COLLEGE OF THE MARSHALL ISLANDS
COURSE OUTLINE

Math 102
Alpha Number

Course Description
Introduces students to a broad variety of mathematical applications. Emphasis on topics that are applicable to students' lives. Develops students' understanding of topics such as problem solving, geometry and measurement, personal finance, counting techniques, probability and statistics.

Course prepared by: Mathematics Department

January 2003

<table>
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<tr>
<th>Hours per Week</th>
<th>Number of Weeks</th>
<th>Total Hours</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Lecture</td>
<td>3</td>
<td>16</td>
<td>48</td>
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<tr>
<td>Laboratory</td>
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<td>Clinical</td>
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<td>Seminar</td>
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Total Credit Hours 3

Purpose of Course: Degree Requirement X
Degree Elective
Certification
Developmental
Other

Prerequisite(s) MATH100 or Placement into Credit Level Math

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Signature, Curriculum & Assessment Committee Chairperson

Date

Signature, Dean of Academic Affairs

Date

Signature, Vice President for Academic and Student Affairs

Date

Last Date reviewed or revised: September 2008
I. **Survey of Mathematics**

Course Title

II. **Course Objectives**

A. General Outcomes

Students who complete this course will:

1. Use sets and set notation in solving problems (GE 1, 3, 5) (LA 1, 3)
2. Understand basic principles of number theory and properties of the real number system (GE 5) (LA 4, 5)
3. Possess the mathematical skills necessary to make informed personal finance decisions (GE 3) (LA 5)
4. Use counting techniques to calculate the probability of common events (GE 5) (LA 2, 3, 4)
5. Apply basic concepts of geometry and measurement to real-world problems (GE 6) (LA 3, 4, 5)
6. Use basic statistics to analyze and draw conclusions from data that are relevant to their experiences (GE 1, 3) (LA 5)

B. Student Learning Outcomes

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

1. Use principles of set theory
   a. Write and list subsets using a verbal description, set builder notation, and list notation
   b. Solve problems by performing set operations using both symbolic notation and Venn diagrams
2. Use number theory
   a. Classify cardinal, ordinal, identification, prime and composite numbers as well as natural, whole, integer, rational, irrational and/or real numbers
   b. Derive the prime factorization of whole numbers and use it to find greatest common factor and lowest common multiple
   c. Find generating equations, terms and sums of arithmetic and geometric sequences
3. Demonstrate the following skills which relate to personal finance
   a. Calculate simple and compound interest for savings accounts and loans
   b. Calculate finance charges and new balances for credit cards
   c. Calculate add-on interest, monthly payments and future values for consumer loans and annuities
   d. Describe how to utilize financial mathematics in personal financial decisions
4. Demonstrate proficiency in basic probability
   a. Choose the appropriate counting method to determine the number of outcomes of an event
   b. Explain the meaning of probability, outcome, sample space, and events and calculate the probability of events in which all outcomes are equally likely
5. Utilize principles of measurement and geometry
   a. Demonstrate quantitative understanding of metric and English units of measurement and convert between the two systems
   b. Classify triangles and quadrilaterals and apply properties of similar triangles and right triangles to real-life problems
   c. Calculate the perimeter and area of polygons and volume and surface area of Polyhedrons
6. Effectively use basic statistics tools
   a. Create frequency distributions, histograms and other statistical graphs in order to make observations and conclusions about data
   b. Calculate measures of central tendency and variations of data sets and interpret the meaning of each measure
III. Course Content

Students will be provided with an introduction to various mathematical applications with emphasis on real world relevance.

1. Set theory & problem solving
2. Number theory and the real number system
3. Personal finance
4. Counting and probability
5. Geometry and measurement
6. Statistics

IV. Methods of Instruction

1. Lecture
2. Demonstrations
3. Small group activities
4. Class activities
5. Computer lab activities

V. Equipment and Materials

1. Rulers
2. Geometry manipulatives
3. Calculators (scientific and graphing)
4. Computer lab and software
5. Statistical data from EPPSO
6. Information from Bank of Marshall Islands and Bank of Guam

VI. Suggested Methods of Evaluation

1. Homework
2. Class participation
3. Class activities
4. Projects
5. Tests
6. Quizzes
7. Final Exam

Letter grades will be assigned per CMI Grading System