

NEW RIVER COMMUNITY COLLEGE
DUBLIN, VIRGINIA
COURSE PLAN

Course Number and Title: MTH 130 Fundamentals of Reasoning

Prepared by: _____ Fall 2022
(Math Faculty) (Date)

Approved by: _____
(Dean) (Date)

I. Course Description

Presents elementary concepts of algebra, linear graphing, financial literacy, descriptive statistics, and measurement & geometry. Based on college programs being supported by this course, colleges may opt to add additional topics such as logic or trigonometry. This course is intended for occupational/technical programs.

Lecture 3 hours. Total 3 hours per week.

Prerequisites: Competency in MTE 1-3 as demonstrated through placement or unit completion or equivalent or Corequisite: MCR 2

3 credits

The Fundamental of Reasoning course is organized around big mathematical concepts. The course's nontraditional treatment of content will help students develop conceptual understanding by supporting them in making connections between concepts and applying previously learned material to new contexts. The course will help to prepare students for success in future courses, gain skills for the workplace, and participate as productive citizens in our society. Encourage students to do mathematics with real data. This includes recognizing the real world often has less than perfect data, ambiguities and multiple possible solutions. It also means equipping students to be intelligent consumers of quantitative data and reports. Encourage students to engage in productive struggle to learn mathematics and make connections to the world in which they live.

II. Student Learning Outcomes

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

1. Demonstrate knowledge of basic algebra through application
 - Solve real world application problems requiring basic operations and simple linear equations;
 - Perform operations with signed numbers (including whole numbers, decimals, and fractions);
 - Simplify and evaluate algebraic expressions using the order of operations;
 - Solve simple linear equations - one step equations, two step equations and some multi-step equations requiring distributive property;

- Determine the reasonableness of answers using estimation;
2. Apply linear graphing
 - Locate and plot points on the xy plane;
 - Interpret the concept of slope using real world examples (including vertical and horizontal lines);
 - Graph lines using the slope-intercept method in both $y = mx + b$ and $Ax + By = C$ forms;
 - Write the equation of a line in slope-intercept form that models a real world situation when given the rate of change and initial value;
 - Make predictions using the equation of a line;
 - Graph and solve a system of two linear equations in an applied context;
 3. Demonstrate financial literacy using percents, ratios, and proportions
 - Create and simplify ratios;
 - Solve given proportions;
 - Solve real world problems using proportions;
 - Calculate percentages, sales tax, and discounts;
 - Create a budget to include percentages and a pie chart using appropriate software;
 - Calculate simple and compound interest;
 - Solve problems which involve buying on credit, including add-on interest rate loans, and home buying;
 - Calculate FICA and federal income taxes (simple cases);
 4. Demonstrate knowledge of descriptive statistics
 - Compute and interpret statistics (mean, median, mode, range, quartiles/percentiles) for data displayed in various formats, such as a boxplot, stem-and-leaf plots, frequency distributions, histogram, pie/line/bar graph;
 - Compare sets of data by comparing similarities and differences in their graphical displays and/or descriptive statistics;
 - Create graphical displays of data using spreadsheet software such as Excel;
 - Compute and interpret descriptive statistics for a set of real-world data, including mean, median, mode, range, standard deviation using spreadsheet software or a calculator;
 5. Solve problems by applying measurement and geometry topics in a variety of real world contexts including applications for health professionals.

III. **Instructional Methods**

Lecture
In-class activities

IV. **Instructional Materials**

[MyOpenMath](#)

V. Course Content

1. Basic Arithmetic
2. Percents and problem solving
3. Measurement and Conversions
4. Algebra and Graphing
5. Statistics
6. Geometry
7. Health Professions Applications

VI. Evaluation

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

VII. 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.

VIII. Cheating Policy

Cheating of any form will not be tolerated. Any student who is caught cheating will be dismissed from class and will receive a grade of "F".

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. Disability and Diversity Statements

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

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.