

From: **Langara College (LANG)**
Associate of Science Degree, Mathematics

To: **University of Northern BC (UNBC)**
Bachelor of Science (BSc Degree, Mathematics Major)

The following list of course equivalents will appear on the transfer credit summary for students who have successfully completed **Langara's Associate of Science Degree** and declare their **major in Mathematics at UNBC**.

Information in this handout is unofficial and should be used as a guide only. For questions regarding admission to UNBC or course selection please contact Student Recruitment & Advising at 250-960-6306 or advising@unbc.ca.

NOTE: As per UNBC Undergraduate Calendar Regulation number 14, "Students must complete a minimum of 30 credit hours of upper division UNBC course work to receive a UNBC degree."

LANG Requirement	LANG Course Name	UNBC Equivalence¹
Applicable to Mathematics		
<i>One of</i>		
MATH 1171	Calculus I	MATH 100-3 ²
MATH 1173 and MATH 1183	Calculus I with Computer Explorations Computer Explorations for Calculus I	MATH 100-3 ²
MATH 1153 and MATH 1253	Introduction to Calculus I (Part I) Introduction to Calculus I (Part II)	MATH 1XX-6
<i>One of</i>		
MATH 1271	Calculus II	MATH 101-3 ²
MATH 1273 and MATH 1283	Calculus II with Computer Explorations Computer Explorations for Calculus II	MATH 101-3 ² & MATH 1XX-1
<i>All of</i>		
MATH 2362	Linear Algebra	MATH 220-3 ²
MATH 2371	Calculus III	MATH 2XX-3
MATH 2373	Real Analysis	MATH 2XX-3 ³
MATH 2475	Differential Equations	MATH 230-3 ²
STAT 1181	Descriptive and Elementary Inferential Statistics	STAT 240-3 ²
STAT 2281	Probability and Elementary Mathematical Statistics	MATH 2XX-3
CPSC 1150	Program Design	CPSC 100-4
CPSC 1181	Object-oriented Computing	CPSC 1XX-3; Waive UNBC CPSC 101-4
<i>One of</i>		
CPSC 1160	Algorithms and Data Structures I	CPSC 1XX-3
CPSC 2190	Theoretical Foundations of Computer Science	CPSC 141-3

For the most up-to-date transfer requirements please check the BC Transfer Guide.

Program Option Notes:

In addition to the requirements listed above, it is highly recommended that students transferring to university mathematics programs take at least one of MATH 2365, 2471, or 2485.

Other required LANG credit	Specifics	UNBC Equivalence ⁴ Used towards this BSc Requirement
6 credits	MATH which shall include at least one course (3 credits) in Calculus;	* Please discuss how to complete this requirement with your Student Advisor. Depending on course selection, students may be able to complete some or all of this requirement at Langara. ⁵
a minimum of 36 credits	Science, which shall include at least: a) 3 credits in a laboratory science; b) a minimum of 18 credits in science at the second-year level taken in two or more subject areas;	
6 credits	First-year ENGL;	
6 credits	First or second year arts other than ENGL (excluding MATH and laboratory-based science courses);	
a minimum of 6 credits	First or second year arts, science or other university-transfer courses. (Students may include university-transfer credit from career program and KINS and RECR course offerings);	
The last 50% of the courses used towards the associate degree at Langara College within the last five years; and all courses used towards the degree with a cumulative GPA of 2.0, including a minimum cumulative GPA of 2.0 in all Langara College courses used towards the degree;		
A minimum cumulative GPA of 2.0.		

¹ Course equivalencies were determined through the articulation process and are listed on the BC Transfer Guide, www.bctransferguide.ca
Student will need to choose coursework appropriately so as not to receive duplicate Transfer Credit.

² Must achieved a C- (60% at UNBC) or better for all Math transfer credit to use as a prerequisite for UNBC coursework

³ Students who received a grade of a UNBC C- or better can use LANG MATH 2373 as prerequisite for any UNBC MATH class that requires UNBC MATH 224-3

⁴ Students need to choose coursework transferable to UNBC in order to receive credit in these areas.

⁵ Students need to verify they are completing approved University Transfer Credit coursework as per the BC Transfer Guide. Courses in the Creative and Performing Arts as well as Career program and other courses considered for the Associate degree may not be eligible for transfer credit to UNBC.

Note: Above based on Langara 2018/19 Academic Calendar.

Recommended Courses to take:

LANG Courses	Specifics	UNBC Equivalence ³ Used towards this BSc Requirement
ENGL 1128	Short Prose Sections and Composition	ENGL 170-3 or ENGL 1XX-3
CHEM 1120	General Chemistry I	} CHEM 100-3, CHEM 101-3, CHEM 120-3 CHEM 121-3
CHEM 1220	General Chemistry II	
CPSC 2190	Theoretical Foundations of Computer Science	CPSC 141-3
MATH 1171	Calculus I	MATH 100-3 ²
MATH 1271	Calculus II	MATH 101-3 ²
PHYS 1125	Physics I with Calculus	PHYS 110-4
PHYS 1225	Physics II with Calculus	PHYS 111-4

¹ Course equivalencies were determined through the articulation process and are listed on the BC Transfer Guide, www.bctransferguide.ca
Student will need to choose coursework appropriately so as not to receive duplicate Transfer Credit.

² Must achieved a C- (60% at UNBC) or better for all Math transfer credit to use as a prerequisite for UNBC coursework

Sample of **UNBC Calendar** requirements for the Mathematics major and how LANG Associate of Science Degree in Mathematics coursework *may be* used towards completion of the degree at UNBC¹:

UNBC Calendar Information	LANG Equivalence
<p>The minimum requirement for completion of a Bachelor of Science with a major in Mathematics is 120 credit hours.</p>	
<p>Program Requirements Note: Unless otherwise stated, students enrolling in any MATH or STAT courses with prerequisites are required to have completed all prerequisite courses for that course with a C- or better, or have permission to enroll from the Department Chair.</p>	
<p>Literacy Requirement One of: ENGL 170-3 Writing and Communication Skills ENGL 270-3 Expository Writing</p>	<p>*Can be completed at LANG, ENGL 1128 <input type="checkbox"/> To be completed at UNBC</p>
<p>Lower-Division Requirement</p>	
<p>100 Level</p>	
<p>CPSC 100-4 Computer Programming I</p>	<p>✓ Completed at LANG, CPSC 1150</p>
<p>CPSC 141-3 Discrete Computational Mathematics</p>	<p>*Can be completed at LANG, CPSC 2190</p>
<p>MATH 100-3 Calculus I</p>	<p>*Can be completed at LANG, MATH 1171</p>
<p>MATH 101-3 Calculus II</p>	<p>*Can be completed at LANG, MATH 1271</p>
<p>200 Level</p>	
<p>MATH 200-3 Calculus III</p>	<p><input type="checkbox"/> To be completed at UNBC</p>
<p>MATH 201-3 Introduction to Complex Analysis</p>	<p><input type="checkbox"/> To be completed at UNBC</p>
<p>MATH 220-3 Linear Algebra</p>	<p>✓ Completed at LANG, MATH 2362</p>
<p>MATH 224-3 Foundations of Modern Mathematics</p>	<p><input type="checkbox"/> To be completed at UNBC</p>
<p>MATH 230-3 Linear Differential Equations and Boundary Value Problems</p>	<p>✓ Completed at LANG, MATH 2475</p>
<p>Recommended</p>	
<p>CPSC 101-4 Computer Programming II</p>	<p>✓ Completed at LANG, CPSC 1181</p>
<p>CPSC 242-3 Mathematical Topics for Computer Science</p>	<p><input type="checkbox"/> To be completed at UNBC</p>
<p>General Science Requirement</p>	
<p><i>Two of:</i></p>	
<p>BIOL 103-3 Introductory Biology I and BIOL 123-1 Introductory Biology I Laboratory</p>	<p>*Can be completed at LANG, BIOL 1115</p>
<p>BIOL 104-3 Introductory Biology II and BIOL 124-1 Introductory Biology II Laboratory</p>	<p>*Can be completed at LANG, BIOL 1215</p>
<p>CHEM 100-3 General Chemistry I and CHEM 120-1 General Chemistry Lab I</p>	<p>*Can be completed at LANG, CHEM 1120 & CHEM 1220</p>

UNBC Mathematics major Calendar requirements continued:

CHEM 101-3 and CHEM 121-1	General Chemistry II General Chemistry Lab II	*Can be completed at LANG, CHEM 1120 & CHEM 1220
PHYS 100-4 or PHYS 110-4*	Introduction to Physics I Introductory Physics I:	*Can be completed at LANG, PHYS 1125
PHYS 111-4*	Introductory Physics II: Waves and Electricity	*Can be completed at LANG, PHYS 1225

*Note: PHYS 110-4 (Introductory Physics I: Mechanics) and PHYS 111-4 (Introductory Physics II: Waves and Electricity) are strongly recommended for all majors.

Upper-Division Requirement

300 Level

MATH 302-3	Introductory Mathematical Analysis
MATH 320-3	Survey of Algebra
MATH 336-3 or MATH 335-3	Intermediate Differential Equations Numerical Analysis I
STAT 371-3	Probability and Statistics for Scientists and Engineers
STAT 372-3	Mathematical Statistics

300 or 400 Level

MATH 326-3 or MATH 405-3	Advanced Linear Algebra Topology
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400 Level

Twelve additional credit hours of 400-level MATH or STAT courses.

Elective and Academic Breadth

Elective credit hours as necessary to ensure completion of a minimum of 120 credit hours including any additional credits necessary to meet the Academic Breadth requirement of the University (see Academic Regulation 15).

To be completed at UNBC

* Please discuss how to complete this requirement with your Student Advisor. Depending on course selection, students may be able to complete some or all of this requirement at Langara.

¹Based on the 2018/19UNBC Academic Calendar year.