ORIGINAL COURSE IMPLEMENTATION DATE:	September 1995
REVISED COURSE IMPLEMENTATION DATE:	September 2018
COURSE TO BE REVIEWED: (six years after UEC approval)	December 2020

Course outline form version: 09/15/14

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: MATH 125

Number of Credits: 4 Course credit policy (105)

Course Full Title: Introduction to Discrete Mathematics

Course Short Title (if title exceeds 30 characters): Introduction to Discrete Math

Faculty: Faculty of Science

Department (or program if no department): Mathematics and Statistics

Calendar Description:

Serves as an introduction to some basic techniques in discrete mathematics, 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 (or NONE):	One of the following: (C+ or better in Principles of Mathematics 12) or (C or better in one of Foundations of Mathematics 12, Pre-calculus 12, MATH 092, MATH 096, or MATH 124) or (C or better in both MATH 094 and MATH 095) or (B or better in Applications of Mathematics 12) or (MATH 110) or (a score of 17/25 or better on Part B of the MSAT together with a score of 34/50 on Parts A and B combined).
Corequisites (if applicable, or NONE):	
Pre/corequisites (if applicable, or NONE):	

Equivalent Courses (cannot be taken for additional credit)

Former course code/number:

Cross-listed with:

Equivalent course(s):

Note: Equivalent course(s) should be included in the calendar description by way of a note that students with credit for the equivalent course(s) cannot take this course for further credit.

Transfer Credit

Transfer credit already exists: ☒ Yes ☐ No

Transfer credit requested (OReg to submit to BCCAT):
☐ Yes ☐ No (if yes, fill in transfer credit form)

Resubmit revised outline for articulation: ☒ Yes ☐ No

To find out how this course transfers, see **bctransferguide.ca**.

Total Hours: 60

Typical structure of instructional hours:

Lecture hours	60
Seminars/tutorials/workshops	
Laboratory hours	
Field experience hours	
Experiential (practicum, internship, etc.)	
Online learning activities	
Other contact hours:	
Total	**60**

Special Topics

Will the course be offered with different topics?
☐ Yes ☒ No

If yes, different lettered courses may be taken for credit:
☐ No ☐ Yes, repeat(s) ☐ Yes, no limit

Note: The specific topic will be recorded when offered.

Maximum enrolment (for information only): 36

Expected frequency of course offerings (every semester, annually, every other year, etc.): Every fall and winter

Department / Program Head or Director: Ian Affleck	**Date approved:**	September 2017
Faculty Council approval	**Date approved:**	September 8, 2017
Campus-Wide Consultation (CWC)	**Date of posting:**	October 13, 2017
Dean/Associate VP: Lucy Lee	**Date approved:**	September 8, 2017
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	October 27, 2017

Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Explain and use basic counting arguments to enumerate combinatorial objects
2. Calculate and estimate simple probabilities
3. Explain and use the techniques of propositional calculus
4. Apply principles of elementary number theory

Prior Learning Assessment and Recognition (PLAR)

☒ Yes ☐ No, PLAR cannot be awarded for this course because

Typical Instructional Methods (guest lecturers, presentations, online instruction, field trips, etc.; may vary at department's discretion)

This course is primarily lecture based. Individual student research is encouraged through the use of term projects.

Grading system: Letter Grades: ☒ Credit/No Credit: ☐ Labs to be scheduled independent of lecture hours: Yes ☐ No ☐

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Text(s) and Resource Materials

The textbook is chosen by a departmental curriculum committee. Recent text used:

	Author (surname, initials)	Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1.	Epp, S.	Discrete Mathematics with Applications, 4th Ed.	☐	Nelson	2010
2.			☐		
3.			☐		
4.			☐		
5.			☐		

Required Additional Supplies and Materials (software, hardware, tools, specialized clothing, etc.)

Scientific calculator

Typical Evaluation Methods and Weighting

Final exam: 40%	Assignments: 10%	Midterm exam: %	Practicum: %
Quizzes/tests: 50%	Lab work: %	Field experience: %	Shop work: %
Other: %	Other: %	Other: %	Total: %

Details (if necessary):

Students must obtain at least 40% on the final exam in order to pass this course.

Typical Course Content and Topics

Set Theory Counting:

a) induction
b) sums and products
c) permutations and combinations
d) binomial theorem
e) inclusion/exclusion arguments
f) introduction to probability
g) pigeon hole principle
h) recurrence relations

Logical Syntax/Semantics:

a) informal versus formal arguments
b) propositional calculus
c) Boolean algebras

Number Theory:

a) modular arithmetic
b) primes and composites
c) linear Diophantine equations