

MATHEMATICS 455/5455

Graph Theory

MAT 455/5455 Textbook: Graph Theory, J.A. Bondy and U.S.R. Murty, Springer, 2008, ISBN 978-1-84628-969-9

Prerequisites: MAT 222 or instructor's consent

Course Outline: Graph theory is a major area of combinatorics, and during recent decades, graph theory has developed into a major area of mathematics. In addition to its growing interest and importance as a mathematical subject, it has applications to many fields, including computer science and chemistry. As an upper level mathematics course, Graph Theory contributes to the mathematical maturity of students majoring in mathematics or computer science and also provides an opportunity for students to be exposed to a framework for solving numerous applied problems.

(From the college catalog: Graph theory with a wide variety of applications, both to other branches of mathematics and to the real world. Some subjects to be treated are graphs, subgraphs, cycles, trees, matchings, and planar graphs.)

Learning Goals: In this course, the student will exhibit an understanding of the following general topics:

- Fundamental Concepts and Definitions of Graphs
- Trees
- Colorings
- Matchings

Time permitting, each area will be investigated.

Meetings: The format of class meetings will consist generally of lectures by the instructor. Student participation will be encouraged via classroom discussions as well as problem sessions where the student might present their work.

This class meets as scheduled. You are expected to be in class on time. University policy states that a student cannot miss more than 25% of class meetings and receive credit for the course. Further, attendance will be necessary in order to understand the material and make a good grade. The student is responsible for work and material missed when absent. Cheating in any way will be properly rewarded according to University policy.

If you need special accommodations due to learning, physical, psychological, or other disabilities, please contact the Counseling and Career Development Center.

Grading: Students are expected to work the assigned homework problems, some of which may consist of computer experiments or written assignments. All homework should be collected in a folder which will be periodically reviewed by the instructor. Students will be expected to present several of their solutions on the board in class and will be assigned an exam grade for their results. Additionally, there

will be at least two examinations. Your final average will be computed by using the average of the exam grades. Exams missed due to a valid excuse can be made up at the discretion of the instructor.

*Undergraduate
grading Scale:*

A=90-100

B=80-89

C=70-79

D=65-69

F=0-64

Graduate grading Scale:

A=90-100

B=80-86, B+ = 87-89

C=70-76, C+ = 77-79

D=65-69

F=0-64

*The Daily Grade component for the graduate
students will involve additional readings, papers
and homework problems.*

Aim now for the desired grade. Finally, all graded work will be returned to the student for keeping. If there were any question later about your grade, you would be expected to show these papers.