MATH 0581 - ARITHMETIC REVIEW

SECTION A

1. Division: Sciences & Mathematics
2. Course Discipline: MATH
3. Course Number: 0581
4. Course Title: ARITHMETIC REVIEW
5. First semester this new version/new course will be offered: FALL 2013

SECTION B General Course Information

1.Units: 4.0 **Variable Units:** N/A
2.This Course is: Nondegree-Applicable Credit - Basic Skills
3A. Cross-List:
3B. Formerly: SKDV 0581

Course Format and Duration

4. Standard Term Hours per Week

Lecture/Discussion:	3
Lab:	3
Activity:	
By Arrangement:	
Total Hours per Week:	6

5. Standard Term Total Semester Hours

Lecture/Discussion:	54
Lab:	54
Activity:	
By Arrangement:	
Total Hours :	108

6. Minimum hours per week of independent work done outside the class: 6

Course Preparation - (Supplemental form B required)

7a. Prerequisite(s): (Course and/or other preparation/experience that is REQUIRED to be completed previous to enrollment in this course.)

Placement by matriculation assessment process

7b. Co-requisite(s): (Courses and/or other preparation that is REQUIRED to be taken concurrently with this course.)

7c. Advisory: (MINIMUM preparation RECOMMENDED in order to be succesful in this course. Also known as "Course Advisory".)

Catalog Description And Other Catalog Information:

8. Repeatability: **Not Repeatable**

Please note: Repeatability does not refer to repeating courses because of substandard grades or a lapse of time since the student took the course. A course may be repeated only if the course content differs each time it is offered and the student who repeats it is gaining an expanded educational experience as stipulated in Title V.

- ☐ Skills or proficiencies are enhanced by supervised repetition and practice within class periods.
- ☐ Active participatory experience in individual study or group assignments is the basic means by which learning objectives are attained.
- ☐ Course content differs each time it is offered.

Explanation for above repeatability selection:

9a. Grading Option: Standard Grade

9b. Catalog Description:

Basic review of fundamental arithmetic operations with whole numbers, decimals, fractions, ratio and proportion, and percentages. Not open to students who have completed MATH 581S.

Course Outline Information

10. Course Objectives: (Performance objectives for all credit courses must indicate that students will learn critical thinking and will be able to apply concepts at college level.Performance objectives must be related to items listed in Section 11.)

This course requires 54 hours of lecture and 54 hours of laboratory. In some class sections, some or all of the 54 hours of laboratory may be scheduled "to be arranged" or "TBA." The TBA hours and objectives are expected of all students enrolled in the course.

Lecture Objectives:
1) Using mathematical operations of addition, subtraction, multiplication, and division, calculate whole numbers, fractions, decimals, ratios and proportions and percentages problems by showing all steps.
2) Analyze and interpret whole numbers, fractions, decimals, ratios and proportions and percentages word problems that are either one or multi-step problems by using logical mathematical sequence of steps.
3) Recognize algorithms such as the order of operations and exponential notation to appropriate problems and solve them showing all steps.
4) Recognize mathematical terminology to the interpretations and solutions of all types of mathematical problems by demonstrating the appropriate written steps.
5) Analyze and interpret basic geometry problems by using the appropriate formulas.

Laboratory/TBA Objectives:
1) Calculate and solve mathematical operations of addition, subtraction, multiplication, and division, calculate whole numbers, fractions, decimals, ratios and proportions and percentages problems by showing all steps.
2) Solve whole numbers, fractions, decimals, ratios and proportions and percentages word problems that are either one or multi-step problems by using logical mathematical sequence of steps.
3) Apply algorithms such as the order of operations and exponential notation to appropriate problems and solve them showing all steps.
4) Apply mathematical terminology to the interpretations and solutions of all types of mathematical problems by demonstrating the appropriate written steps.
5) Solve basic geometry problems by using the appropriate formulas.

11. Course Content Outline: (Provides a comprehensive, sequential outline of the course content, including all major subject matter and the specific body of knowledge covered.)

I. Whole Numbers - Calculation and Problem Solving
II. Fractions and Mixed Numbers - Calculation and Problem Solving
III. Decimals - Calculation and Problem Solving
IV. Ratio and Proportion - Rates, Unit Rates, and Problem Solving
V. Percentages - Calculation and Problem Solving

12. Typical Out-of-Class Assignments: (Credit courses **require** two hours of independent work outside of class for each lecture hour, less lab/activity classes. List type of assignments including library assignments.)

a. Reading Assignments: (Submit at least 2 examples.)

1. Students will read the assigned pages from the textbook and be prepared to discuss what a sum, a difference, a product and a quotient are.
2. Students will read and follow the directions: Choose a variable to represent what is missing in the problem. Write an equation using the variable. Solve the equation.

b. Writing, Problem Solving or Performance: (Submit at least 2 examples)

1. A student obtains a no-interest loan of $4600 per year for three years. After that time, the student must pay off the loan in equal payments for a period of 120 months. What is the amount of each of the monthly payments?
2. Find the total cost for a television with a price of $3,999 and a sales tax rate of 6 1/4%. Round the answer to the nearest cent.

c. Other (Term projects, research papers, porfolios, etc.)

13. Required Materials:

a. All textbooks, resources and other materials used in this course are college level?

- ☑ Yes
- ☐ No

b. Representative college-level textbooks (for degree applicable courses) or other print materials:

Book 1:

Author:	Lial and Salzman
Title:	Essential Mathematics
Publisher:	Addison-Wesley Publishing
Date of Publication:	2013
Edition:	4th

c. Other materials and/or supplies required of students:

Methods of Instruction

14.Check all Instructional methods used to present course content:

- ☑ Lecture
- ☑ Discussion Semminar
- ☑ Lab
- ☑ Directed Study
- ☐ Activity
- ☐ Distance Education (requires supplemental form)
- ☐ Work Experience
- ☑ Tutoring

Other: Computers

Give detailed examples of teaching methodology that relate to the course performance objectives:

1. Instructor will present a lecture with examples of the key components needed to solve word problems. The instructor will guide the student to read through a word problem, determine what is being asked for or what is missing, identify the steps necessary to model the problem and determine the solution. Instructor prepares the lecture and examples, writes the associated test questions and scores the test for correct understanding of the concepts and reviews these with students.
2. Instructor presents a lecture/discussion of analyzing and solving basic geometry problems by using the appropriate formulas. Application problems will be discussed and analyzed. The instructor will then form small groups to enable students to work together through an application problem of the presented concept. Students will then either submit their work in written form or will present their work to the rest of the class. Instructor will encourage students to follow up the discussion with homework on the computer and monitors the student responses.

15. Methods of Assessing Student Learning
15a. Methods of Evaluation:

- ☐ Essay Exam
- ☐ Objective Exam
- ☐ Projects
- ☑ Class Discussion
- ☐ Reports
- ☑ Problem Solving Exam
- ☑ Skill Demonstration
- ☐ Other

15b. (All courses must provide for measurement of student performance in terms of stated student performance objectives, Area 10, and culminate in a formal recorded grade based on uniform standards. Submit at least 2 examples.)

1. Objective: Calculate using the mathematical operations of addition, subtraction, multiplication, and division for problems involving fractions. Students will take a test involving the basic operations for fractions. The tests will be scored, assigned a grade on a traditional grading scale, and reviewed in class. Study guides and reviews are provided prior to the exam.
2. Objective: Recognize and apply algorithms for the order of operations. Students will complete a project utilizing the order of operations. Part one of the project will involve simplifying model examples for the concept. Part 2 of the project will be to identify common errors encountered when simplifying math problems involving the order of operations. Scores will be assigned for the project using a traditional grading scale. In addition, a quiz will be scored, assigned a grade, and reviewed in class.

SECTION C

1. Program Information:

- ☐ In an approved program
- ☐ Part of a new program
- ☑ Not part of an approved program

2. TOP Code Information

Program Title: Mathematics, General 170100

3. Course SAM Code:

- ☐ A - Apprenticeship Course
- ☐ B - Advanced Occupational
- ☐ C - Clearly Occupational
- ☐ D - Possibly Occupational
- ☑ E - Non-Occupational

4. Faculty Discipline Assignment(s):

Education
Learning Assistance Instructors
Mathematics

Comments:

SECTION D

General Education Information:

1. College Associate Degree GE Applicability:

2. CSU GE Applicability:

3. IGETC Applicability:

4. C-ID :

SECTION E

1. Articulation Information: (Required for Transferable Courses Only)

- ☐ CSU Transferable
- ☐ UC Transferable
- ☐ CSU/UC Major Requirement.

If CSU/UC major requirement, list campus and major. (Note: Must be lower division)

2. List at least one community college and its comparable course. If requesting CSU and/or UC transferability also list a CSU/UC campus and comparable lower division course

SECTION F

Planning and Resources: Please address the areas below:

1. Evidence of Need or Potential: recommendations of advisory committee, connection to existing or planned degrees/certificates, or regional/national developments, transfer university requirements.

Course is essential for students to complete mathematics requirements for a college degree. This course incorporates critical thinking skills necessary for college success and provides the opportunity for students to understand and apply concepts in an interdisciplinary environment.

2. Appropriateness to Mission: connection to basic skills, transfer, career technical education, or lifelong learning; relationsh

This course relates directly to the Sierra College Mission because it "provides a challenging and supportive learning environment" and addresses the needs of students moving toward transfer.

3. Place in Program/Department: relationship to student learning outcomes identified by program, connection to general education, or articulation with other institutions.

Basic skills course designed to move students to transfer level math. Prerequisite for Math 582.

4. Availability of Faculty and Facilities: minimum qualifications to teach course, special training for instructors, or long-term physical impact of course.

High Availability

5. Potential Impact on Resources: impact on library, computer support, transportation, equipment, or other needs

None

SECTION G

1. Maximum Class Size (recommended): 25

2. If recommended class size is not standard, then provide rationale: