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MA100<sup>20</sup> Survey of Mathematics  
Syllabus

**Instructor**

Dr. David Lani ( phone: 538-3669 )

**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; or, if tearing is needed, *neat* notebooks are best  
#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.

**Course Requirements**

**Attendance**

Attendance at each class is mandatory. A score of 100, 75, 50, or 0 is recorded for each class meeting: no more than 10 minutes missed = 100; no more than 30 minutes missed = 75; no more than 60 minutes missed = 50; otherwise = 0. 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. Approximately ten assignments will be collected. The two lowest scores are discarded; the others 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 forms may be administered for any scheduled tests that are missed.

## **Grading**

Attendance — 10% of final grade (best 18 of 20 scores)  
Homework — 20% of final grade (two lowest scores are discarded)  
Three Tests — together, 40% of final grade  
Final Exam — 30% of final grade

**Letter Grades:** 100 – 90 = A; 89 – 80 = B; 79 – 70 = C;  
69 – 60 = D; below 60 = F.

## **Topics Covered**

Problem Solving (chapter 1)

Sets; inductive and deductive reasoning; order of operations; exponential notation; scientific notation.

Sets of Numbers and Their Properties (chapter 4)

Natural numbers; prime and composite numbers; integers; rational numbers; irrational numbers; Pythagorean Theorem; 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.

Measurement (chapter 8)

Units of measurement; length; area; volume.

## **Student Exercises**

Attendance and completion of all tests and homework assignments as described in the course requirements.