

Announcement

Graph Theory – Winter 2002

A graduate course in Graph Theory is scheduled to be offered in the Department of Mathematics and Statistics during the Winter 2002 semester. Interested students may find the following information helpful in deciding whether to take the course.

For more information about the course, etc, contact Dr. David Pike (dapike@math.mun.ca).

Course Description

MATH 6340. Graph Theory. This is a graduate-level course which will build upon concepts presented in an introductory graph theory course (such as AM/PM 3240).

Format: Three hours of lecture per week. The time slot for the course will be determined when classes begin in January.

Pre-requisite: an introductory (typically undergraduate) course in graph theory.

Suggested Text: “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 some (but not total) 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

Grading

I expect that grades will be based significantly (possibly wholly) upon assigned homework, including a project which will entail both a written report as well as a seminar presentation.