

ORIGINAL COURSE IMPLEMENTATION DATE:September 1995REVISED COURSE IMPLEMENTATION DATE:September 2018COURSE TO BE REVIEWED: (six years after UEC approval)December 2020Course outline form version: 09/15/14Course 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 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 batter in Principles of Mathematics 12, Pre-calculus 12, MATH 096, or MATH 122 or (AATH 1002, MATH 096, or MATH 122 or (MATH 110) or (a score of 17/25 to get ther in paptications of Mathematics 12, or (MATH 110) or (a score of 17/25 to get ther on Paptications of Mathematics 12, or (MATH 110) or (a score of 17/25 to get ther on Paptications of Mathematics 12, or (MATH 110) or (a score of 17/25 to get ther on Paptications of Mathematics 12, or (MATH 110) or (a score of 17/25 to get ther on Paptications of Mathematics 12, or (MATH 110) or (a score of 17/25 to get ther on Paptications of Mathematics 12, or (MATH 110) or (a score of 17/25 to get ther on Paptications of Mathematics 12, or (MATH 110) or (a score of 17/25 to get ther on Paptications of Mathematics 12, or (MATH 110) or (a score of 17/25 to get ther on Paptications of Mathematics 12, or (MATH 110) or (a score of 17/25 to get ther on Paptications of Mathematics 12, or (MATH 110) or (a score of 17/25 to get ther on Parts A and B combined).         Corequisites (if applicable, or NONE):         Transfer Credit         Transfer	Course Code and Number: MATH 125			Number of Credits: 4 Course credit policy (105)							
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 098, or MATH 124) or (C or better in Applicable, or NONE):         Prerequisites (or NONE):       One of the following: (C+ or better in Principles of Mathematics 12) or (C or better in Applicable, or NONE):         Prefcorequisites (if applicable, or NONE):       Transfer Credit         Prefcorequisites (or not be sken for additional credit):       Transfer Credit         Prefcorequisites (or not be sken for additional credit):       Transfer Credit         Prefcorequisites (or not be sken for additional credit):       Transfer Credit         Prefcorequisites (or not be sken for additional credit):       Transfer Credit       Transfer Credit <td colspan="10">Course Full Title: Introduction to Discrete Mathematics</td>	Course Full Title: Introduction to Discrete Mathematics										
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 tranal togic. The focus of the course wile 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 noth MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications of Mathematics 12) or (C or better in both MATH 036) or (B or better in Applications or Sisted with:         Equivalent C	Course Short Title (if title exceeds 30 characters): Introduction to Discrete Math										
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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, WATH 032, MATH 036, or (MATH 1036) or (B or better in Applications of Mathematics 12) or (MATH 1010 or (a score of 17/25 or better on Part B of the MSAT toge of the the MSAT toge of the term in Applications of Mathematics 12) or (MATH 110) or (a score of 17/25 or better on Part B of the MSAT toge of the term is part of additional credit)         Corequisites (if applicable, or NONE):       Transfer Credit         Equivalent course(s):       Transfer credit already exists: ⊠ Yes □ N0         rows of anothe that students with credit or the equivalent course(s) cannot take this course (or further credit.       Transfer credit already exists: ⊠ Yes □ N0         Note: Equivalent course(s):       Not if yes, fill in transfer credit one ariticulation: ⊇ Yes □ N0         Total Hours: 60       Special Topics         Typical structure of instructional hours:       Equivalent [graciticum, internship, etc.]         Field experience hours       End         Experiential [graciticum, internship, etc.]       Image: Special Topics         Will the course to of posting:       Ves, repeat(s) □ Yes, no limit         Note: The specine tapic will be recorded when offered. <td colspan="11">Calendar Description:</td>	Calendar Description:										
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 039, or MATH 124) or (C or better in Applications of Mathematics 12) or (C or better in both MATH 0493 and MATH 039) 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):	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.										
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):         Note: Equivalent course (s):         Note: Equivalent course (s):         Note: Equivalent course(s):         Cross-Intervectit:         Lecture hours:         Laboratory hours         Field experience hours:         Laboratory hours:         Field experience hours:         Online learning activities         Ohr contact hours:         Condit (prectic miniter)         Outer contact hours:	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).					cs 12) or (C or better in one 92, MATH 096, or MATH or better in Applications of er on Part B of the MSAT				
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):         Total Hours: 60         Special Topics         Vill the course be offered with different topics?         Lecture hours       60         Seriinars/tutorials/workshops       1         Laboratory hours       60         Streeted frequency of courses may be taken for credit:         Date approved: when offered.         Online learning activities       1         Ohnine learning activities       1         Other contact hours:       1<	Corequisites (if applicable, or NONE):										
Equivalent Courses (cannot be taken for additional credit)       Transfer Credit         Former course code/number:       Transfer credit already exists: ⊠ Yes □ No         Cross-listed with:       Transfer credit requested (OReg to submit to BCCAT):         Equivalent course(s):       No (if yes, fill in transfer credit form)         Note: Equivalent course(s) should be included in the calendar description by       No (if yes, fill in transfer credit form)         Note: Sources for further credit.       Special Topics         Typical structure of instructional hours:       Yes □ No (if yes, fill in transfer s, see betransferguide.ca.)         Lecture hours       60         Seminars/tutorials/workshops       I         Laboratory hours       60         Field experience hours       60         Online learing activities       60         Other contact hours:       1         Other contact hours:       60         Doline learing activities       60         Department / Program Head or Director: lan Affleck       Date approved:       September 8, 2017         Dear.       Date of posting:       October 13, 2017         Dear.       Date of posting:       October 27, 2017	Pre/corequisites (if applicable, or NONE):										
Total Hours: 60       Special Topics         Typical structure of instructional hours:       60         Lecture hours       60         Seminars/tutorials/workshops       60         Laboratory hours       60         Field experience hours       60         Experiential (practicum, internship, etc.)       1         Online learning activities       60         Other contact hours:       60         Department / Program Head or Director: lan Affleck       Date approved:       September 8, 2017         Date of posting:       October 13, 2017         Date of posting:       October 27, 2017	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 <a href="bluctransferguide.ca">bctransferguide.ca</a> .							
Typical structure of instructional hours:       Will the course be offered with different topics?         Lecture hours       60         Seminars/tutorials/workshops       I         Laboratory hours       I         Field experience hours       I         Online learning activities       I         Other contact hours:       I         Total       60         Department / Program Head or Director: lan Affleck       Date approved:       September 8, 2017         Date of posting:       October 13, 2017         Dean/Associate VP: Lucy Lee       Date of posting:       October 27, 2017         Undergraduate Education Committee (UEC) approval       Date of meeting:       October 27, 2017	Total Hours: 60				Special Topics						
Lecture hours       60         Seminars/tutorials/workshops       I         Laboratory hours       I         Field experience hours       I         Experiential (practicum, internship, etc.)       I         Online learning activities       I         Other contact hours:       I         Department / Program Head or Director: lan Affleck       Date approved:       September 2017         Faculty Council approval       Date of posting:       October 13, 2017         Dean/Associate VP: Lucy Lee       Date of meeting:       October 27, 2017	Typical structure of instructional hours:				Will the course be offered with different topics?						
Seminars/tutorials/workshops       If yes, different lettered courses may be taken for credit:         Laboratory hours       If yes, different lettered courses may be taken for credit:         Field experience hours       Image: September 2017         Online learning activities       Image: September 3, 2017         Other contact hours:       Image: September 8, 2017         Department / Program Head or Director: lan Affleck       Date approved:       September 8, 2017         Campus-Wide Consultation (CWC)       Date of posting:       October 13, 2017         Dean/Associate VP: Lucy Lee       Date of posting:       October 27, 2017	Lecture hours			]	🗌 Yes 🛛 No						
Laboratory hours       Image: Constraint of the specific const	Seminars/tutorials/workshops				lf yes, di	If ves, different lettered courses may be taken for cr					
Field experience hours       Image: Construct of the specific topic will be recorded when offered.         Online learning activities       Image: Construct hours:         Other contact hours:       Image: Construct of the specific topic will be recorded when offered.         Department / Program Head or Director: lan Affleck       Image: Construct of the specific topic will be recorded when offered.         Department / Program Head or Director: lan Affleck       Image: Construct of the specific topic will be recorded when offered.         Faculty Council approval       Image: Consultation (CWC)       Image: Consultation (CWC)         Dete of posting:       October 13, 2017         Dete approved:       September 8, 2017         Image: Consultation Committee (UEC) approval       Image: Consultation : Consu	Laboratory hours				□ No □ Yes, repeat(s) □ Yes, no limit						
Experiential (practicum, internship, etc.)       Image: Construction of the specific topic will be recorded when onlered.         Online learning activities       Image: Construction only): 36         Other contact hours:       Image: Construction only): 36         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	Field experience hours				Note: The	anacifia tania will be recor	dad whan offered				
Other contact hours:       Maximum enrolment (for information only): 36         Other contact hours:       Total       60         Department / Program Head or Director: lan 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 of meeting:       October 27, 2017	Online learning activities			-	Note. The	e specific topic will be record					
Total60Expected frequency of course offerings (every semester, annually, every other year, etc.): Every fall and winterDepartment / Program Head or Director: lan AffleckDate approved: September 2017Faculty Council approvalDate approved: September 8, 2017Campus-Wide Consultation (CWC)Date of posting: October 13, 2017Dean/Associate VP: Lucy LeeDate approved: September 8, 2017Undergraduate Education Committee (UEC) approvalDate of meeting: October 27, 2017	Other contact hours:			-	Maximu	m enrolment (for inform	ation only): 36				
Department / Program Head or Director: lan AffleckDate approved:September 2017Faculty Council approvalDate approved:September 8, 2017Campus-Wide Consultation (CWC)Date of posting:October 13, 2017Dean/Associate VP: Lucy LeeDate approved:September 8, 2017Undergraduate Education Committee (UEC) approvalDate of meeting:October 27, 2017	Total 60				Expected frequency of course offerings (every semester,						
Department / Hogram nead of Director: fair AmericaDate approved:Deprember 2017Faculty Council approvalDate approved:September 8, 2017Campus-Wide Consultation (CWC)Date of posting:October 13, 2017Dean/Associate VP: Lucy LeeDate approved:September 8, 2017Undergraduate Education Committee (UEC) approvalDate of meeting:October 27, 2017	Department / Program Haad or Directory Jon Afflack				unnduny,	Date approved:	September 2017				
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Undergraduate Education Committee (UEC) approval Date of meeting: October 27, 2017	Dean/Associate VP: Lucy Lee					Date approved:	September 8, 2017				
	Undergraduate Education Committee (UEC) approval					Date of meeting:	October 27, 2017				

MATH 125	Univ	versity of the Frase	r Valley Offici	ial Undergraduate C	Course Outlin	e	Page <b>2</b> of <b>2</b>			
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 Asse	ssment and	Recognition (PLA	R)							
Yes 🗌 No,	PLAR canno	t be awarded for this	course becau	lse						
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: Le	tter Grades:	Credit/No Credi	t: 🗌 🛛 Labs	s to be scheduled ind	ependent of le	ecture hours: Yes	3 🗌 No 🗌			
NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.										
Typical Text(s) and The textbook is chose	<b>Resource M</b> en by a dep <i>a</i>	laterials artmental curriculum	committee. Re	ecent text used:						
Author (surname	, initials) Title	e (article, book, journa	al, etc.)		Current ed.	Publisher	Year			
1. Epp, S.	Dis	crete Mathematics w	ith Application	ns, 4 <sup>th</sup> Ed.		Nelson	2010			
2.										
<u>3.</u>										
<u>4.</u> 5										
Required Additional Supplies and Materials (software, hardware, tools, specialized clothing, etc.) Scientific calculator Typical Evolution 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	: ı at least 40%	6 on the final exam in	n order to pase	s this course.						
Typical Course ConSet Theory Counting a) induction b) sums and c) permutati d) binomial e) inclusion/ f) introduction g) pigeon how h) recurrenceLogical Syntax/Sema a) informal v b) proposition c) Boolean a	tent and To products ons and com theorem 'exclusion argon to probabil ole principle ce relations untics: versus forma onal calculus algebras	pics ibinations guments lity I arguments								

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