Number: MATH G100  

TITLE: Liberal Arts Mathematics

ORIGINATOR: Pete Bouzar  
EFF TERM: Fall 2018

FORMERLY KNOWN AS:

DATE OF OUTLINE/REVIEW: 03-20-2018

CROSS LISTED COURSE:

TOP NO: 1701.00

CID:

SEMESTER UNITS: 3.0

HRS LEC: 54.0  
HRS LAB: 18.0  
HRS OTHER: 0.0

CONTACT HRS TOTAL: 72.0

STUDY NON-CONTACT HRS RECOMMENDED: 108.0

CATALOG DESCRIPTION:

Using and expanding upon the skills gained from intermediate algebra, this course offers the liberal arts student an applications-oriented, problem-solving exploration into a variety of mathematical fields including geometry, statistics, and business mathematics. This course is designed not only to meet college general education requirements but to help generate a positive attitude toward and an interest in mathematics.

JUSTIFICATION FOR COURSE:

There is demonstrated need for a strong applications-oriented mathematics course for non-science majors. Math G100 is designed to provide these students with the analytical tools essential in employing sound decision-making practices for lower division transfer math courses.

PREREQUISITES:

- GWC Math Placement Level of 50 or higher.
- MATH G030: Intermediate Algebra with a minimum grade of C or better
  or
- OCC Math Placement Level of 50 or higher.
  or
- MATH A030: Intermediate Algebra with a minimum grade of C or better
  or
- CCC Math Placement Level of 60 or higher.
  or
- MATH C030: Intermediate Algebra with a minimum grade of C or better
  or
- MATH G040: Accelerated Elementary and Intermediate Algebra with a minimum grade of C or better
  or
- MATH G080: Pre-Statistics with a minimum grade of C or better

COREQUISITES:

ADVISORIES:

ASSIGNED DISCIPLINES:

- Mathematics

MATERIAL FEE: Yes [ ] No [X] Amount: $0.00

CREDIT STATUS: Noncredit [ ] Credit - Degree Applicable [X] Credit - Not Degree Applicable [ ]

GRADING POLICY: Pass/No Pass [ ] Standard Letter [X] Not Graded [ ] Satisfactory Progress [ ]

OPEN ENTRY/OPEN EXIT: Yes [ ] No [X]
TRANSFER STATUS: CSU Transferable[ ] UC/CSU Transferable[X] Not Transferable[ ]
BASIC SKILLS STATUS: Yes [ ] No [X] LEVELS BELOW TRANSFER: Not Applicable
CALIFORNIA CLASSIFICATION CODES: Y - Not Applicable
NON CREDIT COURSE CATEGORY: Y - Not applicable, Credit Course
OCCUPATIONAL (SAM) CODE: E
REPEATABLE ACCORDING TO STATE GUIDELINES: No [X] Yes [ ] NUMBER REPEATS:
REQUIRED FOR DEGREE OR CERTIFICATE: No [ ] Yes [X]
Liberal Arts: Emphasis in Mathematics(Associate in Arts)
Liberal Arts: Emphasis in Science(Associate in Arts)
Liberal Studies for Elementary Education(Associate in Arts)
GE AND TRANSFER REQUIREMENTS MET:
IGETC Area 2: Mathematical Concepts and Quantitative Reasoning
  2A: Mathematical
CSU GE Area B: Scientific Inquiry and Quantitative Reasoning
  B4 - Mathematics/Quantitative Thinking

COURSE LEVEL STUDENT LEARNING OUTCOME(S) Supported by this course:

1. use truth tables to verify symbolic statements and analyze logical arguments.
2. use various formulas to manage and plan for long-term financial goals.
3. use the U.S. customary and metric measurement systems to analyze geometric figures.

COURSE OBJECTIVES:
1. demonstrate an understanding of set theory and use truth tables to verify symbolic statements and analyze logical arguments.
2. demonstrate an understanding of past and present numeration systems.
3. use various formulas to manage and plan for long-term financial goals.
4. use the U.S. customary and metric measurement systems to analyze geometric figures.
5. utilize various aspects of probability and statistics to solve problems relating to games of chance and other real-world applications.

COURSE CONTENT:

  LECTURE CONTENT:

A. Problem solving and critical thinking
   1. Inductive and deductive reasoning
   2. Problem solving and mathematical modeling
B. Set Theory
   1. Basic concepts
   2. Venn diagrams and set operations
C. Logic
   1. Simple and compound statements
   2. Negations, conjunctions, disjunctions, conditional, biconditional statements
   3. Truth Tables
   4. Equivalent statements and De Morgan’s Laws
   5. Arguments and Euler diagrams
D. Numeration Systems
   1. Positional systems
   2. Number bases
   3. Computation in positional systems
E. Number Theory and the Real Number System
   1. Prime and composite numbers
   2. Integers, rational, and irrational Numbers
   3. The real numbers and their properties
   4. Exponents and scientific notation
   5. Arithmetic and geometric sequences
F. Consumer Mathematics
   1. Percents
   2. Simple and compound interest
   3. Installment buying and cost of home ownership
G. Measurement
   1. Measuring length and the metric System
   2. Measuring area and volume
   3. Measuring weight and temperature
H. Geometry
   1. Points, lines, planes, and angles
   2. Triangles, circles, and other polygons
   3. Perimeter and circumference
   4. Area and volume
I. Counting methods and probability
   1. The Fundamental Counting Principle
   2. Permutations and combinations
   3. Fundamentals of probability
   4. Events involving Not, And, and Or
   5. Conditional probability and odds
   6. Expected value
J. Statistics
   1. Sampling, frequency distributions, and graphs
   2. Measures of central tendency
   3. Measures of dispersion
   4. The normal distribution and its applications

LABORATORY CONTENT:

A. Problem solving and critical thinking
   1. Inductive and deductive reasoning
   2. Problem solving and mathematical modeling
B. Set Theory
   1. Basic concepts
   2. Venn diagrams and set operations
C. Logic
   1. Simple and compound statements
   2. Negations, conjunctions, disjunctions, conditional, biconditional statements
   3. Truth Tables
   4. Equivalent statements and De Morgan’s Laws
   5. Arguments and Euler diagrams
D. Numeration Systems
   1. Positional systems
   2. Number bases
   3. Computation in positional systems
E. Number Theory and the Real Number System
   1. Prime and composite numbers
   2. Integers, rational, and irrational Numbers
   3. The real numbers and their properties
4. Exponents and scientific notation
5. Arithmetic and geometric sequences

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1. Percents
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G. Measurement
1. Measuring length and the metric System
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METHODS OF INSTRUCTION:

A. Lecture:
B. Lab:
C. Tutoring – noncredit:
D. Direct Study/IS:
E. Dist. Ed – Delayed Interaction:
F. Video One Way – Audio Two Way:
G. Two-way interactive audio only:
H. Other simultaneous interactive:
I. Audio – One Way:
J. Other passive medium:
K. Online:
L. Independent Study:

INSTRUCTIONAL TECHNIQUES:

COURSE ASSIGNMENTS:
Reading Assignments

Text

Out-of-class Assignments
Projects may be required which would extend the student’s special interest in an area of study.

Writing Assignments
Students will demonstrate problem solving skills when they write their own solutions to regular homework problems, quiz problems, and exam problems.

METHODS OF STUDENT EVALUATION:
Midterm Exam
Final Exam
Short Quizzes
Written Assignments
Essay Examinations
Objective Examinations
Report
Projects (ind/group)
Problem Solving Exercises
Oral Presentations
Skills Demonstration

Demonstration of Critical Thinking:

Students will demonstrate critical thinking and problem solving skills by completing homework assignments, participating in discussions, and completing required exams and quizzes

Required Writing, Problem Solving, Skills Demonstration:

Students will demonstrate problem solving skills when they write their own solutions to regular homework problems, quiz problems, and exam problems.

TEXTS, READINGS, AND RESOURCES:
TextBooks:

LIBRARY:
Adequate library resources include:
Comments:

Attachments:
Attached Files