limited to, grade reduction on the assignment, withdrawal from the class, or semester grade of F for the class.

**XI. Other Policies**

**Disability Statement**

If you are a student with a documented disability who will require accommodations in this course, please register with the Disability Services Office located in the Counseling Center in Rooker Hall for assistance in developing a plan to address your academic needs.

**Diversity Statement**

The NRCC community values the pluralistic nature of our society. We recognize diversity including, but not limited to, race, ethnicity, religion, culture, social class, age, gender, sexual orientation and physical or mental capability. We respect the variety of ideas, experiences and practices that such diversity entails. It is our commitment to ensure equal

opportunity and to sustain a climate of civility for all who work or study at NRCC or who otherwise participate in the life of the college.

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