

Math 1060 Spring '07

Period	Time	Room	#
2	11:00 – 12:15	303 Boyd	22286

Instructor: Dr. Calvin M. Burgoyne
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Text For all Practical Purposes, Introduction to Contemporary Mathematics
6th Edition

Office hours: MWF 8:00 – 9:50
T/Th 8:00 – 9:00

Math 1060 is an introduction to many different areas of contemporary mathematics. We will see how mathematical reasoning can be applied to many practical problems such as voting systems, games, fair ways to divide property, codes and finding the most efficient way to do a job. We will not require a lot of arithmetic or algebra, we will require you to read carefully, think, try and try again.

Tentative Course Outline:

- I. Graphs and Networks
 - A. Euler circuits
 - B. Hamilton circuits
 - C. The Traveling Salesman Problem, Algorithms to solve the (TSP)
 - D. Trees, Spanning Trees, Minimum Cost Spanning Trees
 - E. Schedules, Critical-Path Schedules
 - F. Bin Packing
 - G. Introduction to Linear Programming

- II. Codes
 - A. Identification numbers, Check digits
 - B. Self Correcting Codes, Decoding, Parity-Check Sums

- III. Voting Systems and Social Choice
 - A. Plurality, Borda Count, Hare System, Sequential Pair voting
 - B. Desirable Characteristics, Condorcet Winner Criterion, Independence of Irrelevant Alternatives, Pareto Condition, Monotonicity
 - C. Arrow's Impossibility Theorem
 - D. Weighted voting systems, Banzhaf Power Index

- IV. Fair Division
 - A. Adjusted Winner Procedure
 - B. Knaster Inheritance Procedure
 - C. Apportionment

Grades: Grades will be based on:

Quizzes and Homework	10%
Midterm # 1	20%
Midterm # 2	20%
Midterm # 3	20%
Final Exam (comprehensive)	30%

Attendance is required!

No make-up quizzes, tests or homework without prior approval. The lowest quiz or homework score will be dropped.

Exam Schedule:

Midterm # 1 Feb. 8

Midterm # 2 March 22

Midterm # 3 April 26

Final Exam: May 8 12:00 – 3:00