

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

To: **University of Northern BC (UNBC)**  
Bachelor of Science (BSc Degree, Physics 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 Physics 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](mailto: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."

<b>LANG Requirement</b> <b>Applicable to Physics</b>	<b>LANG Course Name</b>	<b>UNBC Equivalence<sup>1</sup></b>
<i>All of:</i>		
CHEM 1120	General Chemistry I	CHEM 1XX-4 <sup>2</sup>
CPSC 1150	Program Design	CPSC 100-4
MATH 1171	Calculus I	MATH 100-3 <sup>3</sup>
MATH 1271	Calculus II	MATH 101-3 <sup>3</sup>
MATH 2362	Linear Algebra	MATH 220-3 <sup>3</sup>
MATH 2371	Calculus III	MATH 2XX-3
MATH 2475	Differential Equations	MATH 230-3 <sup>3</sup>
PHYS 1125	Physics I with Calculus	PHYS 110-4
PHYS 1225	Physics II with Calculus	PHYS 111-4
PHYS 2309	Intermediate Experimental Physics 1	PHYS 2XX-3
PHYS 2409	Intermediate Experimental Physics II	PHYS 2XX-3
PHYS 2323	Newtonian Mechanics	PHYS 300-3
PHYS 2424	Relativity and Quanta	PHYS 205-3
<b>Recommended</b>	CHEM 1220, CPSC 1160	

<b>Other required LANG credit</b>	<b>Specifics</b>	<b>UNBC Equivalence<sup>4</sup></b> <b>Used towards this BSc Requirement</b>
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. <sup>5</sup>
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.		

<sup>1</sup> Course equivalencies were determined through the articulation process and are listed on the BC Transfer Guide, [www.bctransferguide.ca](http://www.bctransferguide.ca)

Student will need to choose coursework appropriately so as not to receive duplicate Transfer Credit.

<sup>2</sup> In order to receive credit for UNBC CHEM 100-3, Students must also take LANG CHEM 1220: LANG CHEM 1120 & LANG CHEM 1220 = UNBC CHEM 100-3, UNBC CHEM 120-1, UNBC CHEM 101-3 & UNBC CHEM 121-1.

<sup>3</sup> Must achieved a C- (60% at UNBC) or better for all Math transfer credit to use as a prerequisite for UNBC coursework

<sup>4</sup> Students need to choose coursework transferable to UNBC in order to receive credit in these areas.

<sup>5</sup> 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:

<b>LANG Courses</b>	<b>Specifics</b>	<b>UNBC Equivalence<sup>1</sup> Used towards this BSc Requirement</b>
CHEM 1220	General Chemistry II	CHEM 1XX-4 <sup>2</sup>

<sup>1</sup> Course equivalencies were determined through the articulation process and are listed on the BC Transfer Guide, [www.bctransferguide.ca](http://www.bctransferguide.ca)

Student will need to choose coursework appropriately so as not to receive duplicate Transfer Credit.

<sup>2</sup> In order to receive credit for UNBC coursework, students must also take **BOTH** LANG CHEM 1120 & LANG CHEM 1220: LANG CHEM 1120 & LANG CHEM 1220 = UNBC CHEM 100-3, UNBC CHEM 120-1, UNBC CHEM 101-3 & UNBC CHEM 121-1.

Sample of **UNBC Calendar** requirements for the Physics major and how Langara Associate of Science Degree in Physics coursework *may be* used towards completion of the degree at UNBC<sup>5</sup>:

UNBC Calendar Information	LANG Equivalence
<p>The minimum requirement for completion of a Bachelor of Science degree with a major in Physics is 120 credit hours.</p>	
<p><b>Program Requirements</b> <b>Lower-Division Requirement</b></p>	
<p><b>100 Level</b> CHEM 100-3            General Chemistry I</p>	<p>*Can be completed at LANG, CHEM 1120 &amp; LANG CHEM 1220</p>
<p>MATH 100-3            Calculus I</p>	<p>✓ Completed at LANG, MATH 1171</p>
<p>MATH 101-3            Calculus II</p>	<p>✓ Completed at LANG, MATH 1271</p>
<p>PHYS 110-4            Introductory Physics I: Mechanics</p>	<p>✓ Completed at LANG, PHYS 1125</p>
<p>PHYS 111-4            Introductory Physics II: Waves and Electricity</p>	<p>✓ Completed at LANG, PHYS 1225</p>
<p>CPSC 100-4            Computer Programming I</p>	<p>✓ Completed at LANG, CPSC 1150</p>
<p>or CPSC 110-3        Introduction to Computer Systems and Programming</p>	
<p><b>200 Level</b></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 230-3            Linear Differential Equations and Boundary Value Problems</p>	<p>✓ Completed at LANG, MATH 2475</p>
<p>PHYS 200-3            Thermal Physics</p>	<p><input type="checkbox"/> To be completed at UNBC</p>
<p>PHYS 202-4            Electromagnetism and Optics</p>	<p><input type="checkbox"/> To be completed at UNBC</p>
<p>PHYS 205-3            Modern Physics I</p>	<p>✓ Completed at LANG, PHYS 2424</p>
<p>Four additional credit hours of Physics at the 200 level.</p>	<p>* 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.</p>
<p><b>Upper-Division Requirement</b></p>	
<p><b>300 Level</b></p>	
<p>MATH 336-3            Intermediate Differential Equations</p>	<p><input type="checkbox"/> To be completed at UNBC</p>
<p>PHYS 300-3            Classical Mechanics</p>	<p>✓ Completed at LANG, MATH 2475</p>
<p>PHYS 302-3            Quantum Mechanics I</p>	<p><input type="checkbox"/> To be completed at UNBC</p>
<p>PHYS 310-3            Classic Electromagnetism I</p>	<p><input type="checkbox"/> To be completed at UNBC</p>

UNBC Physics major Calendar requirements continued:

**400 Level**

PHYS 400-3	Quantum Mechanics II
PHYS 401-3	Seminar on Contemporary Topics in Physics
PHYS 407-3	Statistical Mechanics

Nine additional credit hours of Physics at the 300 or 400 level.

**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).

**Recommended electives include:**

CPSC 101-4	Computer Programming II
CHEM 101-3	General Chemistry II
CHEM 200-3	Physical Chemistry I
MATH 335-3	Numerical Analysis I
STAT 371-3	Probability and Statistics for Scientists and Engineers

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.

To be completed at UNBC

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

<sup>2</sup>Must have a C- or better at CNC to use as a prerequisite at UNBC.