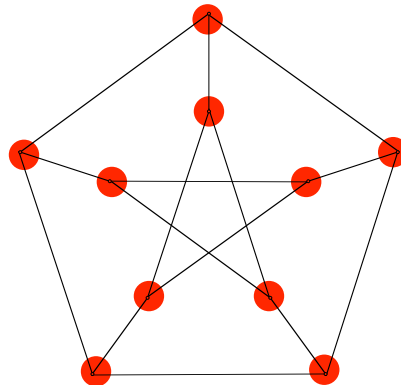


SYLLABUS

MAT 645

Spring

2008



1. ORGANIZATION

Instructor: Professor Jack Graver

Office: 229E, Physics

Extension: 1576

E-mail: jegraver@syr.edu

Office Hours: Scheduled office hours will be posted on my office door. However, I tend to be in my office most mornings and early afternoons. Feel free to drop by any time. (You may wish to call or email first to make sure I am in and free.)

Class Meetings: The class will meet on Tuesday and Thursday at 9:30am in room 306, Carnegie.

2. TEXT

We will use **Graph Theory** by J. A. Bondy and U.S. R. Murty. Since this is the first time I have used this book, I will follow the authors' suggested outline as printed on the back of this page plus a few additional topics as they fit in. *Students are expected to read the assigned sections from the text in advanced of the class in which they will be discussed.*

3. GRADING

Problems will be regularly assigned collected and graded; they will account for 40% of the final grade. There will be three tests accounting for 20% each. Each test will have an in-class portion and a take home portion. Students are encouraged to collaborate on the assigned problems but may not work together on the take-home portions of the tests. There will be an *optional* comprehensive final exam which, if taken, will be averaged in as one third of the final grade.

4. CALENDAR (VERY TENTATIVE)

- Test #1: February 12, Chapters 1 & 2
- Test #2: March 26, Chapters 3, 4 & 5
- Test #3: April 28, Chapters 9, 10 & 11

Suggested Introductory Course in Mathematics

Graphs	GRAPHS AND THEIR REPRESENTATION	Section 1.1
	ISOMORPHISMS	Section 1.2
Subgraphs	UNION AND INTERSECTION	Section 1.4
	SUBGRAPHS AND SUPERGRAPHS	Section 2.1
	SPANNING SUBGRAPHS	Section 2.2
	PROOF TECHNIQUE: INDUCTION	
	PROOF TECHNIQUE: CONTRADICTION	
	INDUCED SUBGRAPHS	
	MODIFYING GRAPHS	Section 2.3
	DECOMPOSITIONS	Section 2.4
	EDGE CUTS	Section 2.5
	BONDS	
Connected Graphs	WALKS	Section 3.1
	CUT EDGES	Section 3.2
	EULER TOURS	Section 3.3
Trees	FLEURY'S ALGORITHM	
	FORESTS AND TREES (EXCEPT INSET)	Section 4.1
Nonseparable Graphs	SPANNING TREES	Section 4.2
	FUNDAMENTAL CYCLES AND BONDS	Section 4.3
	CUT VERTICES	Section 5.1
	NONSEPARABLE GRAPHS	Section 5.2
Connectivity	BLOCKS	
	VERTEX CONNECTIVITY	Section 9.1
Planar Graphs	EDGE CONNECTIVITY	Section 9.3
	PLANE AND PLANAR GRAPHS	Section 10.1
	FACES	Section 10.2
	DUALS	
The Four-Colour Problem	EULER'S FORMULA	Section 10.3
	COLOURINGS OF PLANAR MAPS	Section 11.1
	THE FIVE-COLOUR THEOREM	Section 11.2