

COURSE IMPLEMENTATION DATE:	September 1997
COURSE REVISED IMPLEMENTATION DATE:	September 2001
COURSE TO BE REVIEWED:	September 2005
(Four years after implementation date)	(MONTH YEAR format)

OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department and the material will vary - see course syllabus available from instructor

FACULTY/DEPARTMENT:	MATH	
MATH 125		4
COURSE NAME/NUMBER	FORMER COURSE NUMBER	UCFV CREDITS
INTRODUCTION TO DISCRETE MATHEMATICS		
COURSE DESCRIPTIVE TITLE		

CALENDAR DESCRIPTION:

Discrete math is a new and important part of mathematics, and is concerned primarily with the analysis and computational representation of 'finite structures'. Its applications are widespread in modern technology and include scheduling, network construction, data communications and computer engineering. This course serves as an introduction to some of the basic techniques of the discipline, including methods of counting, modular arithmetic, and formal logic. The focus of the course will be on formulating problems into mathematical models and on methods applicable to the analysis of these models.

PREREQUISITES: C average or better in Math 094/095, or a B or better in Math 105, C or better in Principles of Math 12 (provincially examined; recommended Fall 2001, required Fall 2002), or applications of Math 12 with at least a B.

COREQUISITES: None

SYNONYMOUS COURSE(S)	SERVICE COURSE TO:
(a) Replaces: MATH 243 (Course #)	(Department/Program)
(b) Cannot take: _____ for further credit. (Course #)	(Department/Program)

TOTAL HOURS PER TERM:	TRAINING DAY-BASED INSTRUCTION
STRUCTURE OF HOURS:	LENGTH OF COURSE: _____
Lectures: _____ Hrs	HOURS PER DAY: _____
Seminar: _____ Hrs	
Laboratory: _____ Hrs	
Field Experience: _____ Hrs	
Student Directed Learning: _____ Hrs	
Other (Specify): _____ Hrs	

MAXIMUM ENROLLMENT:	35
EXPECTED FREQUENCY OF COURSE OFFERINGS:	
WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)	<input type="checkbox"/> Yes <input type="checkbox"/> No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:	<input type="checkbox"/> Yes <input type="checkbox"/> No

AUTHORIZATION SIGNATURES:

Course Designer(s): _____ Greg Schlitt	Chairperson: _____ N/A (<i>Curriculum Committee</i>)
Department Head: _____ Susan Milner	Dean: _____ K. Wayne Welsh
PAC Approval in Principle Date: _____	PAC Final Approval Date: November 29, 2000

LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:

The primary objective is to provide the student with the background knowledge and skills necessary to begin understanding and using several of the fundamental techniques of modern applied mathematics. In particular a student should finish the course with facility in the basic counting arguments used to enumerate combinatorial objects, in the calculation and estimation of simple probabilities, and with a knowledge of the propositional calculus and its utility in a modern computing environment.

METHODS:

The course will be primarily lecture based, but the students should be given frequent opportunity to implement the ideas and techniques discussed in a computer environment, (for example Maple). Individual student research will be encouraged through the use of term projects.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Credit can be awarded for this course through PLAR (Please check :) Yes No

METHODS OF OBTAINING PLAR:

TEXTBOOKS, REFERENCES, MATERIALS:

[Textbook selection varies by instructor. An example of texts for this course might be:]

Ross & Wright, Discrete Mathematics, Prentice Hall, 1985.
Biggs, Discrete Mathematics, OUP, 1991
Tucker, Applied Combinatorics, 1984.

SUPPLIES / MATERIALS:

Access to computing labs with Maple license.

STUDENT EVALUATION:

[An example of student evaluation for this course might be:]

Instructors have discretion over this, but a likely breakdown would see in-term exams, frequent assignments, a final exam, as well as one or two term projects.

Typically the final exam would count for 35% of the mark, in-term exams for 25% and assignments and projects for 40%.

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

Set Theory: Review of subsets, union, intersection, complement, etc.

Counting:

- Induction
- Sums and products
- Permutations and combinations
- Binomial theorem
- Inclusion/exclusion arguments
- Introduction to probability
- Pigeon hole principle
- Recurrence relations

Logical syntax/semantics:

- Informal versus formal arguments

- Propositional calculus: connectives etc.
- Boolean algebras, boolean functions, CNF, DNF, simplifying

Modular arithmetic.

Program correctness. (If time permits.)