ORIGINAL COURSE IMPLEMENTATION DATE:	September 2008
REVISED COURSE IMPLEMENTATION DATE:	September 2018
COURSE TO BE REVIEWED: (six years after UEC approval)	December 2022

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 124

Number of Credits: 4 Course credit policy (105)

Course Full Title: Finite Math with Applications in the Information Sciences

Course Short Title (if title exceeds 30 characters): Finite Math

Faculty: Faculty of Science

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

Calendar Description:

Reinforces skills in algebra, graphing, and problem solving, and provides an introduction to finite mathematical structures, algorithms, and techniques important in discrete math, statistics, and computer science. Whenever possible, concepts are motivated by information sciences applications.

Prerequisites (or NONE):	One of the following: (C+ or better in both Statistics 12 and Computer Science 12) or (C or better in one of Foundations of Mathematics 11, Principles of Mathematics 11, Pre-calculus 11, or MATH 085) or (one of Foundations of Mathematics 12, Principles of Mathematics 12, Pre-calculus 12, MATH 092, MATH 094, or MATH 096) or (a score of 17/25 or better on Part A of the MSAT).
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.): Annually

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. Solve basic algebraic equations in one variable
2. Determine and compare asymptotic behaviour of power, polynomial, exponential, root, and logarithmic functions
3. Solve equations and inequalities involving power, polynomial, exponential, root, and logarithmic functions with the aid of graphing technology
4. Solve linear inequalities in two variables and interpret the solution set graphically
5. Construct systems of linear equations from a variety of applications
6. Apply row reduction algorithms to solve small linear systems by hand
7. Perform basic arithmetic operations with matrices
8. Use technology to compute the inverse of a matrix
9. Formulate linear programming restriction sets in a variety of applications
10. Solve small linear programming problems by graphical methods
11. Apply Venn diagrams and basic principles of counting to solve elementary counting problems
12. Apply basic principles of probability and counting to calculate the probabilities of events in simple applications

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)

Lectures may be interspersed with problem sessions. Graphing calculators will be used. In addition, mathematical software may be used.

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 (if more space is required, download Supplemental Texts and Resource Materials form)

	Author (surname, initials)	Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1.	Lial, Hungerford, Holcomb	Finite Mathematics with Applications, 11th edition	☐	Pearson	2015
2.	Lial, Greenwell, Ritchey	Finite Mathematics, 11th edition	☐	Pearson	2016
3.	Goldstein, Schneider, Siegel	Finite Mathematics & Its Applications, 11th edition	☐	Pearson	2014
4.	Beecher, Penna, Ellenbogen and Bittinger	Precalculus: Graphs and Models, 4th edtion	☐	Pearson	2009
5.			☐		

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

A graphing calculator will be required. Note that more than one text is usually required to cover all of the learning outcomes.

Typical Evaluation Methods and Weighting

Final exam:	40%	Assignments:	10%	Midterm exam:	30%	Practicum:	%
Quizzes/tests:	20%	Lab work:	%	Field experience:	%	Shop work:	%
Other:	%	Other:	%	Other:	%	Total:	100%

Details (if necessary): Students must obtain at least 40% on the final exam to pass the course.

Typical Course Content and Topics

1. Algebra and equations:
   The real numbers; polynomials and factoring; rational expressions; exponents and radicals; linear and quadratic equations
2. Functions and graphs:
   Linear, quadratic, polynomial, exponential, and logarithmic functions; graphs, end behaviour and applications of the above functions; running time of algorithms
3. Linear algebra:
   Systems of linear equations; solutions by row reduction (by hand and using technology); matrix arithmetic and multiplication; matrix inverses; applications in information sciences
4. Linear programming:
   Graphing linear inequalities in two variables; solutions by graphical methods; applications
5. Introduction to set theory:
   Sets; union, intersection and complement; Venn diagrams
6. Introduction to counting and probability:
   The multiplication principle; permutations and combinations; probability and odds; basic rules of probability