

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."

Associate of Science Degree

Within the minimum 60 credits, students must complete:

1. 6 credits of MATH which shall include at least one course (3 credits) in Calculus;
2. a minimum of 36 credits of science, which shall include at least:
 - a. 3 credits in laboratory science;
 - b. A minimum of 18 credits in science at the second-year level taken in two or more subject areas;
3. 6 credits of first-year ENGL;
4. 6 credits of first or second year arts other than ENGL (excluding MATH and laboratory-based science courses);
5. a minimum of 6 credits of 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); and
6. a minimum cumulative GPA of 2.0.

No course may be used to meet more than one of the specific requirements.

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

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

Note: Above based on the Langara 2020 website.

Recommended Courses to take:

LANG Courses	LANG Course Name	UNBC Equivalence ¹
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 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

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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, Course Number & Course Name

LANG Equivalence¹

A major in Mathematics requires 17 MATH or STAT courses (51 credit hours), at least 30 credit hours of which must be upper-Division courses: and, of those upper-division credit hours, at least 12 must be taken at the 400 level.

STAT 240-3 (Basic Statistics) may not be used for credit towards any Mathematics major, minor, or joint major.

MATH 150-3 (Finite Mathematics for Business and Economics) may not be used for credit towards any Mathematics major or joint major

The minimum requirement for completion of a Bachelor of Science with a major in Mathematics is 120 credit hours.

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.

Literacy Requirement

One of the following:

- ENGL 170-3 Writing and Communication Skills
- ENGL 270-3 Expository Writing

- Can be completed at LANG, ENGL 1128
- To be completed at UNBC

Lower-Division Requirement

100 Level

- CPSC 100-4 Computer Programming I
- CPSC 141-3 Discrete Computational Mathematics
- MATH 100-3 Calculus I
- MATH 101-3 Calculus II

- ✓ Completed at LANG, CPSC 1150
- Can be completed at LANG, CPSC 2190
- Can be completed at LANG, MATH 1171
- Can be completed at LANG, MATH 1271

200 Level

- MATH 200-3 Calculus III
- MATH 201-3 Introduction to Complex Analysis
- MATH 220-3 Linear Algebra
- MATH 224-3 Foundations of Modern Mathematics
- MATH 230-3 Linear Differential Equations and Boundary Value Problems

- To be completed at UNBC
- To be completed at UNBC
- ✓ Completed at LANG, MATH 2362
- To be completed at UNBC
- ✓ Completed at LANG, MATH 2475

Recommended

- CPSC 101-4 Computer Programming II
- CPSC 242-3 Mathematical Topics for Computer Science

- ✓ Completed at LANG, CPSC 1181
- To be completed at UNBC

UNBC Mathematics major Calendar requirements continued:

General Science Requirement

Two of the following:

BIOL 103-3 and BIOL 123-1	Introductory Biology I Introductory Biology I Laboratory
BIOL 104-3 and BIOL 124-1	Introductory Biology II Introductory Biology II Laboratory
CHEM 100-3 and CHEM 120-1	General Chemistry I General Chemistry Lab I
CHEM 101-3 and CHEM 121-1	General Chemistry II General Chemistry Lab II
PHYS 100-4 or PHYS 110-4*	Introduction to Physics I Introductory Physics I:
PHYS 111-4*	Introductory Physics II: Waves and Electricity

- Can be completed at LANG, BIOL 1115
- Can be completed at LANG, BIOL 1215
- Can be completed at LANG, CHEM 1120 & CHEM 1220
- Can be completed at LANG, CHEM 1120 & CHEM 1220
- Can be completed at LANG, PHYS 1125
- 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 2020/21 UNBC Academic Calendar year.