CSC/MTH 447 GRAPH THEORY FALL 2005

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Text: Pearls in Graph Theory, N. Hartsfield and G. Ringel, Academic Press, 1994, Reprinted by Dover Publications, ISBN 0486432327

Course Introduction

This course is a comprehensive introduction to Graph Theory, a vibrant area of mathematics. Some topics to be discussed:

1. Basics (vertex degree, subgraphs, isomorphism, ...)
2. Graph Coloring (vertex and edge coloring, planar graphs, ...)
3. Euler and Hamilton Circuits
4. Counting Problems
5. A selection of further topics

As the title suggests, the text emphasizes elegant results and pretty proofs. Graph theory is a very "hot" area of mathematics and is very accessible and intuitive. Also, as the text author states, "The study of graph theory is now becoming essential for computer science majors. It is of fundamental importance to the understanding of abstract data structures and of the complexity and analysis of algorithm."

Course Goals

We will study (most of) Chapters 1-3, 5 of the text, and other sections as time permits. You will learn the basics of graph theory and will be able to solve challenging problems. You will be able to understand books and papers on graphs and their applications. You will master proof techniques.

Class Meetings

These will be primarily lectures, but you should be alert and ready to ask and answer questions. Occasionally you will pair off or work in groups in class.

Grading

Two tests:	20%	each
Homework, quizzes	30%	
Final Exam:	30%	

Homework

You will learn a great deal from the homework problems. Usually they will be assigned on Thursday and due the following Thursday at the beginning of class. Late homeworks (within reason) will be accepted but not graded – you will receive an **L** (late) and the other homeworks will be averaged to determine your grade. Groups will be formed and only one homework turned in for each group.