University of Lethbridge

Program Planning Guide

Name:_____

ID: _____

Calendar Year: 2022/2023

Major in Physics:
www.ulethbridge.ca/artsci/physics-astronomy

Academic Calendar:
www.ulethbridge.ca/ross/academic-calendar

High School Admission Requirements:
www.ulethbridge.ca/ross/admissions/undergrad/high-school

Current and Past Program Planning Guides:
www.ulethbridge.ca/ross/ppgs

Co-operative Education:
www.ulethbridge.ca/career-bridge/co-operative-education

Faculty of Arts and Science Advising:
www.ulethbridge.ca/artsci/advising
artsci.advising@uleth.ca
403-329-5106
M2102

Faculty of Education Advising:
www.uleth.ca/education/student-advising
edu.sps@uleth.ca
403-329-2254
TH421

Bachelor of Science/Bachelor of Education

Physics/Science Education

This is a planning guide and not a graduation check or guarantee of course offerings. You should have a program check done in your final year of studies. Students are responsible for the accuracy of their own programs. The guide should be used in conjunction with the University of Lethbridge Calendar, which is the final authority on all questions regarding program requirements and academic regulations.

Contact an Academic Advisor (www.ulethbridge.ca/ross/academic-advising) for advising information.

Name: _____ **ID:** _____

Program Requirements

Completion of at least 30 courses (90.0 credit hours) from disciplines offered by the Faculty of Arts and Science, Faculty of Fine Arts, or School of Liberal Education with a grade point average of at least 2.00.
Completion of the equivalent of 20 courses (60.0 credit hours) in Education with a program grade point average of at least 2.50 in Education courses and the appropriate major.

Major Requirements (16 Courses)

_____ Mathematics 1410 - Elementary Linear Algebra
_____ Physics 2000 - Introduction to Physics II
_____ Physics 2020 - The Physics of Everyday Life
_____ Physics 2120 - Introduction to Physics III
_____ Physics 2130 - Waves, Optics and Sound
_____ Physics 2150 - Quantum Mechanics I
_____ Physics 2925 - Introduction to Experimental Physics
_____ Physics 3750 - Contemporary Physics

One of:

_____ Mathematics 1560 - Calculus I
_____ Mathematics 1565 - Accelerated Calculus I (recommended)

One of:

_____ Mathematics 2560 - Calculus II
_____ Mathematics 2565 - Accelerated Calculus II (recommended)

One of:

_____ Mathematics 2570 - Calculus III
_____ Mathematics 2575 - Accelerated Calculus III (recommended)

One of:

_____ Physics 1000 - Introduction to Physics I
_____ Physics 1050 - Introduction to Biophysics
_____ [1] Engineering 2060 - Engineering Mechanics

One of:

_____ Astronomy 2020 - Modern Astronomy
_____ Astronomy 2070 - The Solar System

One of:

_____ Biology 1010 - Cellular Basis of Life
_____ Biology 1020 - Diversity of Life

One of:

_____ Chemistry 1000 - General Chemistry I
_____ Chemistry 1110 - Chemistry for Life Sciences I

_____ One additional course (3.0 credit hours) in Physics, Astronomy, or Engineering
1. _____

Other Courses (minimum 14 courses)

Courses offered by the Faculty of Arts and Science, Faculty of Fine Arts, or School of Liberal Education only (no courses labelled ABHL, ACCT, ADCS, AGEM, CDEV, CRED, EDUC, FINC, HLSC, HRLR, IGBM, IMGT, MGT, MKTG, NURS, PUBH, or TREC unless cross-listed with a course from one of the above faculties)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____

Education Requirements (20-course equivalent)

_____ Education 2500 - Orientation to Teaching (3.0 credit hours)
_____ Professional Semester I (15.0 credit hours)
_____ Professional Semester II (15.0 credit hours)
_____ Professional Semester III (15.0 credit hours)

_____ Education Foundation (3.0 credit hours) at the 43xx level:
_____

_____ Three Education Electives (9.0 credit hours) at the 3000 or 4000 level:
1. _____
2. _____
3. _____

Notes

[1] *Prerequisite required: Engineering 2000*
Students wishing to include 3000-level Physics courses in their program should take Mathematics 2575 (Accelerated Calculus III) as part of their major or Mathematics 2580 (Calculus IV) as an elective, either of which is a prerequisite for most senior Physics courses.

It is recommended that Physics majors include courses in Biology, Chemistry, Computer Science, and Mathematics.

Since a number of senior-level Physics courses are offered only in alternate years, students are advised to plan carefully to include the desired courses. Students are strongly advised to seek help in planning their program from the Department of Physics and Astronomy.

Completion of the Liberal Education List Requirement (Lib Ed Requirement)

Only four courses (12.0 credit hours) in total may be counted from any one discipline toward the Lib Ed Requirement. Disciplines are identified by separate course subject codes.

Only four courses (12.0 credit hours) in total from the Faculty of Education (EDUC), Faculty of Health Sciences (ABHL, ADCS, HLSC, NURS, PUBH, and TREC), and the Dhillon School of Business (ACCT, AGEM, FINC, HRLR, IGBM, IMGT, MGT, and MKTG) may be counted towards the Lib Ed Requirement, but could be deemed extra to program.

See the 2022/2023 Calendar, p. 81, for more information.

_____ Four Fine Arts and Humanities courses:

1. _____
2. _____
3. _____
4. _____

_____ Four Social Science courses:

1. _____
2. _____
3. _____
4. _____

_____ Four Science courses:

1. _____
2. _____
3. _____
4. _____

Not more than 10 courses (30.0 credit hours) completed at the 1000 level (or lower) [0500 - 1999] for credit towards the degree, excluding Activity courses (labelled PHAC and MUSE) and courses numbered in the range of 0520 to 0530.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Completion of at least 10 courses (30.0 credit hours) from disciplines offered by the Faculty of Arts and Science, Faculty of Fine Arts, or School of Liberal Education at the 3000 or 4000 level, excluding Activity courses (labelled PHAC and MUSE). Out-of-faculty courses (i.e. labelled ABHL, ACCT, ADCS, AGEM, CDEV, CRED, EDUC, FINC, HLSC, HRLR, IGBM, IMGT, MGT, MKTG, NURS, PUBH, and TREC) will not meet this requirement.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

_____ Not more than three Independent Study courses (9.0 credit hours) may be completed for credit towards the degree.

_____ Not more than three Disciplinary Credit Applied Studies courses (9.0 credit hours) may be completed for credit towards the degree. Students may, in addition, complete Applied Studies 2000, 2001, 2010, and 2011.

_____ * Not more than 17 courses (51.0 credit hours) may be completed from any one discipline for credit towards the degree.

_____ Not more than six credit hours in Activity courses (i.e. courses labelled PHAC and MUSE) may be completed for credit towards the degree, except for Kinesiology majors (not more than 15.0 credit hours) and Music majors (not more than 12.0 credit hours).

_____ Residence requirement:

Degree: Arts and Science
at least 15 courses (45.0 credit hours) offered by the Faculty of Arts and Science, Faculty of Fine Arts, or School of Liberal Education must be completed at the University of Lethbridge.

Education
at least 15 courses (45.0 credit hours) offered by the Faculty of Education must be completed at the University of Lethbridge.

Major: at least half of the courses required in the major must be completed at the University of Lethbridge.

** Disciplines are identified by a specific course label (e.g. KNES, ASTR, and HIST are separate disciplines).*

_____ **Education Minor** (Optional): _____
See the 2022/2023 Calendar, p. 159, for more information.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

(Education methods requirement)

_____ **Education Specialization** (Optional): _____
See the 2022/2023 Calendar, p. 165, for more information.

1. _____
2. _____
3. _____
4. _____
5. _____

(*Specialization Internship)*

Sample Sequencing Plan

Shown below is a sample sequence of courses for your degree. Consult timetables for course offerings, prerequisites, and corequisites before registering each term. This is just one example of how you could complete your major and degree requirements; you may find that a different sequence works as well as this one.

Year 1, Fall	Year 1, Spring
Chemistry 1000 or Chemistry 1110	Biology 1010 or Biology 1020
Mathematics 1410	**Mathematics 2565** or **Mathematics 2560**
Mathematics 1565 or **Mathematics 1560**	**Physics 2000**
Physics 1000 or **Physics 1050**	**Physics 2130**
Lib Ed Requirement course	Lib Ed Requirement course
Year 2, Fall	**Year 2, Spring**
Physics 2020	Astronomy 2020 or Astronomy 2070
Education 2500[1]	Physics 2150
Mathematics 2570 or **Mathematics 2575**	Physics 2925
Physics 2120	Lib Ed Requirement course
Lib Ed Requirement course	Lib Ed Requirement course
Year 3, Fall	**Year 3, Spring**
Professional Semester I	Physics 3750
	Lib Ed Requirement course
	Elective 3000/4000 level
	Elective 3000/4000 level
	Elective 3000/4000 level
Year 4, Fall	**Year 4, Spring**
Physics elective 3000/4000 level[2]	Professional Semester II
Lib Ed Requirement course 3000/4000 level	
Lib Ed Requirement course 3000/4000 level	
Elective 3000/4000 level	
Elective 3000/4000 level	
Year 5, Fall	**Year 5, Spring**
Professional Semester III	Education Foundation course (43xx)
	Education elective 3000/4000 level
	Education elective 3000/4000 level
	Education elective 3000/4000 level
	Elective 3000/4000 level

Elementary Education and Inclusive Education students will reverse the fall and spring terms in Year 5 and complete PS III in the spring.

[1] *Education 2500 must be completed (with a Pass Recommend) before admission. It may be taken in the spring or summer term immediately **prior to** the fall intake.*

[2] *Physics electives may be chosen from Physics, Astronomy, or Engineering.*

Note: *Courses in **bold** in Years 1 and 2 of the sample sequence are prerequisite(s) for required courses and should be completed early in your program. Students are advised to review the prerequisites for elective courses within the major and plan accordingly.*

Students wishing to include 3000-level Physics courses in their program must take Mathematics 2580 (Calculus IV) which is a prerequisite for most Physics courses at the 3000/4000 level.

Faculty of Education Admission

To be considered for admission to the Faculty of Education, successful completion of the following is required:

_____ 14 graded term courses (42.0 credit hours).

_____ **Education Admission GPA:** Minimum cumulative grade point average of 2.50 on all U of L and transferable courses taken within the terms containing the last 14 courses (42.0 credit hours). All courses must be graded.

_____ Minimum of five courses (15.0 credit hours) in the major.

_____ **Major GPA:** Minimum cumulative grade point average of 2.50 on all graded courses comprising the major, including all transferable courses.

_____ Credit in Education 2500 - Orientation to Teaching (or equivalent) prior to the fall program intake, including a favourable recommendation from the instructor.

Students are advised to contact Student Program Services in the Faculty of Education (edu.sps@uleth.ca; TH421; tel. 403-329-2254) for guidelines regarding the requirements stated above. For specific information on admission requirements, please refer to the Combined Degrees section of the Academic Calendar:
www.uleth.ca/ross/academic-calendar/cal_doc.pdf

Students of Indigenous descent, and students with a significant shift in academic performance, are advised to refer to the current Calendar for the Faculty of Education's Special Case Admission policies.

Combined Degrees Program:

Students begin this program in the Faculty of Arts and Science where they progress toward completion of Arts and Science degree requirements, and prepare to meet the admission requirements for the Faculty of Education. Please note that completion of admission requirements does not guarantee admission to the Faculty of Education.

Application and Document deadlines:
www.uleth.ca/ross/admissions/undergrad/deadlines