Math 1100E
MODERN MATHEMATICS
Catawba College
Block 1, Spring 2014
January 13, 2014 to February 10, 2014

Text: For All Practical Purposes
(Required) COMAP (Solomon Garfunkel),
9th Edition, Freeman and Company
ISBN: 1-4641-0156-6

Instructor: Mr. John Sullivan
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Class Meetings: Administration Building, Room 331
(Required) Mondays and Thursdays, 6:00-9:45 pm
Saturday (February 1), 8:00-11:45 am

Help Sessions: Ketner Hall, Room 307
(Recommended) Tuesdays and Wednesdays, 6:00-8:00 pm
Also by appointment

Course Description: An introduction to mathematical models as they occur in management, social and natural sciences, and in art. Emphasis is on written and verbal communication of quantitative information and the development of algorithmic processes.

Course Objectives: Students who have successfully completed the course will have demonstrated the correct use of the following concepts:

1. Euler circuits.
2. Hamiltonian circuits.
3. traveling salesman problem using the nearest neighbor and the sorted edges algorithms.
4. critical-path analysis.
5. scheduling tasks using list-processing algorithm.
6. bin-packing heuristics NF, FF, WF, NFD, FFD, WFD
7. apportionment methods such as Hamilton, Jefferson, Webster, Hill.
8. simple voting methods such as plurality, Borda, Hare, and sequential pairwise.
9. weighted voting systems: Banzhaf and Shapley-Shubik power index.
10. fair division methods such as adjusted winner, Knaster inheritance, and Selfridge-Conway procedures.

Class Policies:

Your on-time attendance is both expected and required. *You* are responsible for what is presented and/or announced in class under all circumstances. Be sure to see another student or me for any missed material. Departmental policy requires the automatic failure of any student who is absent more than one-quarter of the class meetings. We cover a considerable amount of material in a short amount of time, so attendance is very important!

Reading of the assigned chapters and completion of the homework assignments is expected. The specific exercises are included on the next page of this syllabus. In addition to attendance, the best way to meet the course objectives is to read the chapter before the class lecture and attempt the assigned problems for each class meeting.

There will be three tests given in addition to the final comprehensive exam. Tests should be taken at the scheduled times. *You* are responsible for making any other necessary arrangements with me PRIOR to the test time. Make-up tests are only given at help sessions, and must be taken before the next class meeting. Test dates are given on the next page of this syllabus. Absence from prior classes is not a valid excuse for taking a test at a later date. You will receive a zero on any test you miss.

Extra-credit is NOT given. Read ahead, work ahead, ask questions, attend the help sessions and do your best!

Evaluation:

Your course grade will be based on the following:

Tests	60% of Modern Mathematics Final Average
Final Exam	40% of Modern Mathematics Final Average

To determine your grade at any time during the course, divide the total number of points you have attained on the tests by the total number of points possible up to that point. Because this number is a percentage, you will need to multiply it by 100 and then use the following scale to determine your grade. Your test scores and current average can also be found on our Blackboard site. The corresponding letter grades are as follows. Typical rounding rules do apply.

A- 90-92	A 93-100	
B- 80-82	B 83-86	B+ 87-89
C- 70-72	C 73-76	C+ 77-79
D- 60-62	D 63-66	D+ 67-69
	F 0-59	

Honor Code:

As a member of the Catawba College community, I will practice academic honesty, communicate truthfully, and show respect for the rights and property of others. I will also encourage others in the community to behave honorably.

Test Dates:

Thursday,	**January 23,**	**Test 1**
Thursday,	**January 30,**	**Test 2**
Thursday,	**February 6,**	**Test 3**
Monday,	**February 10,**	**Final Comprehensive Exam**

Assigned Problems:

Chapter 1: Skills Check
p. 22 #1 - 11, 15 - 19, 21, 22, 25, 28
Exercises
p. 25 #4, 5, 7, 8, 11, 18, 19, 21, 23 - 27, 30, 40 - 43, 60

Chapter 2: Skills Check
p. 58 #2 - 11, 13, 15, 16, 18 - 21
Exercises
p. 61 #1, 3, 4, 10a) graph a), 15, 21, 26, 27, 30, 33, 34, 39, 40, 43, 45, 46a), 47, 50

Chapter 3: Skills Check
p. 99 #1, 2, 4 – 6, 12, 14 – 17, 19 – 26, 29
Exercises
p. 101 #5, 6, 9, 14, 15, 18 a) – g), 22, 33, 40, 42, 51 – 55, 71 – 78, 80

Chapter 9: Skills Check
p. 349 #1 – 8, 14, 16, 22, 24
Exercises
p. 351 #9 – 11, 14 – 20, 41, 42

Chapter 11: Skills Check
p. 406 #1 – 11, 18, 19
Exercises
p. 408 #1, 3, 7, 8, 11

Chapter 13: Skills Check
p. 475 #1, 2, 6, 10, 13 – 17, 25, 26
Exercises
p. 476 #1, 3 – 6, 10, 11, 13, 18 – 26, 28, 30

Chapter 14: Skills Check
p. 518 #1, 2, 4, 22
Exercises
p. 521 #8, 10, 11, 15, 17 - 20, 38 – 40

We will do many of the assigned exercises (or similar examples) in class together in addition to any you may have specific questions about. Be sure to ask questions and/or attend the help sessions if you are having difficulties with the exercises! A calculator with an x^2 and a square root key will be useful and sufficient for the exercises. Reading ahead and attempting the exercises before each class meeting is highly recommended.