

University of  
Lethbridge



## Program Planning Guide

Name: \_\_\_\_\_

ID: \_\_\_\_\_

Calendar Year: 2023/2024

**Major in Physics:**

[www.ulethbridge.ca/artsci/physics-astronomy](http://www.ulethbridge.ca/artsci/physics-astronomy)

**Academic Calendar:**

[www.ulethbridge.ca/ross/academic-calendar](http://www.ulethbridge.ca/ross/academic-calendar)

**High School Admission Requirements:**

[www.ulethbridge.ca/ross/admissions/undergrad/high-school](http://www.ulethbridge.ca/ross/admissions/undergrad/high-school)

**Current and Past Program Planning Guides:**

[www.ulethbridge.ca/ross/ppgs](http://www.ulethbridge.ca/ross/ppgs)

**Co-operative Education:**

[www.ulethbridge.ca/career-bridge/co-operative-education](http://www.ulethbridge.ca/career-bridge/co-operative-education)

**Faculty of Arts and Science Advising:**

[www.ulethbridge.ca/artsci/advising](http://www.ulethbridge.ca/artsci/advising)  
artsci.advising@uleth.ca  
403-329-5106  
M2102

**Faculty of Education Advising:**

[www.ulethbridge.ca/education/student-advising](http://www.ulethbridge.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](http://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
- \_\_\_\_\_ <sup>1</sup> 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)

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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**

<sup>1</sup> This course has a prerequisite or corequisite that is not required for the major. See the Course Catalogue (p. 351) for more information.

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 2023/2024 Calendar, p. 83, 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.

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\_\_\_\_\_ **Education Minor (Optional):** \_\_\_\_\_  
See the 2023/2024 Calendar, p. 159, for more information.

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*(Education methods requirement)*

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.

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\_\_\_\_\_ 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 Specialization (Optional):** \_\_\_\_\_  
See the 2023/2024 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

Chemistry 1000 or Chemistry 1110  
**Mathematics 1410**  
 Mathematics 1565 or  
**Mathematics 1560**  
 Physics 1000 or Physics 1050  
 Lib Ed Requirement course

### Year 2, Fall

Physics 2020<sup>1</sup>  
 Education 2500<sup>2</sup>  
**Mathematics 2570** or  
**Mathematics 2575**  
**Physics 2120**  
 Lib Ed Requirement course

### Year 3, Fall

Professional Semester I

### Year 4, Fall

Physics elective 3000/4000 level<sup>3</sup>  
 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

Professional Semester III

### Year 1, Spring

Biology 1010 or Biology 1020  
**Mathematics 2565** or  
**Mathematics 2560**  
**Physics 2000**  
**Physics 2130**  
 Lib Ed Requirement course

### Year 2, Spring

Astronomy 2020 or Astronomy 2070  
 Physics 2150  
 Physics 2925  
 Lib Ed Requirement course  
 Lib Ed Requirement course

### Year 3, Spring

Physics 3750  
 Lib Ed Requirement course  
 Elective 3000/4000 level  
 Elective 3000/4000 level  
 Elective 3000/4000 level

### Year 4, Spring

Professional Semester II

### Year 5, Spring

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.**

<sup>1</sup> Term of offering may vary.

<sup>2</sup> 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.

<sup>3</sup> 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.ulethbridge.ca/ross/academic-calendar](http://www.ulethbridge.ca/ross/academic-calendar)

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.ulethbridge.ca/ross/admissions/undergrad/deadlines](http://www.ulethbridge.ca/ross/admissions/undergrad/deadlines)