RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

MATH015 – BASIC MATHEMATICS

I. Basic Course Information

A. Course Number and Title: MATH015 - Basic Mathematics

B. New or Modified Course: Modified

C. Date of Proposal: Semester: Spring Year: 2017

D. Effective Term: Fall 2017

E. Sponsoring Department: Mathematics

F. Semester Credit Hours: 2 NC

G. Weekly Contact Hours: Lecture: 0
Laboratory: 2
Out of class student work per week: 4 - 6

H. Prerequisites/Corequisites: Appropriate score on placement test

I. Laboratory Fees: No

J. Name and Telephone Number or E-Mail Address of Department Chair:
Lynne Kowski, lynne.kowski@raritanval.edu x 8254

II. Catalog Description

Prerequisites: Appropriate score on the placement test. 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. The course covers arithmetic topics in a technology based setting and engages students in active learning that is modular, self-paced, and adaptable to various learning styles.

III. Statement of Course Need

A. This course is designed for students who fail to demonstrate proficiency in basic computational skills as measured by the college placement test(s) in pre-

algebra. It is a self-paced non-lecture Pass / Fail course containing eight modules. Students meet once a week in a computer classroom setting with instructor support and complete online exercises at their own pace.

B. Instruction is delivered via interactive online computer software combined with personal and individualized assistance from the instructor in a classroom setting. Lab work supports the student-centered learning environment and makes students active and engaged learners. Learning is mastery-based.

C. This course is not designed for transfer.

IV. Place of Course in College Curriculum

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
1. Introduction to fractions and mixed numbers
2. Factors and Prime Factorization
3. Simplest form of fractions
4. Multiplying fractions and mixed numbers
5. Dividing fractions and mixed numbers

C. Adding subtracting fractions
1. Adding and subtracting like fractions
2. LCM
3. Adding and subtracting unlike fractions
4. Adding and subtracting mixed numbers
5. Order, exponents and the order of operation
6. Fractions and Problem Solving

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D. Decimals
1. Introduction to Decimals
2. Order and Rounding
3. Adding and subtracting decimals
4. Multiplying Decimals and Circumference of a circle
5. Diving decimals and order of operation
6. Fractions and decimals

E. Ratio and Proportion
1. Ratios
2. Rates
3. Proportions
4. Proportions and Problem solving

F. Percent
1. Introduction to Percent
2. Percents and fractions
3. Solving percent problems using equations
4. Solving percent problems using proportions
5. Application of percent
6. Percent and problem solving: Sales Tax, commission, and discount
7. Percent and problem solving: Interest

G. Measurement, Geometry
1. Length : US and Metric systems of measurement
2. Weight and Mass: US and Metric systems of measurement
3. Capacity: US and Metric systems of measurement
4. Conversions between the US and Metric systems
5. Square roots and the Pythagorean theorem
6. Similar triangles

H. Signed Numbers
1. Basic operations with Signed Numbers
2. Order of operation
3. Absolute Value

VI. General Education and Course Learning Outcomes

A. General Education Learning Outcomes:

Students will:
1. Perform arithmetic operations on whole numbers, signed numbers, fractions, and decimals without the aid of a calculator. (GE – NJ 2)

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2. Use correct order of operations when evaluating expressions containing more than one operation. (GE – NJ 2)
3. Use arithmetic skills in problem-solving situations. (GE – NJ 2)
4. Express numerical comparisons as ratios in simplest form. (GE – NJ 2)
5. Solve problems using proportional reasoning including problems involving measurement systems. (GE – NJ 2)
6. Convert among fractional, decimal, and percent representations of numbers. (GE – NJ 2)
7. Solve problems involving percent. (GE – NJ 2)
8. Use appropriate geometric formulas to determine measurements of Euclidean figures. (GE – NJ 2)

B. Course Learning Outcomes:

See above

B. Assessment Instruments: (all are required)

1. Computer – assisted instruction and assessment.
2. Completion of online exercises, quizzes and tests

VII. Grade Determinants

The following are all required:

A. Online exercises: Videos, Concept Checks, Homework
B. Cumulative exams

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. Computer assisted instruction
B. Mastery based learning
C. Individual faculty instruction

VIII. Texts and Materials

- Suggested Textbook: *Basic College Mathematics, 5th Edition, by Elayn Martin – Gay, Pearson*
- Computer-based source: MyMathLab (Plus)

(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.)

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IX. Resources

The class must be held in a computer room with web access.

X. Honors Options [if relevant]

Not applicable

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