NEW RIVER COMMUNITY COLLEGE
DUBLIN, VIRGINIA

COURSE PLAN

Course Number and Title: MTH 152 – Mathematics for the Liberal Arts II

Prepared by: Math Faculty   Fall, 2013
                                                                                        (Date)

Approved by:
                              (Dean)   (Date)

I.   **Course Description**

Presents topics in functions, combinatorics, probability, statistics and algebraic systems. Lecture 3 hours per week.

Prerequisites: Competency in Math Essentials MTE 1-5 as demonstrated through the placement and diagnostic tests, or by satisfactorily completing the required MTE units or equivalent.

II.   **Introduction**

This course in intended for transfer students in majors other than sciences, business, engineering, and other mathematics related areas. It fulfills the requirements for two-year student in Computer Information Systems.

III.   **Student Learning Outcomes**

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

1.   Solve application problems by interpreting the materials presented, including determining the nature and extent of the information needed, and present the answer in standard English.
2.   Estimate and consider answers to mathematical problems in order to determine reasonableness.
3.   Identify functions, domain, and range.
4.   Evaluate functions.
5.   Graph linear functions.
6.   Decide whether an ordered pair solves a system.
7.   Solve a system by graphing, elimination, and substitution.
8.   Solve applications of linear systems.
9.   Evaluate exponential and logarithmic expressions.
10. Graph exponential and logarithmic functions.
11. Solve applications of exponential and logarithmic functions.
12. Calculate simple and compound interest.
13. Find present and future value.
14. Solve problems about add-on interest.
15. Solve problems using unpaid balance and average daily balance.

16. Solve problems about the finances of home ownership.
17. Solve problems about financial investments.
18. Solve problems by systematic listing.
19. Calculate using factorial notation.
20. Solve problems using the Fundamental Counting Principle.
21. Calculate using combinations and permutations.
22. Solve problems using permutations, combinations, and/or other various methods.
23. Use counting principles involving Anot@ and Aor@.
24. List sample space, and find basic probabilities.
25. Compute probabilities.
26. Determine whether two events are mutually exclusive.
27. Compute probabilities using 'not' or 'or'.
28. Construct a probability distribution table.
29. Determine whether two events are independent or dependent.
30. Compute probability involving 'and'.
31. Use Pascal's triangle to solve combination problems.
32. Use binomial theorem to expand binomials.
33. Solve binomial probability problems.
34. Construct frequency tables, histograms, and frequency polygons.
35. Construct stem-and-leaf displays.
36. Find mean, median, and mode of a data set.
37. Solve problems involving measures of central tendency.
38. Find range and standard deviation for a data set.
39. Solve problems involving measures of variation.
40. Use z-scores to calculate percentiles, deciles, and quartiles.
41. Construct box plots.
42. Find percent of data within a number of standard deviations from the mean.
43. Find z-scores given percentages.
44. Solve problems involving normal distribution.

IV.   **Instructional Methods**

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

V.   **Instructional Materials**

Textbook: <u>Mathematical Ideas</u>, 12th Edition
             Miller, Heeren, and Hornsby
             ISBN: 0-321-69381-7

Software: MyMathLab
             ISBN: 0-321-19991-X
             Textbook and MyMathLab together: ISBN 9780321759917

Calculator: A calculator with algebraic logic. TI 30XIIS preferred.

VI.   Course Content

- Functions, Graphs, and Systems of Equations and Inequalities
- Personal Financial Management
- Combinatorics
- Probability
- Statistics

VII.   Evaluation

The grade for the course will be calculated from Tests, MyMathLab assignments, 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.   Cheating Policy

A grade of zero will be awarded to any writing assignments or tests that show cheating or plagiarism. To plagiarize is "To use and pass off as one's own the ideas or writings of another." (Definition adapted from the American Heritage Dictionary.) Remember that plagiarism includes lifting words or ideas from Internet sites, as well as copying from print sources.

The giving or receiving of any help or using any unauthorized electronic device on any test is considered cheating and will not be tolerated. Any student found cheating will receive a grade of "0" on that portion and possibly an "F" for the course. This "0" will not be replaced by the any other score.

X.   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.

XI. <u>Disability and Diversity Statements</u>

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.

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.