

UNIVERSITY COLLEGE OF THE FRASER VALLEY

COURSE INFORMATION

DEPARTMENT: Mathematics

DATE: July 1994

Math 445
NAME & NUMBER OF COURSE

Introduction to graph theory
DESCRIPTIVE TITLE

3
UCFV CREDIT

CATALOGUE DESCRIPTION: An introduction to graph structure, applications to scheduling, applications to networks.

COURSE PREREQUISITES: Math 243

COURSE COREQUISITES:

HOURS PER TERM FOR EACH STUDENT	Lecture	60 hrs	Student Directed	
	Laboratory	hrs	Learning	hrs
	Seminar	hrs	Other - specify:	
	Field Experience	hrs		
			<u>TOTAL</u>	60 HRS

UCFV CREDIT
TRANSFER

UCFV CREDIT
NON-TRANSFER

NON-CREDIT

TRANSFER STATUS (Equivalent, Unassigned, Other Details)

UBC credits

SFU credits

UVIC units

Other

Math Curriculum Committee
COURSE DESIGNER

J.D. TUNSTALL Ph.D.
DEAN OF ACADEMIC STUDIES

Math 445NAME & NUMBER OF COURSE

COURSES FOR WHICH THIS IS A PREREQUISITE:	RELATED COURSES
none	upper level math and computing courses

TEXTBOOKS, REFERENCES, MATERIALS (List reading resources elsewhere)

TEXTS: **Graph Theory with Applications**
 Bondy and Murty
 Elsevier Press

COURSE CONTENT

1. **Graphs and subgraphs: Isomorphism, subgraphs, adjacency matrix, paths, cycles and vertex degrees.**
2. **Trees: Cut-vertices, cut-edges and Cayley's formula.**
3. **Connectivity: Blocks and application of connectivity.**
4. **Eulerian graphs: Euler tours, Hamiltonian cycles and applications.**
5. **Matchings: Matchings, coverings and the assignment problem.**
6. **Edge and vertex colorings: Chromatic number, Vizing's Theorem, Brooks' Theorem and chromatic polynomials.**
7. **Independence: Independent sets, cliques, Ramsey's Theorem and applications.**
8. **Planar graphs: Plane and planar graphs, dual graphs, Euler's formula and Kuratowski's Theorem.**

Grading: **two midterm exams 40%**
 homework 15%
 final 45%