



El Camino College
COURSE OUTLINE OF RECORD – Approved

I. GENERAL COURSE INFORMATION

Subject and Number: Mathematics 120S
Descriptive Title: Liberal Arts Mathematics Support
Discipline: Mathematics
Division: Mathematical Sciences

Catalog Description:

This is a support course for students concurrently enrolled in Math 120. Students will receive additional instruction in core skills and concepts needed in Liberal Arts Mathematics. Topics as needed may include concepts from arithmetic, pre-algebra, elementary and intermediate algebra, and descriptive statistics that are needed to understand the basics of college-level Liberal Arts Mathematics.

Conditions of Enrollment:

Corequisite: Mathematics 120

Course Length:	<input checked="" type="checkbox"/> Full Term	Other (Specify number of weeks):
Hours Lecture:	1.00 hours per week	TBA
Hours Laboratory:	0 hours per week	TBA
Course Units:	1.00	

Grading Method: Pass/No Pass
Credit Status: Non-Degree Credit

Transfer CSU: No
Transfer UC: No

II. OUTCOMES AND OBJECTIVES

A. COURSE STUDENT LEARNING OUTCOMES (The course student learning outcomes are listed below, along with a representative assessment method for each. Student learning outcomes are not subject to review, revision or approval by the College Curriculum Committee)

- Solve Loan Problems:** Apply techniques of simple and compound interest to solve loan and annuity problems.
- Solve Application Problems Using Graphical Methods:** Solve application problems using graphical methods such as: 3-ring Venn diagrams, truth tables, Euclidean geometries.
- Analyze Voting System:** Analyze voting systems, methods of apportionment/representation to further the understanding of the political process.
- Solve Application Problems:** Solve application problems using basic counting principles, permutations, combinations, probability, expected value and frequency distributions.

The above SLOs were the most recent available SLOs at the time of course review. For the most current SLO statements, visit the El Camino College SLO webpage at <http://www.elcamino.edu/academics/slo/>.

B. Course Student Learning Objectives (The major learning objective for students enrolled in this course are listed below, along with a representative assessment method for each)

1. Convert between fractions, decimals, and percentages and understand the relative sizes of these values.
(Written Homework)
2. Evaluate expressions correctly using order of operations and evaluate formulas given values for all necessary variables.
(Quizzes)
3. Solve equations using algebraic methods, including linear and exponential equations.
(Objective Exams)
4. Apply properties and laws of logarithms in solving compound interest problems.
(Objective Exams)
5. Read and interpret a variety of tables, charts, and graphs including bar graphs and histograms.
(Quizzes)
6. Translate applied problems into mathematical statements and translate mathematical solutions into verbal conclusions.
(Written Homework)

III. OUTLINE OF SUBJECT MATTER (Topics are detailed enough to enable a qualified instructor to determine the major areas that should be covered as well as ensure consistency from instructor to instructor and semester to semester.)

Lecture or Lab	Approximate Hours	Topic Number	Major Topics
Lecture	2	I	FRACTIONS, PROPORTIONS AND PERCENTAGES Concepts and skills as needed through just-in-time work to support: A. Fractional Arithmetic and Simplifying Expressions with Fractions B. Converting between Fractions, Decimals, and Percentages C. Understanding Fractions as Proportions D. Comparing values on the real line, including decimals and negatives
Lecture	2	II	LINEAR EQUATIONS Concepts and skills as needed through just-in-time work to support: A. Solving Linear Equations B. Solving Formulas
Lecture	2	III	EVALUATING EXPRESSIONS Concepts and skills as needed through just-in-time work to support: A. Order of Operations B. Evaluating Formulas

Lecture	3	IV	EXPONENTIAL EQUATIONS Concepts and skills as needed through just-in-time work to support: A. Properties of Exponents B. Basic Graphs of Exponential Functions C. Evaluating Exponential Functions D. Solving Exponential Equations
Lecture	3	V	LOGARITHMS Concepts and skills as needed through just-in-time work to support: A. Basic Properties of Logarithms B. Basic Graphs of Logarithms C. Power Law of Logarithm
Lecture	2	VI	CALCULATOR SKILLS Concepts and skills as needed through just-in-time work to support: A. Arithmetic on the Calculator B. Rounding C. Using Exponents and Logarithms on the Calculator
Lecture	2	VII	TABLES, CHARTS AND GRAPHS Concepts and skills as needed through just-in-time work to support: A. Reading and Interpreting Tables, Charts, and Graphs B. Plotting Coordinates
Lecture	2	VIII	APPLICATIONS Concepts and skills as needed through just-in-time work to support: A. Translating Verbal Statements into Numeric Expressions B. Estimating the Reasonableness of Results C. Stating Mathematical Conclusions Verbally
Total Lecture Hours		18	
Total Laboratory Hours		0	
Total Hours		18	

IV. PRIMARY METHODS OF EVALUATION AND SAMPLE ASSIGNMENTS

A. PRIMARY METHOD OF EVALUATION

Problem solving demonstrations (computational or non-computational)

B. TYPICAL ASSIGNMENT USING PRIMARY METHOD OF EVALUATION

Evaluate the following expression, rounding your answer to two decimal places, for the amount of a monthly payment on a \$25,000 loan at interest rate 4% for 8 years: $\frac{24000\left(\frac{0.04}{12}\right)}{1-\left(1+\frac{0.04}{12}\right)^{-(12 \cdot 8)}}$

C. COLLEGE LEVEL CRITICAL THINKING ASSIGNMENTS

1. Suppose you have \$1500 to invest in an account paying 6% interest, compounded quarterly, and wish to have this investment grow to \$2000.
 - (a) Write down the formula that can be used to solve for the number of years it will take for the investment to reach \$2000.
 - (b) Write a sentence explaining what values should be used for the known variables in the formula from (a).
 - (c) Based on (a) and (b), set up an equation to solve for the time for the investment to reach \$2000.
 - (d) Using logarithms, solve the equation from (c) and write out the answer in sentence form.
2. Suppose you are studying the students in a math class. You classify the students according to gender and age bracket and get the following data:

	18-21 years old	22-25 years old	25+ years old
Male	9	2	4
Female	7	5	6

- (a) How many students were in this math class?
- (b) What percent of the students in this math class were Female? (Round to the nearest tenth of a percent)
- (c) What percent of the students in this math class were 22-25 years old? (Round to the nearest tenth of a percent)
- (d) What percent of the Male students were 18-21 years old? (Round to the nearest tenth of a percent)
- (e) What percent of the 25+ year old students were Female? (Round to the nearest tenth of a percent)

D. OTHER TYPICAL ASSESSMENT AND EVALUATION METHODS

Objective Exam
Other Exams
Quizzes
Homework Problems
Written Homework

V. INSTRUCTIONAL METHODS

- Lecture
- Group Activities
- Discussion

Note: In compliance with Board Policies 1600 and 3410, Title 5 California Code of Regulations, the Rehabilitation Act of 1973, and Sections 504 and 508 of the Americans with Disabilities Act, instructional delivery shall provide access, full inclusion, and effective communication for students with disabilities.

VI. WORK OUTSIDE OF CLASS

- Study
- Answer questions
- Skill practice
- Required reading
- Problem solving activity

Estimated Study Hours Per Week: 2

VII. TEXTS AND MATERIALS

A. UP-TO-DATE REPRESENTATIVE TEXTBOOKS

- Thomas Pirnot. Mathematics All Around. 6th ed. Pearson, 2018.
- Dave Sobacki. Math in Our World. 4th ed. McGraw Hill Education, 2019.
- Allen Angel. A Survey of Mathematics with Applications. 10th ed. Pearson, 2017.

B. ALTERNATIVE TEXTBOOKS

C. REQUIRED SUPPLEMENTARY READINGS

D. OTHER REQUIRED MATERIALS

VIII. CONDITIONS OF ENROLLMENT

A. Requisites (Course and Non-Course Prerequisites and Corequisites)

Requisites	Category and Justification
Math 120	Corequisite

B. Requisite Skills

Requisite Skills

C. Recommended Preparations (Course and Non-Course)

Recommended Preparation	Category and Justification

D. Recommended Skills

Recommended Skills

E. Enrollment Limitations

Enrollment Limitations and Category	Enrollment Limitations Impact
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Course created by Matthew Mata, Fall 2019

BOARD APPROVAL DATE: 12/16/2019

LAST BOARD APPROVAL DATE: