# BUTTE COLLEGE
## COURSE OUTLINE

I. **CATALOG DESCRIPTION**

**MATH 11 - Nature of Mathematics** **3 Unit(s)**

**Prerequisite(s):** MATH 124 or Math Level V
**Recommended Prep:** Reading Level IV

**Transfer Status:** CSU
51 hours Lecture

This course is a survey of mathematical concepts in a variety of areas. The topics include probability, statistics, set theory, measurement, geometry, and business finance.

II. **OBJECTIVES**

Upon successful completion of this course, the student will be able to:

A. Perform set operations such as intersection, union, complement, difference, and Cartesian product.
B. Solve applied problems using sets.
C. Apply dimensional analysis in converting to and from the metric system and in solving measurement problems.
D. Implement a variety of formulas in determining perimeter, area, and volume of geometric shapes.
E. Solve applied problems using the Pythagorean Theorem.
F. Solve applied simple and compound interest problems.
G. Acquire skills in comparing fixed and open-ended installment loans.
H. Implement the rules of probability in solving applied problems.
I. Create graphical displays of data using histograms, frequency polygons, and stem-and-leaf plots.
J. Generate, summarize, and interpret statistical data.

III. **COURSE CONTENT**

A. **Unit Titles/Suggested Time Schedule**

Lecture

| Topics | Hours |
|---|---|
| 1. Sets and Counting | 8.00 |
| 2. Probability | 9.00 |
| 3. Statistics | 9.00 |
| 4. The Metric System and Dimensional Analysis | 6.00 |
| 5. Geometry | 10.00 |
| 6. Consumer Mathematics | 9.00 |
| Total Hours | 51.00 |

IV. **METHODS OF INSTRUCTION**

A. Lecture
B. Collaborative Group Work
C. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture

D. Discussion
E. Board Work

V. **METHODS OF EVALUATION**
A. Exams/Tests
B. Quizzes
C. Class Assignments and Class Response
D. Daily Homework Assignments, where the student will demonstrate problem-solving skills

VI. **EXAMPLES OF ASSIGNMENTS**
A. Reading Assignments
1. Read the section in the textbook on Application of Sets and be able to explain how to use Venn Diagrams to solve a problem.
2. Read the section in the textbook on Perimeter and Area and be able to explain the difference in the perimeter and area of a two-dimensional geometric figure.

B. Writing Assignments
1. Explain in words what it means to gain compound interest on an investment and describe how the compound interest is computed.
2. Explain in words what a binomial experiment is and how to use the Binomial Probability Formula to find the probability that none of four people selected at random has blue eyes, given the probability of an individual having blue eyes is 0.4.

C. Out-of-Class Assignments
1. Review the section in the textbook on Polygons and do the problems assigned by the instructor showing all work.
2. Review the section in the textbook on Binomial Probability Formula and do the problems assigned by the instructor showing all work.

VII. **RECOMMENDED MATERIALS OF INSTRUCTION**
Textbooks:
A. Angel A.R., Abbott, C.D., & Runde, D.C. A Survey of Mathematics with Applications. 8th Edition. Pearson, 2009.

Materials Other Than Textbooks:
A. Scientific calculator

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