Lecture Contact Hours: 32-36; Homework Hours: 64-72; Total Student Learning Hours: 96-108

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

MATHEMATICS 078 – FOUNDATIONS FOR CALCULUS FOR BUSINESS SOCIAL & BEHAVIORAL SCIENCES

2 hours lecture, 2 units

Catalog Description
Support for this course focuses on the skills and concepts needed for success in Calculus for Business, Social & Behavioral Sciences (Math 178). This course is for students concurrently enrolled in Math 178 at Cuyamaca College. Students will receive extra support in algebra, geometry, problem solving, technology, and study skills. **Pass/No Pass only. Non-degree applicable.**

Prerequisite
Appropriate placement

Co-requisite
MATH 178

Course Content
A just-in-time approach to:
1) Algebra skills
   a. Factoring
   b. Solving equations and inequalities
   c. Simplifying expressions
   d. Exponents
   e. Functions
   f. Graphing
2) Geometry skills
   a. Right triangles
   b. Area/perimeter/volume
   c. Rectangles
3) Problem solving skills
   a. Reading strategies for comprehension
   b. Categorizing information
   c. Writing equations: translating words into equations
   d. Interpreting results
4) Study skills
   a. Affective domain
   b. Test taking strategies
   c. Reading a textbook for comprehension
   d. Note taking
5) Technology skills
   a. Graphing calculator
   b. On-line learning management systems (on-line homework, Canvas, etc.)

Course Objectives
Students will be able to:
1) Practice specific skills from algebra, geometry, and technological skills needed to complete Calculus for Business, Social & Behavioral Sciences;
2) Develop problem solving skills and gain confidence working with problems at the applied Calculus level;
3) Assess and improve their mathematical competency;
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 subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.
1) Independent exploration activities which measure students' ability to analyze the connections between the numeric, algebraic, and verbal representations of various types of algebraic expressions, equations, inequalities, functions, and systems of equations and/or inequalities when applied to real-world problems and data analysis.
2) Quizzes and exams (including a comprehensive in-class final exam) which measure students' ability to work independently using graphic, numeric, and algebraic techniques to simply algebraic expressions; formulate, analyze and solve algebraic equations, inequalities, and systems of equations and inequalities; identify and analyze algebraic, exponential, and logarithmic functions; use all of the above in solving real-world application problems.
3) Homework in which students apply graphic, numeric and algebraic principles discussed in class to a series of practice problems to help them formulate questions and receive feedback from the instructor, tutors, or classmates.
4) Computer laboratory assignments in which students apply algebraic principles and problem-solving techniques discussed in class to help students identify gaps in their skill attainment and concept mastery and to improve their symbolic manipulation abilities and problem-solving skills.

Special Materials Required of Student
Graphing utility

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

Method of Instruction
1) Lecture and discussion
2) Teamwork
3) Computer-facilitated instruction

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

Texts and References
1) Required (representative example): None
2) Supplemental: Exploratory projects and classroom activities created by Cuyamaca College faculty

Exit Skills
Students having successfully completed this course exit with the following skills, competencies and/or knowledge:
1) Operations, simplification and manipulation
    a. Polynomials
    b. Factoring
    c. Rational expressions
    d. Complex numbers
    e. Logarithms
    f. Variables with rational exponents
    g. Algebraic expressions involving radicals
2) Solving mathematical statements
    a. Linear equations
    b. Quadratic equations
    c. Polynomial equations (factorable)
    d. Rational equations
    e. Logarithmic equations
    f. Exponential equations
    g. Radical equations
    h. Absolute value equations
    i. Linear systems of equations
3) Graphing
    a. Relations
    b. Functions and their inverses
    c. Conic sections
4) Modeling and applications
    a. Functions
    b. Problem-solving strategies and techniques

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 Calculus for Business, Social & Behavioral Sciences
3) Apply study habits that promote success in Calculus for Business, Social & Behavioral Sciences