

CHAMINADE UNIVERSITY: MA 100 NATURE OF MATHEMATICS

Instructor: Dr. Torrance L. Trevorrow

Class Times: Online: WEBCT. January 8 – March 21. Proctored Final Exam March 17, 2007

Office Hours: Help is available online by email or live chat. In addition I usually schedule 2-4 live sessions during the semester, near Pearl Harbor. (Oahu)

Email: All email should be via torrance.trevorrow@adjunct.chaminade.edu. If for any reason the server is unavailable then the instructor may be contacted via numeroprime@yahoo.com (make sure MA103 Online is in the subject line).

Text Book: The Nature of Mathematics, Tenth Edition by Karl Smith. Brooks/Cole Publishing Company, ISBN 0-534-40023-X. This is a very popular text used by major universities. Earlier editions may be used with discernment. If ordered online, please make sure to pay for priority shipping; media rate takes 6-10 weeks.

Supplemental: For those with interest and time, the following books are also excellent for basic review: Thinking Mathematically by Robert Blitzer. The “Dummies, Idiots, or Demystified: series are also useful.

Course Description: (from the catalog) 3 Credits. Mathematical thought is studied through interactions between the foundations of knowledge and the study of the nature of both algebra and geometry. Issues of mathematical thought are addressed through selected studies of the nature of sets, logic, numbers and operations, algebra, geometry, measurement, financial management, probability, statistics, graphs and functions and mathematical systems. This course fulfills the Track A general education requirement in mathematics. The course is intended as a terminal course and is not a prerequisite for any other course in mathematics

Prerequisites: The student should already be competent with basic arithmetic, fractions, percents, and elementary algebra. If this is not the case please take a 60 or 80 level course first.

Course Goals: To improve personal ability in interpreting, and communicating mathematics using numeric, analytic and graphical methods. This course will place an emphasis on increasing the student's mathematical skills and knowledge using a variety of conceptual approaches.

Course Objectives: At the completion of this course the student should be familiar and demonstrate competency with the following concepts and topics.

Nature of Problem Solving: Polya's Model, Application of Pascal's triangles, Use of patterns, Inductive and Deductive Reasoning. Scientific Notation, Exponential Notation, Estimation, Approximation. Limitation of Polya's model.	Nature of Measurement: Length, area, surface area, volume, capacity. Efficiencies of various shapes. Converting units in various dimensions. Accuracy versus Precision. Dimensional nomenclature.
Nature of Financial Management: Simple Interest, Future Value, Partial Interest, Exact Interest, Ordinary Interest, Compound Interest, Percent Offer, Continuous Compounding, Inflation, Present Value - approximations.	Nature of Probability: Experiment, Sample Space, Event, Impossible and Simple Events. Probabilistic Model. Relative Frequency, Empirical, Theoretical and Subjective Probabilities. Law of Large Numbers. Probability of Unions and Intersections. Analysis of games.
Nature of Algebra: Equations, Comparison Property, Solving linear equations, Graphical representation of solutions.	Nature of Financial Management II: Common Consumer Loans, Add on Interest, APR, Credit Card Interest, Amortization, Open End, Closed End loans, Rule of 78.
Nature of Probability II: Mathematical Expectation. Expected Value, Fair Game, Cost of Playing	Nature of Set Theory: Sets, Subsets, Venn Diagrams. Universal Set, Euler Circles. Disjoint, Intersection, Union. AND OR, Graphing, Cardinality.

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Methodology: Most of your learning will come from meticulous study of the text, homework and assignments. Multiple quizzes, discussions, and articles will be used to reinforce learning. By carefully reading all posts you will gain additional insight into problem solving and mathematical reasoning. You will have the opportunity to demonstrate your proficiency through careful presentation of assigned work.

Success: All courses require a high degree of personal responsibility and time management skills. Grades tend to be proportional to the personal effort that is taken for the learning process and seeking immediate clarification for enigmatic areas.

Personal satisfaction will come from studying in earnest, asking for help when you need it, and not solely depending on the text or a quick read. Universities often recommend 2-3 hours of study time for each hour of class time. A three credit course would require about 12 hours per week for study, research, reading, and assignments.

Grading: The contributions of various components of the course are indicated as percentages. Changes may be made to the course content and grading at the instructor's discretion.

Quizzes	25% (multiple choice)
Final Exam (proctored)	60% (written)
Assignments	15% (to be specified)

A	90% + Outstanding Scholarship and excellent initiative with course
B	80% + Superior Quality done in a consistent intellectual manner
C	70% + Satisfactory showing competent understanding of course
D	60% + Lowest passing grade, inadequate for prerequisites
F	0-59% Unsatisfactory understanding and coursework

Attendance: Active and early participation is vital to your success. Each student is accountable for all the information presented on the web board. Late posting of 2 assignments will result in an automatic grade reduction: more than two automatic failure.

Exception will be made for properly documented medical emergency or verified (original document) military orders – extending over the full course week. The instructor will determine the appropriate credit if applicable which is usually an average for related course work.

Academic Integrity: All material submitted in fulfillment of course requirements must be done by the registered student. Cut and paste research, copying, substitute work, or passing exams will result in a grade of zero and possible failure for the course.

Supplies: Text Book, Notebook, Ruler, Graph paper, and a Calculator with exponential functions (see text). A calculator should not be used to solve the problem (finance excepted) but for checking your work, and exploring the relationships between numbers. A cell phone or PDA is not permitted for exams.

A three ring binder is an excellent way of organizing information. Commonly used folder dividers include: Instructor information, Worksheets / Homework, Supplemental Articles, Quizzes, Notes, Questions to ask.

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Resources: The internet also offers an amazing variety of math sites and perspectives. Wikipedia and MSN Encarta can provide very useful background information.

Requirements: You are required to **immediately** seek clarification on any material that you do not understand. Polya's model is to be used for all problem solving unless otherwise indicated. You are expected to maintain standards of academic performance and comply with all CUH policies.

Finals: Specific information will be provided towards the end of the semester. Usually the final is written, closed book, no notes, calculator permitted. Formulas are normally provided.

COURSE SCHEDULE

Week	Date	Section	Topic	Focus Questions
1		1.1	Problem Solving Pascal's Triangle	[1.1] 4-10 17 24-28 33 34 37 40 41 42 48 49 53 54
2		1.2	Order Operations Inductive Deductive Reasoning	[1.2] 1 3 4 5 13 17 24-26 39 45 47-53 55 58
3		1.3	Scientific & Exponential Notation, Estimation Approximation	[1.3] 1-3 7 11 15 24 25 27 30 31 33 35 37 39 41 47 48 50 59
4		5.5 10.1	Inequalities Graphing Sets, Venn Diagrams	[5.5] 1 2 11 25 31 45 51 55 57 59 60 [10.1] 1-3 5 9 23 25 27 31 55 57 59
5		7.1 7.2 7.3	Perimeter Area Volume Capacity	[7.1] 1-5 13 25 31-33 41 43 45 56 57 59 60 [7.2] 1-5 9 15 18 25 31 35 39 40 48 49 51 53 57 59 60 [7.3] 1-6 11 13 29 33 35 37 39 41 47 53 55 57 59 60
6		11.1	Probability, Experiments	[11.1] 1-5 8-12 23 25 27 29 39 41 43 47 48 49 53 54 55 56 58
7		11.2	Mathematical Expectation	[11.2] 1-5 7 9 10 13 15 17 19 20 21 23 24 30 45 47 49 53
8		9.1	Interest Borrowing Investing	[9.1] 1-5 9 11 13 21 25 27 31 33 35 43 48 50 53 54 55
9		9.2	Installment Loans	[9.2] 1-4 5 7 13 18 19 23 27 37 41 45 47 49 53 58 60
10			REVIEW	

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