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Chaminade University of Honolulu
Winter Evening 2000
January 10 – March 22
Pearl Harbor, Bldg 679

COURSE: Mathematics MA1002⁶⁰~~6~~ Survey of Mathematics

TIME/LOCATION: Friday 1645-2055

INSTRUCTOR: Peter M. Anzalone, M.P.H.

COMMUNICATIONS: Telephone: 656-2878 ext. 1034 (day)
841-7080 (eve)
E-mail: anzalomp@schofield-emh1.army.mil

TEXTBOOK: Smith, Karl J. 1998, **The Nature of Mathematics - Eighth Edition**, Pacific Grove, CA: Brooks/Cole Publishing Company.

Recommended Reading: Pappas, Theoni 1989, **The Joy of Mathematics**, San Carlos, CA: Wide World Publishing.

INTRODUCTION AND COURSE DESCRIPTION:

The purpose of this class is to create a positive attitude towards mathematics. It is not designed to present the technical details of complicated theorems, proofs and calculations, but rather to give insight into many important concepts of mathematics and how they can improve our thinking processes. It is my personal goal that this course will leave you with the feeling that mathematics can be a useful and practical tool in your daily lives.

This class is an introductory course that will fulfill the Track A general education requirement in mathematics. Certain topics have been selected to acquaint you with a wide variety of topics in mathematics with an emphasis on mathematical reasoning. A major focus of this class will be using this reasoning process to create a logical approach to the solution of mathematical problems.

This class will not be presented exclusively in a lecture format. The topics and concepts will be introduced and then discussed and applied to the solution of mathematical problems in an interactive format. As a student of this class, you are required to come to class with an open mind about mathematics. You will be required to participate in class discussions and to occasionally work together in small groups on in-class projects. It is important that you attend every class, read the assigned chapters and come to class well prepared to participate in class exercises.

Your grade will be based on in-class quizzes, homework assignments, one mid-term exam, one final exam, class participation, attendance, and a term paper/project.

CLASS OBJECTIVES:

- ✓ To introduce a wide variety of topics in mathematics.
- ✓ To create a logical approach to the solution of mathematical problems.
- ✓ To create a positive attitude toward mathematics.
- ✓ To foster an appreciation of the power of mathematics.

GRADING:

The grading will be based on the following criteria:

• Quizzes/Homework assignments	25%	A= 90-100
• Mid-term Exam	25%	B= 80-89
• Final Exam	30%	C= 70-79
• Term paper/project	15%	D= 60-69
• Class participation and attendance	5%	F= 59 & below

TERM PAPER/PROJECT:

As active participants in the learning experience, each class member is required to submit a term paper on research of a significant mathematical topic or project to be shared with the rest of the class at the end of the term. This will contribute 15% towards your final grade. You will be graded on both your presentation and your paper, with the emphasis on your presentation.

The topic you select may be one that has already been mentioned in class, or preferably, one that has not been covered. The topic may be selected from the book, the library, or the internet, however, it must be submitted and approved by your instructor. Some examples of topics are:

- The History of the Fibonacci Sequence
- The History of Pascal's Triangle
- Pythagoras and the Origin of the Pythagorean Theorem
- Magic Squares
- Mathematics and Art
- Mathematics and Demonstration of Optical Illusions
- Prime Numbers
- The Golden Rectangle

Your topic must be submitted **no later than February 18, 2000**. If you are having difficulty selecting a topic, ask your instructor for assistance.

Presentation: Each student will give a **15-minute** presentation on their topic during the last week of class. The use of handouts, props, overhead slides, or other multimedia aids is encouraged, but not mandatory. The presentation should be a creative representation of your topic, so have fun with it!

Term Paper: A 3-5-page paper must accompany each presentation, due in class on the day of the presentation. The paper must be typed (no more than 1.5 spaced lines), and be clearly and accurately referenced. Please make sure that all references are done correctly using APA guidelines, including all internet references. You should have a minimum of five references, however, no more than two may be from the internet.

ACADEMIC POLICY:

Due to the structure of the satellite accelerated undergraduate program, permission to make-up quizzes and/or exams will only be granted in cases of a family emergency, medical emergency, or military duty beyond your control. The instructor must be notified before the scheduled class in such a situation and every effort will be made to make-up the assignment. However, it is not guaranteed that missed exams will be able to be rescheduled. Any student who misses a quiz or exam will receive a "0" for that assignment. Late assignments will receive a -10% penalty.

CLASS SCHEDULE:

DATE	TOPIC	ASSIGNED READING	
January	14	Orientation and Introduction	
		Problem Solving	1.1
		Problem Solving with Sets	1.2
	21	Problem Solving with Sets	1.2
		Inductive and Deductive Reasoning	1.3
		Scientific Notation	1.4
		QUIZ 1	
	28	Deductive Reasoning	2.1
		Truth Tables and the Conditional	2.2
Operators of Laws of Logic		2.3	
QUIZ 2			
February	4	The Nature of Proof	2.4
		Problem Solving Using Logic	2.5
		Different Numeration Systems	3.3
		QUIZ 3	
	11	Computers and the Binary Numeration System	3.5
		Prime Numbers	4.2
		Prime Numbers & Mid-Term Review	4.2
		QUIZ 4	
	18	Mid-Term Exam	
		Evaluation, Applications, and Spreadsheets	5.3
25	Similar Triangles	7.4	
	Golden Rectangles	7.5	
	Konigsberg Bridge Problem	7.6	
	QUIZ 5		
March	3	Interest	6.1
		Installment Buying	6.2
		Introduction to Probability	9.1
		QUIZ 6	
	10	Mathematical Expectations	9.2
		Probability Models	9.3
		Counting Formulas	9.4
Review for Final Exam			
7	Class Presentations		
	Final Exam		

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January 10 – March 22
Kaneohe MCBH

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TIME/LOCATION: Tuesday & Thursday 1950-2155

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13	Problem Solving Problem Solving with Sets	1.1 1.2	
18	Problem Solving with Sets Inductive and Deductive Reasoning	1.2 1.3	
20	Inductive and Deductive Reasoning Scientific Notation	1.3 1.4	Quiz 1
25	Deductive Reasoning	2.1	
27	Truth Tables and the Conditional Operators of Laws of Logic	2.2 2.3	Quiz 2
February 1	The Nature of Proof Problem Solving Using Logic	2.4 2.5	
3	Different Numeration Systems	3.3	Quiz 3
8	Computers and the Binary Numeration System	3.5	
10	Prime Numbers Prime Numbers & Mid-Term Review	4.2 4.2	Quiz 4
15	Mid-Term Exam		
17	Evaluation, Applications, and Spreadsheets Topic for Term Paper/Project due	5.3	
22	Similar Triangles	7.4	Quiz 5
24	Golden Rectangles Konigsberg Bridge Problem	7.5 7.6	
29	Interest Installment Buying	6.1 6.2	Quiz 6
March 2	Introduction to Probability	9.1	
7	Mathematical Expectations Probability Models	9.2 9.3	
9	Probability Models Counting Formulas	9.3 9.4	Quiz 7
14	Calculated Probabilities Frequency Distributions and Graphs Descriptive Statistics	9.5 10.1 10.2	
16	Class Presentations		
21	Final Exam		