



## GUIDELINES FOR BACHELOR OF SCIENCE PHYSICS MAJOR

### HIGH SCHOOL PREREQUISITES

ENGLISH		
IF YOU TOOK	YOUR GRADE	CHOOSE
English Studies 12 <b>or</b> English First Peoples 12 <b>or</b>	73% or higher	ENGL 1100 (recommended) <b>or</b> ENGL 1110 <b>or</b> ENGL 1120 <b>or</b> ENGL 1140 <b>or</b> 1150 <b>or</b> ENGL 1210
ESAL 0570 <b>and</b> 0580 <b>or</b>	65% or higher	
ENGL 0600 <b>or</b> ENGL 0620	65% or higher	ACCUPLACER Assessment <b>or</b> ENGL 0600 <b>or</b> 0620
English Studies 12 <b>or</b> English First Peoples 12	Below 73%	
BIOLOGY		
IF YOU TOOK	YOUR GRADE	CHOOSE
Life Sciences 11 <b>or</b> Biology 11 <b>or</b> Anatomy & Physiology 12 <b>or</b> Biology 12 <b>AND</b> Chemistry 11	67% or higher	BIOL 1110 <b>AND</b> 1210
Life Sciences 11 <b>or</b> Biology 11	Below 67%	BIOL 0500
IF YOU NEED		
Life Sciences 11 <b>or</b> Biology 11		BIOL 0500
Chemistry 11		CHEM 0500
CHEMISTRY		
IF YOU TOOK	YOUR GRADE	CHOOSE
Chemistry 11 <b>AND</b> Pre-Calculus 12	67% or higher (recommended)	CHEM 1500 <b>AND</b> 1510
Chemistry 12 <b>AND</b> Pre-Calculus 12	73% or higher (recommended)	CHEM 1500 <b>AND</b> 1520
IF YOU NEED		
Chemistry 11		CHEM 0500
Chemistry 12		CHEM 0600
Pre-Calculus 12		SEE MATH SECTION BELOW
PHYSICS		
IF YOU TOOK	YOUR GRADE	CHOOSE
Physics 11 <b>AND</b> Pre-Calculus 12	67% or higher	PHYS 1100 <b>AND</b> 1200
Physics 12 <b>AND</b> Pre-Calculus 12	67% or higher	PHYS 1150 <b>AND</b> 1250
Physics 11	Below 67%	PHYS 0500
IF YOU NEED		
Physics 11		PHYS 0500
Physics 12		PHYS 0600
Pre-Calculus 12		SEE MATH SECTION BELOW

## MATH – EVERY SCIENCE MAJOR REQUIRES 6 CREDITS OF FIRST-YEAR CALCULUS

IF YOU TOOK	YOUR GRADE		CHOOSE
Pre-Calculus 12	67% or higher (within the last 2 years)	➡	One of the following streams: MATH 1140 AND 1240 MATH 1150 AND 1250
Pre-Calculus 12	Below 67% (within the last 2 years)	➡	MATH 1000 <b>or</b> 0630 <b>or</b> 0600 + 0610
Foundations 12	All grades	➡	MATH 0510 + MATH 0600 + MATH 0610

MATH 1140/1240 is recommended for all Science Majors  
MATH 1150/1250 is recommended for all Biology Majors

**PLEASE NOTE:** For all high school courses with no required grade listed, 67% or higher is highly recommended.

For best chances of academic success, completion of the grade 12 level of the subject area of your intended major is recommended. (e.g. for a Physics major, you should have Grade 12 Physics). High school equivalent courses can be taken or repeated at TRU.

## SUGGESTED FIRST- AND SECOND-YEAR PLAN

### YEAR 1

FALL SEMESTER	WINTER SEMESTER
ENGL 1100 <b>or</b> 1110	ENGL 1100 <b>or</b> 1110 <b>or</b> 1120 <b>or</b> 1140 <b>or</b> 1210 <sup>1</sup>
PHYS 1150 (preferred) <b>or</b> 1100	PHYS 1250 (preferred) <b>or</b> 1200
MATH 1140	MATH 1240
CHEM 1500	CHEM 1510 <b>or</b> 1520
COMP 1130	BIOL 1110 <b>or</b> GEOL 1110 <sup>2</sup>

### YEAR 2

FALL SEMESTER	WINTER SEMESTER
PHYS 2000	PHYS 2200
MATH 2110	PHYS 2590
MATH 2120	MATH 3170 (important)
MATH 2240	MATH 3160 <b>or</b> PHYS 3120 (important)
Elective (COMP 1230 recommended)	CMNS 2300 <b>or</b> 2290

### IMPORTANT NOTES

- Students with a B or higher in ENGL 1100 **or** 1110 may take CMNS 2290 **or** 2300 without a second first-year English course.
- 3 credits must be taken from the following: BIOL 1110 **or** BIOL 1210 **or** GEOL 1110 **or** GEOL 2050

## COURSE OFFERINGS – 1000/2000 level

FALL SEMESTER ONLY	WINTER SEMESTER ONLY
PHYS 1150	PHYS 1250
CHEM 1500	CHEM 1510 <b>or</b> 1520
BIOL 1210	BIOL 1110
PHYS 2000	PHYS 2200
MATH 2110	PHYS 2590
MATH 2240	PHYS 3120
	MATH 3160
	MATH 3170
	CMNS 2300

# Bachelor Of Science PHYSICS MAJOR Checksheet (120 credits)

1000-Level CORE courses (27-30 credits)			2000/3000-Level CORE courses (27 credits)			3000/4000-Level (36 credits)		
COURSE		GRADE	COURSE		GRADE	COURSE		GRADE
ENGL 1100 or 1110 <sup>2</sup>		_____	MATH 2110 - Calculus 3		_____	PHYS 3090 - Intermediate Experimental Physics		_____
OR any two of ENGL 1100, 1110, 1120, 1140 and 1210 <sup>2</sup>		_____	MATH 2120 - Linear Algebra		_____	PHYS 3160 - Classical & Statistical Thermodynamics		_____
			MATH 2240 - Differential Equations 1		_____	PHYS 3590 - Intermediate Experimental Physics II		_____
PHYS 1100 or <b>1150</b>		_____	MATH 3170 - Calculus 4 (take in 2 <sup>nd</sup> year)		_____	PHYS 3400 – Principles & Apps. of Quantum Mech. I		_____
PHYS 1200 or <b>1250</b>		_____	PHYS 2000 - Relativity and Quanta		_____	PHYS 3800 - Optics		_____
MATH 1140 - Calculus 1		_____	PHYS 2200 - Mechanics		_____	PHYS 3830 - Intermediate Electromagnetism		_____
MATH 1240 - Calculus 2		_____	PHYS 2590 - Physics of Materials		_____	PHYS 4090 - Advanced Experimental Physics I		_____
CHEM 1500 - Chemical Bonding/Organic Chem		_____	PHYS 3120 - Intro to Mathematical Physics or MATH 3160 - Differential Equations 2		_____	Capstone: One of PHYS 4400, 4590, 4830 or 4480		_____
CHEM 1510 or 1520		_____	CMNS 2290 or 2300 <sup>1</sup>		_____			_____
One of BIOL 1110, 1210, GEOL 1110 or 2050		_____	<b>ELECTIVES (27-30 credits)</b>			<b>Physics electives (12 Cr):</b> Choose four from: PHYS 3000, 3130, 3140, 3200, 3300, 3330, 3500 or 4140		
			COURSE		GRADE			
COMP 1110 or 1130		_____	Non-science elective <sup>3</sup>		_____	PHYS Elective		_____
<b>Notes:</b> 1. Computing requirements and CMNS 2290/2300 should be taken in the first or second year. 2. Students with a B or better in ENGL 1100 or 1110 may proceed into CMNS 2290 or 2300 in their second year; students with less than a B in first year English must take another 3 credits of 1000-level English before their second year English requirement. 3. Electives must include 9-12 credits in at least two disciplines outside of science (other than English). The 18 remaining elective credits may be chosen from any discipline; 6 of these credits must be in courses numbered 3000 or above.		_____	Non-science elective <sup>3</sup>		_____	PHYS Elective		_____
			Non-science elective <sup>3</sup>		_____	PHYS Elective		_____
			Elective in lieu of 2 <sup>nd</sup> ENGL <sup>2</sup>		_____	PHYS Elective		_____
			General elective (1000-4000 level) <sup>3</sup> (recommend COMP 1230)		_____	PHYS Elective		_____
			General elective (1000-4000 level) <sup>3</sup>		_____	Not every physics course is offered every year. Core upper-level physics courses are offered on a two year rotation, and yearly electives as decided by the department and students in the program.		
			General elective (1000-4000 level) <sup>3</sup>		_____			
			General elective (1000-4000 level) <sup>3</sup>		_____			
			3000/4000 level elective <sup>3</sup>		_____			
			3000/4000 level elective <sup>3</sup>		_____			
			Electives: Institutional Learning Outcomes (ILOs) may be required to graduate. Refer to the <a href="#">Degree Works website</a> for more information.					

## KEEP IN MIND

This form is meant to be used as a guideline in conjunction with the [TRU Academic Calendar](#) and [Course Schedule](#). Please see these resources for more about course prerequisites and co-requisites.

**Course Load:** Transitioning to university can be challenging and many students choose to take a lighter course load. Please speak with Academic Advising to discuss sequencing, workload, future career and educational goals and more.

## KEEP IN MIND

### Institutional Learning Outcomes (ILOs):

May be required for your program. Using the **Degree Works** planning tool will help you identify which courses apply.

### Degree Works Planning Tool:

More information is available through the Degree Works website at: [tru.ca/current/academic-supports/degreeworks](https://tru.ca/current/academic-supports/degreeworks)

## BACHELOR OF SCIENCE – FIRST- AND SECOND-YEAR NON-SCIENCE ELECTIVES

Anthropology (ANTH)	All	Linguistics (LING)	All
Archaeology (ARCH)	All	Management (MNGT)	1710
Accounting (ACCT)	2210, 2250	Marketing (MKTG)	2430
Business Law (BLAW)	2910	Modern Languages (MLAN)	All
Chinese (CHIN)	1110, 1210	Music (MUSI)	All
Communications (CMNS)	All	Organizational Behaviour (ORGB)	2810
Creative Writing (CRWR)	All	Philosophy (PHIL)	All
Economics (ECON)	All	Physical Education (PHED) non-Activity	1000, 1230, 2110, 2130, 2140, 2210
French (FRAN)	All	Political Studies (POLI)	All
Film (FILM)	All	Psychology (PSYC)	All
Finance (FNCE)	2120	Service & Community Learning (SRCL)	1000
First Nation Language (FNLG)	All	Sociology (SOCL)	All
Geography (GEOG) (non-physical)	1010, 1100, 1110, 2110, 2120, 2220, 2230 (excluded: GEOG 1000, 2020)	Spanish (SPAN)	All
German (GERM)	All	Speech (SPEE)	1500, 2500
History (HIST)	All 1000 level & 2000 level	Student Success (STSS)	1010, 1020
Human Resource Management (HRMN)	2820	Theatre (THTR)	All
Indigenous Studies (INDG)	2100	Visual Arts (VISA) (Theory)	All
Japanese (JAPA)	All	Visual Arts (VISA) (Studio)	All
Journalism (JOUR)	2010		