MATH 6340 – Winter 2002

Graph Theory

Instructor

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Course Info

- Location: Henrietta Harvey Building – Room 3013
- Class Times: 4–5 on Monday, and 2–3 on each of Wednesday and Friday
- Prerequisites: an introductory (typically undergraduate) course in graph theory
- Suggested Textbook: "Introduction to Graph Theory," 2nd edition, by Douglas B. West. ISBN 0-13-014400-2.

Course Outline

This is my first time teaching this course, so I'm not sure what pace we'll be able to go at, nor just how many topics we'll end up covering. The plan is to cover a few topics in detail, so I'm thinking that we'll be able to get through three to five of the following topics (covering them in the given order).

- Matchings: matchings, covers, König's theorem, Hall's theorem, Tutte's 1-factor theorem

- Connectivity: connectivity and edge-connectivity, Menger's theorem, Dirac's fan lemma, Mader's theorem for vertex-transitive graphs

- Edge-Colourings: types of colourings (proper, equalised, equitable, balanced), Vizing's theorem, overfull graphs, Fournier's theorem, the Chetwynd-Hilton-Hoffman theorem, critical graphs, Plantholt's theorem

- Graph Decompositions: k-factorisations, cycle decompositions

- Algebraic Graph Theory: characteristic polynomials, eigenvalues of graphs

Method of Evaluation and Related Policies

- Assignment problems will be regularly given. They can be submitted either in class or else to the designated assignment box in the corridor near the Math & Stats General Office.

  Your work should reflect clear content as well as coherent and organised structure. What this effectively means is that your work should be clear to follow and should show a logical progression of thought. If you have to guide me through your work in order to point out your thought process (again, even if your work is correct), then you shouldn't expect to get full credit.

- Plagiarism, cheating, and academic dishonesty will not be tolerated.

- Final grades will be based upon the following scheme (whichever yields the highest grade will be used):

Homework:	75	70
Term Project:	25	30
	$\overline{100}$	$\overline{100}$

- The term project will involve studying some topic that will not be formally covered in class, with the goal being to learn about some of the important aspects of that topic. A written report, as well as a seminar presentation, will be required.

- Requests for "extra-credit" projects will be denied. Put simply, your grade will be based upon the required course-work as indicated in this syllabus.