

University of  
Lethbridge



## Program Planning Guide

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

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

Calendar Year: 2022/2023

### Major in Biological Sciences:

[www.ulethbridge.ca/artsci/biological-sciences](http://www.ulethbridge.ca/artsci/biological-sciences)

### 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.uleth.ca/education/student-advising](http://www.uleth.ca/education/student-advising)  
edu.sps@uleth.ca  
403-329-2254  
TH421

Biological Sciences/Science Education

Bachelor of Science/Bachelor of 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)**

- \_\_\_\_\_ Biochemistry 2000 - Introductory Biochemistry
- \_\_\_\_\_ Biology 1010 - Cellular Basis of Life
- \_\_\_\_\_ Biology 1020 - Diversity of Life
- \_\_\_\_\_ Biology 2000 - Principles of Genetics
- \_\_\_\_\_ Biology 2150 - Biostatistics
- \_\_\_\_\_ Biology 2200 - Principles of Ecology
- \_\_\_\_\_ Biology 2300 - Cell Biology
- \_\_\_\_\_ Biology 3300 - Evolution
- \_\_\_\_\_ Chemistry 1000 - General Chemistry I
- \_\_\_\_\_ Chemistry 2000 - General Chemistry II
- \_\_\_\_\_ Chemistry 2500 - Organic Chemistry I

**One of:**

- \_\_\_\_\_ Mathematics 1410 - Elementary Linear Algebra
- \_\_\_\_\_ Mathematics 1560 - Calculus I
- \_\_\_\_\_ Mathematics 1565 - Accelerated Calculus I

**One of:**

- \_\_\_\_\_ Physics 1000 - Introduction to Physics I
- \_\_\_\_\_ Physics 1050 - Introduction to Biophysics (preferred)

<sup>1</sup>Three courses (9.0 credit hours) in Biology at the 3000 level, including one course (3.0 credit hours) from each of the following subfield lists:

**One of (List 1 - Cellular and Molecular Biology)**

- \_\_\_\_\_ Biochemistry 3100 - Proteins, Enzymes and Nucleic Acids
- \_\_\_\_\_ Biochemistry 3700/Neuroscience 3700 - Introduction to Bioinformatics
- \_\_\_\_\_ Biology 3000 - Gene Expression and Regulation
- \_\_\_\_\_ Biology 3005 - Genomes
- \_\_\_\_\_ Biology 3110 - Cell Signalling
- \_\_\_\_\_ Biology 3210 - Experimental Methods in Molecular and Cellular Biology
- \_\_\_\_\_ Biology 3400 - Principles of Microbiology

**One of (List 2 - Organismal Biology)**

- \_\_\_\_\_ Biology 3310 - Developmental Biology
- \_\_\_\_\_ Biology 3420 - Animal Physiology
- \_\_\_\_\_ Biology 3460 - Plant Physiology
- \_\_\_\_\_ Biology 3520 - Invertebrate Zoology
- \_\_\_\_\_ Biology 3530 - Vertebrate Zoology
- \_\_\_\_\_ Biology 3560 - Integrative Plant Biology

**One of (List 3 - Ecology and Evolutionary Biology)**

- \_\_\_\_\_ Biology 3630 - Field Biology
- \_\_\_\_\_ Biology 3660 - Field Botany
- \_\_\_\_\_ Biology 3700 - Ecosystem Ecology
- \_\_\_\_\_ Biology 3710 - Population Biology
- \_\_\_\_\_ Biology 3720 - Community Ecology

**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. \_\_\_\_\_
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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. \_\_\_\_\_

**Recommended course:**

Environmental Science 2000 - Fundamentals of Environmental Science

**Notes**

<sup>1</sup>Topics courses (Biology 3850) may be assigned to one of the Biological Sciences lists at the time of scheduling. Please refer to the current term timetable.

**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.

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\_\_\_\_\_ **Education Minor (Optional):** \_\_\_\_\_

See the 2022/2023 Calendar, p. 159, for more information.

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5. \_\_\_\_\_
6. \_\_\_\_\_

*(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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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 Specialization (Optional):** \_\_\_\_\_

See the 2022/2023 Calendar, p. 165, for more information.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

*(Specialization Internship)*

\_\_\_\_\_ **Concentration (Optional):** \_\_\_\_\_

See the 2022/2023 Calendar, p. 259, for more information.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

## 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

Biology 1010 or Biology 1020  
Chemistry 1000  
Physics 1050 (*preferred*)  
Lib Ed Requirement course  
Lib Ed Requirement course

### Year 2, Fall

Biology 2150  
Biology 2200  
Chemistry 2500  
Education 2500<sup>1</sup>  
Lib Ed Requirement course

### Year 3, Fall

Professional Semester I

### Year 4, Fall

Biology 3000 level  
Biology 3000 level  
Elective 3000/4000 level  
Elective 3000/4000 level  
Elective 3000/4000 level

### Year 5, Fall

Professional Semester III

### Year 1, Spring

Biology 1020 or Biology 1010  
Chemistry 2000  
Mathematics Requirement  
Lib Ed Requirement course  
Lib Ed Requirement course

### Year 2, Spring

Biochemistry 2000  
Biology 2000  
Biology 2300  
Lib Ed Requirement course  
Lib Ed Requirement course

### Year 3, Spring

Biology 3300  
Biology 3000 level  
Elective 3000/4000 level  
Elective 3000/4000 level  
Lib Ed Requirement course

### Year 4, Spring

Professional Semester II

### Year 5, Spring

Elective 3000/4000 level  
Education Foundation course (43xx)  
Education elective 3000/4000 level  
Education elective 3000/4000 level  
Education 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> 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.

**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.

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

