

**PALOMAR COLLEGE**  
**COURSE OUTLINE OF RECORD FOR**  
**DEGREE CREDIT COURSE**

X Transfer course    X A.A. degree applicable course

**COURSE NUMBER AND TITLE:** Math 105 - Concepts of Elementary Mathematics I

**UNIT VALUE:** 3

**MINIMUM NUMBER OF SEMESTER HOURS:** 48

**BASIC SKILLS REQUIREMENTS:** Appropriate language and computational skills.

**ENTRANCE REQUIREMENTS:**

**PREREQUISITE:** A minimum grade of "C" in Math 60 or Math 56 or eligibility determined through the math placement process.

**COREQUISITE:** None

**RECOMMENDED PREPARATION:** None

**SCOPE OF COURSE:** Selected topics from the real number system including properties and operations with integers and rational numbers as fractions and decimals. Additional topics include problem solving, numeration systems, number theory, and topics in logic and set theory. Recommended for prospective teachers.

**SPECIFIC COURSE OBJECTIVES:** The successful student will be able to:

1. Use critical thinking to analyze and solve problems that involve patterns, sets, functions, numeration systems, and number theory.
2. Use problem-solving skills to deduce valid conclusions.
3. Evaluate, compare, and contrast mathematical and logical techniques and concepts.
4. Use concrete examples to understand mathematical concepts that involve set theory numeration systems, and number theory.
5. Relate the academic standards for mathematics education to mathematical topics that involve numeration systems and number theory.
6. Use appropriate technology to research and explore mathematical topics and to solve problems.

**CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:** At least the following topics will be covered:

1. Problem-solving.
2. Functions, set theory and logic.
3. Whole numbers and their properties.
4. Numeration systems.
5. Computational methods for whole-numbers.
6. Computational methods for integers.
7. Number Theory including divisibility rules, prime and composite numbers, greatest common divisor and least common multiple.

8. Computational methods for rational number as fractions.
9. Computational methods for decimals.
11. Additional topics may be included at instructor's discretion.

**REQUIRED READING:**

Bennett, Albert B Jr., and Ted L. Nelson, Mathematics For Elementary Teachers A Conceptual Approach, 5<sup>th</sup> Edition. Boston. WCB/McGraw-Hill, 2001.

Department created logic supplement.

**SUGGESTED READING:** NCTM, Professional Standards for Teaching Mathematics. Mathematics Content Standards for California Public Schools, Kindergarten Through Grade Twelve.

**REQUIRED WRITING:** The student will write on mathematical topics such as problem-solving techniques, and teaching methodologies.

The student will write solutions to homework problems using mathematical notation, logic, and one sentence explanations when required.

**OUTSIDE ASSIGNMENTS:**

**Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short term classes.**

Outside assignments include written assignments, reading assignments, review of lecture material, or problem sets as deemed necessary by the instructor.

**INSTRUCTIONAL METHODOLOGY:**

**Check all that apply:**

- lecture
- laboratory
- lecture-laboratory combination
- directed study

**This course may be offered as a distance education course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.**

Yes  No

**If yes, check all that apply.** (See guidelines for preparation for definitions.)

- telecourse
- mediated instruction
- computer assisted instruction

**GRADING POLICY AND STANDARDS** (include methods of determining whether the stated objectives have been met by students):

Computation of semester grade may include the following methods of evaluation: In-class exams, take home exams, homework assignments, essays or other evaluation methods. A comprehensive final exam (in class) is required. For example, the semester grade may be computed as follows:

1. Written Exams: 60-90% of grade.
2. Final exam: 10-40% of grade.

- 3. Homework: 0-20% of grade.
- 4. Writing assignments: 0-10% of grade.
- 5. Class participation: 0-10% of grade.

**IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?**

Yes \_\_\_\_\_ No X Number of times course may be taken for credit: 1

If yes, identify specific provision of Title 5 Division 2 section(s) 55761-55763 and 58161 which qualifies course as repeatable:

**CONTACT PERSON:** Richard Nation

**EXTENSION:** 2693

Course outlines of record should be reviewed regularly and revised as necessary.

NOTE: Some revisions to course outlines of record require Curriculum Committee approval, others may not. Please consult your dean or the Instruction Office if you need assistance.

5/95: OUTDEG.FRM