

WE99
P.

MA100¹⁰ Survey of Mathematics
Syllabus

Instructor

Dr. David Lani (phone: 388-3361)

Textbook

The Nature of Mathematics / Smith, Karl J. — 8th edition

Supplies

a *scientific* calculator (with fraction capability) is required
11" x 8.5" lined paper; please, no spiral notebooks
#2 (or darker) pencils; no pens

Course Objectives

- (1) To introduce students to the nature of mathematics;
- (2) To help students develop problem-solving techniques;
- (3) To emphasize pattern recognition, critical reasoning and deductive reasoning through the study of the topics covered (see list).

Course Requirements

Attendance

Attendance at each class is mandatory. A score of 100, 75, 50, 25, or 0 is recorded for each class meeting. The best 18 of 20 scores count towards the final course grade.

Homework

Assignments are due at the *beginning* of class; otherwise, they are considered late. Work that is no more than one day late is accepted but assessed a 25% deduction. Work that is more than one day late is not accepted; a score of 0 is recorded. The best 4 of 5 scores count towards the final course grade.

Problem solving is a major focus of this course and mathematics in general. Therefore, all work and/or explanations leading to solutions must be included, unless otherwise indicated. In general, answers alone are not sufficient to receive full credit.

Tests

All tests are closed-book, with no notes allowed. Some have "no calculator" parts; some have "calculator allowed" parts. No borrowing of calculators is allowed on tests for which a calculator is allowed/needed. The time limit for the final examination is two hours; each of the previous three tests has a time limit of one hour. Consult the course calendar for test dates and inform the instructor of any conflict as soon as possible. Alternate tests may be administered for any scheduled tests that are missed.

Grading

- Attendance — 15% of final grade (best 18 of 20 scores)
- Homework — 15% of final grade (best 4 of 5 scores)
- Three Tests — together, 45% of final grade
- Final Exam — 25% of final grade

Topics Covered

- Problem Solving (chapter 1)
 - Polya's method; sets; inductive and deductive reasoning; scientific notation; estimation.
- Sets of Numbers and Their Properties (chapter 4)
 - Natural numbers; prime and composite numbers; integers; rational numbers; irrational numbers; real numbers.
- Logic (chapter 2)
 - Deductive reasoning; truth tables; operators; laws of logic; proofs.
- Elements of Algebra (chapter 5)
 - Polynomials; factoring; evaluation; equations; inequalities; ratios; proportions; applications.
- Sequences and Series (chapter 6)
 - Interest; installment buying; arithmetic and geometric sequences and series; annuities; amortization.
- Measurement (chapter 8)
 - Units of measurement; length; area; volume.

Student Exercises

- Completion of all tests and homework assignments as described in the course requirements.