

ROWAN UNIVERSITY
Department of Mathematics

Syllabus Fall 2008
Contemporary Mathematics 01 115-5
Monday and Wednesday 4:45-6:00
SAV 341

Instructor: Professor Ira Fine
856-582-8032 fine@rowan.edu

Grading will be based on three tests (each 30%) and attendance (10%). Also a homework portfolio can be turned in at the end of the semester which can be used to raise your average a maximum of one grade. However to receive an "A" you must have an "A" test average. Tests and exams must be taken at the scheduled time except in the case of extreme emergency and I am notified *beforehand*. An unexcused absence from a test will result in a grade of zero.

Please do not carry on private conversations during class. This is very distracting to myself and other students around you.

I will be available for extra help as needed.

Text: Excursions in Modern Mathematics, Peter Tannenbaum, Prentice-Hall, 6th edition

Calculator: Any scientific or graphing calculator

Tentative test dates: October 1st, November 3rd and final test date to be announced. I will notify the class at least one week before any change in test dates. It is your responsibility to be aware of any test date changes if you are absent.

Topics to be covered: () is the chapter number in the text

1. Fractal Geometry (12)
 - The Koch Snowflake
 - The Sierpinski Triangle
 - Self-Similarity
 - The Mandelbrot Set
2. Euler Circuits (5)
 - Routing Problems
 - Graphs
 - Euler's Theorems
3. The Traveling-Salesman Problem (6)
 - Hamilton Circuits and Paths
 - Complete Graphs
 - Traveling-Salesman Strategies

4. Spiril Growth in Nature (9)
 - Fibonacci Numbers
 - The Golden Ratio
 - Gnomons
5. The Mathematics of Population Growth (10)
 - Linear Growth
 - Exponential Growth
6. Symmetry (11)
 - Rigid Motions
 - Reflections
 - Rotations
 - Translations
7. Fair Division (3)
 - Fair Division Games
 - Two Players: The Divider-Chooser Method
 - The Lone-Divider Method
 - The Lone-Chooser Method
8. Chances, Probabilities and Odds (15)
 - Sample Spaces
 - The Multiplication Rule
 - Permutations and Combinations
9. Descriptive Statistics (14)
 - Graphical Descriptions
 - Variables
 - Numerical Summaries of Data
10. The Mathematics of Networks (7)
 - Trees
 - Minimum Spanning Trees
 - Kruskal's Algorithm
11. The Mathematics of Voting (1)
 - Preference Ballots
 - The Plurality Method
 - The Borda Count Method
 - Pairwise Comparisons

Grading scale including plus and minus: A 90-100
B 80-89
C 70-79
D 60-69
F 0-59

