EL CAMINO COLLEGE
COURSE OUTLINE OF RECORD

I. COURSE DESCRIPTION

Course Title and Number: Mathematics 23

Descriptive Title: Pre-Algebra

Discipline: Mathematics

Division: Mathematical Sciences

Course Length: ☒ Full Term ☐ Other (specify): _____

Hours Lecture: 4 Hours Laboratory: _____ Course Units: 3

Grading Method: ☒ Letter ☐ Credit/No Credit ☐ Both ☐ No Grade

Course Type: ☐ Credit, Degree Applicable ☒ Credit, Not Degree Applicable ☐ Non-Credit

Transfer CSU: ☐ Yes Effective Date _____ ☒ No

Transfer UC: ☐ Yes Approval Date _____ ☐ Pending ☒ No

Conditions of Enrollment:
Specify Prerequisite Corequisite, Recommended Preparation, Enrollment Limitation or None.

Prerequisite: Mathematics 10B or Mathematics 12 with a minimum grade of C in prerequisite or qualification by testing (El Camino College Mathematics Placement Test) and assessment.

Catalog Description:

This course bridges the gap between arithmetic and formal algebra, developing number sense and operation sense, in order to formulate and solve algebraic equations with integers, fractions, and percents. Algebraic principles are applied to problems from a variety of fields. Other topics include: proportional reasoning, spatial reasoning, informal geometry and measurement, coordinate graphing, informational graphs, and data collection and description.

II. COURSE OBJECTIVES

List the major objectives of the course. These must be stated in behaviorally measurable terms.

1. Acquire effective study skills including the use of the calculator in appropriate situations.
2. Perform various operations (addition, subtraction, multiplication, division, and exponentiation) on different sets of numbers (whole, integer, and rational) and recognize equivalence when it occurs, particularly with fractions, decimals and percents.
3. Formulate mathematical representations of real-world applications including the recognition of proportional relationships.
4. Estimate to determine the reasonableness of results.
5. Recognize and apply the concepts of variable, expression, and equation.
6. Solve linear equations.
7. Find perimeters, areas, and volumes of various geometrical shapes and use in applications.
8. Represent linear relationships with tables, graphs and equations (coordinate graphing).
9. Read, interpret, and construct tables, charts and graphs.

III. OUTLINE OF SUBJECT MATTER

The topics should be detailed enough to enable an instructor to determine the major areas that should be covered and so that the course may have consistency from instructor to instructor and semester to semester.

Approximate Time in Hours	Major Topics
6	Introduction to study skills and calculator usage (interspersed throughout the course)
6	Informational Graphing: Measurement/Scale reading Reading, interpreting and drawing graphs Collecting and organizing data Mean, mode, and median
10	Geometry and Measurement: Formulas: area, perimeter, volume, surface area Dimensional Analysis: converting from one unit to another. Applications interspersed
12	Integers: Operations on signed numbers Order of operations Introduction to algebraic expressions Applications interspersed
10	Equation Solving with Integers: Simple Linear Equations: Properties: (for example, distributive and equality properties) Like terms Linear equations with more than 1 operation.
14	Equation Solving with Common Fractions and Decimal Fractions: Equivalent forms (such as 1/5 = .2 or 0.5<0.52) Equations: Formal and Informal methods Applications interspersed.
10	Ratio, proportion and percent: Ratio and Proportion Percent Equivalent forms (such as 150%=1.5 or 0.5%<0.01) Using algebraic methods to solve proportions and percent problems. Applications interspersed.
4	Coordinate Graphing: Plotting ordered pairs Linear graphs and tables of ordered pairs

Total: 72

IV . METHODS OF EVALUATION

A. CREDIT, DEGREE APPLICABLE AND CREDIT, NOT DEGREE APPLICABLE COURSES

Check the PRIMARY method of evaluation for this course.

- ☐ Substantial writing assignments
- ☒ Problem solving demonstrations (computational or non-computational)
- ☐ Skills demonstrations

A minimum of one response in the categories 1, 2, or 3 below, as applicable, is required. However, you may check all that apply.

1. Indicate the types of writing assignments used as primary or secondary methods of evaluation for this course.
   - ☐ Essay exams
   - ☐ Written homework
   - ☐ Term or other papers
   - ☐ Reading reports
   - ☐ Laboratory reports
   - ☐ Other (specify)

2. Indicate the types of problem-solving demonstrations used as primary or secondary methods of evaluation for this course.
   - ☒ Exams
   - ☐ Laboratory reports
   - ☒ Quizzes
   - ☒ Homework problems
   - ☐ Fieldwork
   - ☒ Other (specify) individual and group activities

3. Indicate the types of skill demonstrations used as primary or secondary methods of evaluation for this course.
   - ☐ Class performance
   - ☐ Performance exams
   - ☐ Fieldwork
   - ☐ Other (specify)

4. If objective exams are also used, check all that apply.
   - ☐ Multiple choice
   - ☐ Completion
   - ☐ Matching items
   - ☐ True/false
   - ☐ Other (specify)

B. NON-CREDIT COURSE

Indicate the methods of evaluation that will be used to determine that stated objectives have been met.

V. COURSEWORK

A. TYPICAL ASSIGNMENT

Provide an example of a typical assignment. This assignment must correspond to the PRIMARY method of evaluation indicated in Section IV, Methods of Evaluation. That is, it must be a writing assignment or, if more appropriate, an assignment involving problem solving or skill demonstration.

Study the section of the text corresponding to applications of proportions and complete the assigned problems, for example:

> A restaurant in Hollywood produces 30 pounds of garbage in 1 1/2 days. How many pounds of garbage do they produce in two weeks?

B. COLLEGE-LEVEL CRITICAL THINKING ASSIGNMENTS

Cite two specific assignments that demonstrate college-level critical thinking. (Required for degree applicable courses only.)

C. WORK OUTSIDE OF CLASS

Two hours work outside of class are required for each hour of lecture or equivalent. Each student in this course will be required to participate in the following work outside of class time. Check all that apply.

- ☒ Study
- ☒ Answer questions
- ☒ Skill practice
- ☒ Required reading
- ☒ Problem solving activity
- ☐ Written work (such as essay/composition/report/analysis/research)
- ☐ Journal (done on a continuing basis throughout the semester)
- ☐ Observation of or participation in an activity related to course content (such as theatre event, museum, concert, debate, meeting)
- ☐ Course is lab only - minimum required hours satisfied by scheduled lab time
- ☐ Other (specify)

VI. INSTRUCTIONAL METHODOLOGY

A. Check all planned instructional activities that apply:

☒ Lecture	☒ Group Activities
☐ Lab	☐ Role play/simulation
☒ Discussion	☐ Guest Speakers
☐ Multimedia presentations	☐ Field trips
☐ Demonstration	☐ Other (specify)

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.

VII. TEXTS AND MATERIALS

If multiple selection is offered, only representative texts need be listed. An up-to-date list of required and recommended materials is maintained in the division office.

A. REQUIRED TEXTS (title, author, publisher, year)

Prealgebra 3rd edition, Tussy and Gustafson, Thomson-Brooks/Cole, 2006

B. REQUIRED SUPPLEMENTARY READINGS

C. OTHER REQUIRED MATERIALS

VIII. CONDITIONS OF ENROLLMENT

If this course has a Prerequisite or Corequisite, complete section A. If this course has an Enrollment Limitation complete section B.

A. PREREQUISITE AND/OR COREQUISITE

1. Indicate if this course has a prerequisite or corequisite or both.
   ☒Prerequisite ☐Corequisite ☐Both

2. Indicate Type. Check all that apply.

   ☒Sequential ☐Computational/Communication Skills
   ☐Health and Safety ☐Non-Course
   ☐Standard (If this is a Standard prerequisite or corequisite, attach CCC Form D.)

3. Entrance Skills/Knowledge
   List the required skills and/or knowledge without which a student would be highly unlikely to receive a grade of A, B, C, or Credit (or for Health and Safety, would endanger self or others) in this course.

   1. Order a given set of numbers.
   2. Use the order of operations to add, subtract, multiply and exponentiate whole numbers, fractions and decimals.
   3. Use divisibility tests and prime factorization to reduce fractions to lowest terms and perform operations on fractions.
   4. Convert rational numbers into decimals, fractions and percentages.
   5. Solve various application problems requiring the use of ratios, proportions, and percentages.

B. ENROLLMENT LIMITATION

1. Indicate the category which describes the Enrollment Limitation for this course.
   ☐Band/Orchestra
   ☐Theater
   ☐Speech
   ☐Chorus
   ☐Journalism
   ☐Dance
   ☐Intercollegiate Athletics
   ☐Honors Course
   ☐Blocks of Courses
   ☐Other (specify)

2. List Degree and/or Certificate requirements that are met by this course.
3. List all El Camino College courses that also satisfy the requirements listed above in Section B.2.

Originator: **Myrna Manly** Submittal Date: **November 29, 1994**

BOARD APPROVAL DATE: March 3, 1995

Reviewed and/or Revised by:

Myrna Manly Date: January, 2001

Trudy Meyer Date: November, 2001

Trudy Meyer Date: October, 2006

Trudy Meyer Date: May, 2007

REQUIRED SIGNATURES FOR NON-CREDIT COURSE

College Curriculum Committee Chair

_____

Vice-President - Academic Affairs

_____

CCC Form 1, 5/2006