RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

MATH015C – BASIC MATHEMATICS Lecture Enhanced

I. Basic Course Information

A. Course Number and Title: MATH015C- Basic Mathematics Lecture Enhanced

B. New or Modified Course: Modified

C. Date of Proposal: Semester: Fall Year: 2024

D. Effective Term: Fall 2025

E. Sponsoring Department: Mathematics and Computer Science

F. Semester Credit Hours**:**   4 NC (four non-credit)

G. Weekly Contact Hours**:**   4   Lecture**:** 4
Laboratory**:** 0
Out of class student work per week: 8

H. ☐ Prerequisite (s):
  ☐ Corequisite (s):

I. Additional Fees**:**   No

II. Catalog Description

This course is designed to strengthen computational skills and to review arithmetic concepts in preparation for the study of algebra. Topics include addition, subtraction, multiplication and division of whole numbers, fractions and decimals, with an emphasis on order of operations. Also included: exponent and square root notation, ratios, proportions, percents, systems of measurement, geometry formulas and introduction to signed numbers. Students move through the course in a lecture-

workshop environment.

III. Statement of Course Need

A. This course is designed for students in STEP (Scholarship and Transformative Educational Program) who fail to demonstrate proficiency in basic computational skills as measured by the college placement test(s) in pre- algebra. Because students in correctional facilities are not permitted computer access, this course will provide students with class time for lectures, problem solving, classroom activities and active learning to enhance their success.
This lecture course is identical in content to the on-campus MATH015 which is a self-paced non-lecture course where students work individually and exclusively in a computer classroom.

B. There is no computer lab component.

C. This course is not designed for transfer.

IV. Place of Course in College Curriculum

A. This is a developmental course and carries no college credit.

V. Outline of Course Content

   A. The whole numbers
1. Study Skill Tips for Success in Mathematics
2. Place value, names of numbers and reading tables
3. Adding whole numbers and Perimeter
4. Subtracting Whole numbers
5. Rounding and estimating
6. Multiplying whole numbers and Area
7. Dividing whole numbers
8. Introduction to Problem solving
9. Exponents, square roots and order of operation

   B. Multiplying and diving fractions
10. Introduction to fractions and mixed numbers
11. Factors and Prime Factorization
12. Simplest form of fractions
13. Multiplying fractions and mixed numbers
14. Dividing fractions and mixed numbers

   C. Adding subtracting fractions
15. Adding and subtracting like fractions

16.   LCM
17.   Adding and subtracting unlike fractions
18.   Adding and subtracting mixed numbers
19.   Order, exponents and the order of operation
20.   Fractions and Problem Solving

D. Decimals
  21. Introduction to Decimals
  22. Order and Rounding
  23. Adding and subtracting decimals
  24. Multiplying Decimals and Circumference of a circle
  25. Diving decimals and order of operation
  26. Fractions and decimals

E. Ratio and Proportion
  27. Ratios
  28. Rates
  29. Proportions
  30. Proportions and Problem solving

F. Percent
  31. Introduction to Percent
  32. Percents and fractions
  33. Solving percent problems using equations
  34. Solving percent problems using proportions
  35. Application of percent
  36. Percent and problem solving: Sales Tax, commission, and discount
  37. Percent and problem solving: Interest

G. Measurement, Geometry
  38. Length: US and Metric systems of measurement
  39. Weight and Mass: US and Metric systems of measurement
  40. Capacity: US and Metric systems of measurement
  41. Conversions between the US and Metric systems
  42. Square roots and the Pythagorean theorem
  43. Similar triangles

H. Signed Numbers
  44. Basic operations with Signed Numbers
  45. Order of operation
  46. Absolute Value

VI.   A. <u>Course Learning Outcomes</u>:

At the completion of the course, students will be able to:
1. Perform arithmetic operations on whole numbers, signed numbers, fractions, and decimals without the aid of a calculator. (GE 2)
2. Use correct order of operations when evaluating expressions containing more than one operation. (GE 2)
3. Use arithmetic skills in problem-solving situations. (GE 2)
4. Express numerical comparisons as ratios in simplest form. (GE 2)
5. Solve problems using proportional reasoning including problems involving measurement systems. (GE 2)
6. Convert among fractional, decimal, and percent representations of numbers. (GE 2)
7. Solve problems involving percent. (GE 2)
8. Use appropriate geometric formulas to determine measurements of Euclidean figures. (GE 2)

B. <u>Assessment Instruments</u>

The following are all required:
1. Classwork, homework and quizzes
2. Cumulative chapter tests

VII. Grade Determinants

The following are all required:
- B. Chapter Quizzes
- C. Chapter Tests

The cumulative exams assess all the course outcomes listed above in Section VI. B.

LIST the primary formats, modes, and methods for teaching and learning that may be used in the course:
- A. Lecture/active learning
- B. Small-group work
- C. Individual faculty instruction

VIII. Texts and Materials

- Suggested Textbook: *Basic College Mathematics, 5ᵗʰ Edition, by Elayn Martin – Gay, Pearson*

(Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC bookstore is the sole resource for the most up-to-date information about textbooks.)

IX. Resources
None required

X. Check One: ☐Honors Course ☐Honors Options ☒ N/A