Lecture Contact Hours: 16-18; Homework Hours: 32-36; Total Student Learning Hours: 48-54

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

MATHEMATICS 020 – FOUNDATIONS FOR QUANTITATIVE REASONING

1 hour lecture, 1 unit

Catalog Description
This support course focuses on the skills and concepts needed for success in Quantitative Reasoning (QR). This course is for students concurrently enrolled in Math 120. Students will receive extra support in arithmetic, algebra, geometry, problem solving, technology, and study skills.
Pass/No Pass only. Non-degree applicable.

Prerequisite
None

Corequisite
Math 120

Course Content
A just-in-time approach to:
1) Arithmetic Skills
   a. Operations with integers, fractions, and decimals
   b. Percentages
   c. Order of operations
2) Algebra skills
   a. Solving equations
   b. Simplifying expressions
   c. Graphing
3) Geometry Skills
   a. Area/perimeter/volume
4) Problem solving skills
   a. Reading strategies for comprehension
   b. Interpreting results
5) Study Skills
   a. Affective domain
   b. Test taking strategies
   c. Note taking
6) Technology Skills
   a. Scientific Calculator
   b. On-Line Learning Management Systems (Canvas, etc.)

Course Objectives
Students will be able to:
1) practice specific skills from arithmetic, algebra, geometry, and problem solving, needed to complete QR;
2) gain confidence and persist in problem solving;
3) assess and improve their mathematical competency; and
4) use effective study skills.

Method of Evaluation
A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in the subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.
1) Group project(s), class activities, homework exercises, and exam questions which measure students' ability to explore and represent information.
2) Projects, class activities, homework assignments, and exams (including a comprehensive final exam) which measure students' ability.
3) In-class activities, homework, math notebook, and data analysis projects which demonstrate students' ability to apply effective learning strategies.

Special Materials Required of Student
1) Scientific or graphing calculator

Minimum Instructional Facilities
1) Smart classroom with writing boards covering three walls, overhead projector, graphing utility overhead viewing panels, projection screen

Method of Instruction
1) Individualized instruction: computer aided instruction or in-class individualized tutoring
2) Collaborative learning: group work or peer review student work
3) Modeling: instructor led-demonstrations and discussion or guided-discovery
4) Active learning: use of manipulatives, interactive computer-based instruction, or in-class activities requiring student participation
5) Class activities and assignments developed by Cuyamaca math faculty

Out-of-Class Assignments
1) Problem sets
2) Exploratory activities and/or projects
3) Reading and/or writing assignments

Texts and References
1) Required (representative example): Classroom activities developed by Cuyamaca College math faculty.
2) Supplemental: None

Exit Skills
Students having successfully completed this course exit with the following skills, competencies, and/or knowledge:
1) Evaluate expressions using order of operations
2) Perform basic arithmetic operations: addition, subtraction, multiplication and division
3) Compare fractions with the same and with different denominators
4) Compare fractions, decimals, and percentages
5) Express numbers in scientific (exponential) notation
6) Calculate percent; convert percentages into decimal form and vice versa
7) Recognize plane geometric figures such as triangles and squares; differentiate among the terms linear, planar and three-dimensional; find perimeter, area, and volume
8) Graph in the Cartesian coordinate system
9) Solve linear equations
10) Perform calculations and solve equations involving ratios and proportions

Student Learning Outcomes

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

1) Solve multi-disciplinary application problems and interpret the results in context;
2) Demonstrate relevant arithmetic, algebra, and technology skills in the context of QR; and
3) Apply study habits that promote success in quantitative reasoning.