Chaminade University of Honolulu-Schofield Barracks Campus

Mathematics 100 Survey of Mathematics **Spring Semester, 1998**

Instructor: Ms. Nora Tolentino
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Textbook: Smith, Karl J., The Nature of Mathematics, 8th Edition, 1998. Brooks/Cole Publishing Co., Pacific Grove, California, 93950, ISBN 0-534-34988-9

Course Description: (3 Credits) Introductory course for Humanities majors. Selected topics to acquaint the students with the field of mathematics. Recommended for early childhood education majors. Fulfills general education requirement in mathematics, but is not recommended for students who intend to take Math 103, 110, 210.

Objectives: To acquaint the students with a wide variety of topics in mathematics with the emphasis on mathematical reasoning: to encourage a logical approach to the solution of problems in mathematics: to create a positive attitude towards mathematics and to foster an appreciation of the beauty and power of mathematics. The course attempts to give an insight on how mathematics should be pursued as a human enterprise by involving problems on real-life situations rather than limiting such to text problems. It is expected that the students will have developed or sustained their love and enjoyment for Math.

Evaluation: Final grade for the course will be based on:

a. Class Participation 10%
b. Homework and Quizzes 20%
c. Project 20%
d. Midterm Exam 20%
e. Final Comprehensive Exam 30%

Attendance: Absence should not be taken lightly. A student should be aware that instruction in class would include a significant amount of material, which is not otherwise available. Also note that class participation is 10% of your grade. Tardiness can cause missed quizzes for which there is no makeup.

Homework: All assigned homework MUST be submitted on its "due date." Collected homework will be corrected and returned promptly. If a test is missed because of an unavoidable and verifiable reason, see the Instructor immediately – BEFOREHAND is preferable. Makeup MAY be allowed, at the sole discretion of the Instructor. After an opportunity to ask questions, students will be called on to present their homework solutions at the next class meeting. Students are expected to keep a notebook for the semester, which is to include home practice assignments and other materials, which will be specified in class. The required project will involve independent research and a class presentation. Each student

must therefore acknowledge an understanding of the University regulations regarding plagiarism and academic dishonesty as stated in the College Catalog.

Course Outline: A wide variety of topics will be introduced to meet the objectives of the course. The textbook will serve as the starting point to explore these topics, and homework will be assigned from it as well as from supplementary sources including library reference books and instructor provided materials. Mathematical puzzles and games will be used frequently. Each student should have a calculator (with exponential functions), and various other materials as required during the semester. Access to a computer is helpful but not required.

Most, but not all, of the following topics will be covered. Selected topics may include but are not limited to:

The nature of problem solving
How to use your calculator
Inductive and deductive reasoning, mathematical patterns, sets, logic, Venn diagrams
Pascal Triangle and its many applications
Binary and number systems in other bases
Applications of Ratio, Proportion and Percent
The power of Compound Interest
Fractals: Their beauty and uses, fractal and higher dimension, non-Euclidian geometry
Sieve of Eratosthenes, prime numbers, factorizations, and divisibility
Famous mathematical paradoxes and problems
The nature of Computers; their history, importance, fundamental principles, uses, etc.
Statistics: with applications, measures of central tendency, deviation, normal curve of distribution,
Probability: with applications, fundamental counting principle, combinations, permutations
Mathematical Illusions