

University of  
Lethbridge



## Program Planning Guide

**Program:** Bachelor of Science/Bachelor of Education (B.Sc./B.Ed.)

**Major (Arts and Science):** Biological Sciences

**Major (Education):** Science Education

**Calendar Year:** 2017/2018

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

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

**Major in Biological Sciences:**

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

**Academic Calendar:**

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

**High School Admission Requirements:**

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

**Faculty of Education Admission Requirements:**

[www.uleth.ca/education/programs-degrees/undergraduate-studies/admission](http://www.uleth.ca/education/programs-degrees/undergraduate-studies/admission)

**Current and Past Program Planning Guides:**

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

**Faculty of Arts and Science Advising:**

[www.uleth.ca/artsci/advising](http://www.uleth.ca/artsci/advising)  
[artsci.advising@uleth.ca](mailto:artsci.advising@uleth.ca)  
403-329-5106  
SU060

**Faculty of Education Advising:**

[www.uleth.ca/education/student-advising](http://www.uleth.ca/education/student-advising)  
[edu.sps@uleth.ca](mailto: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 in the Faculty of Arts and Science for advising information.

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

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

**B.Sc./B.Ed. (Biological Sciences/Science Education)**

Completion of at least 30 courses (90.0 credit hours) from disciplines offered by the Faculty of Arts and Science or Faculty of Fine Arts 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)**

- \_\_\_\_\_ 1. Biochemistry 2000 - Introductory Biochemistry
- \_\_\_\_\_ 2. Biology 1010 - Cellular Basis of Life
- \_\_\_\_\_ 3. Biology 1020 - Diversity of Life
- \_\_\_\_\_ 4. Biology 2000 - Principles of Genetics
- \_\_\_\_\_ 5. Biology 2200 - Principles of Ecology
- \_\_\_\_\_ 6. Biology 3300 - Evolution
- \_\_\_\_\_ 7. Chemistry 1000 - General Chemistry I
- \_\_\_\_\_ 8. Chemistry 2000 - General Chemistry II
- \_\_\_\_\_ 9. Chemistry 2500 - Organic Chemistry I
- \_\_\_\_\_ 10. **One of:**
  - \_\_\_\_\_ Mathematics 1410 - Elementary Linear Algebra
  - \_\_\_\_\_ Mathematics 1560 - Calculus I
  - \_\_\_\_\_ Mathematics 1565 - Accelerated Calculus I
- \_\_\_\_\_ 11. **One of:**
  - \_\_\_\_\_ Physics 1000 - Introduction to Physics I
  - \_\_\_\_\_ Physics 1050 - Introduction to Biophysics (preferred)

Five courses (15.0 credit hours) in Biology at the 3000/4000 level, including two courses (6.0 credit hours) from two of the following subfield lists, and one course (3.0 credit hours) from the third subfield list; one of the five courses must be at the 4000 level<sup>1</sup>

- 12. \_\_\_\_\_
- 13. \_\_\_\_\_
- 14. \_\_\_\_\_
- 15. \_\_\_\_\_
- 16. \_\_\_\_\_

**List 1 - Cellular and Molecular Biology**

- |              |              |              |
|--------------|--------------|--------------|
| Biology 3000 | Biology 3210 | Biology 4140 |
| Biology 3005 | Biology 4100 | Biology 4170 |
| Biology 3105 | Biology 4110 | Biology 4200 |
| Biology 3115 | Biology 4130 | Biology 4230 |

**List 2 - Organismal Biology**

- |              |              |              |
|--------------|--------------|--------------|
| Biology 3310 | Biology 3505 | Biology 4420 |
| Biology 3400 | Biology 3520 | Biology 4440 |
| Biology 3420 | Biology 3530 | Biology 4560 |
| Biology 3460 | Biology 3560 |              |

**List 3 - Ecology and Evolutionary Biology**

- |                           |              |              |
|---------------------------|--------------|--------------|
| Biology 3605              | Biology 3710 | Biology 4710 |
| Biology 3610 <sup>2</sup> | Biology 3800 | Biology 4740 |
| Biology 3630              | Biology 3810 | Biology 4800 |
| Biology 3700              | Biology 4700 |              |

**Recommended course:**

Environmental Science 2000 - Fundamentals of Environmental Science

**Other Courses (minimum 14 courses)**

*Arts and Science or Fine Arts courses only (no courses labelled ADCS, CDEV, CRED, EDUC, HLSC, MGT, NURS, PUBH, or TREC unless cross-listed with the Faculty of Arts and Science or Fine Arts)*

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

**Education Requirements (20-course equivalent)**

- \_\_\_\_\_ Education 2500 - Practicum I - Orientation to Teaching
- \_\_\_\_\_ Professional Semester I (15.0 credit hours)
- \_\_\_\_\_ Professional Semester II (15.0 credit hours)
- \_\_\_\_\_ Professional Semester III (15.0 credit hours)

Education Foundation: \_\_\_\_\_

Three Education Electives:

- |          |          |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ |          |

**Notes**

<sup>1</sup> Topics courses (Biology 3850 and 4850) may be assigned to one of the Biological Sciences lists at the time of scheduling. Please refer to the current term timetable.

<sup>2</sup> Prerequisite required: Environmental Science 2000.

**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.*

*See the 2017/2018 Calendar, p. 79, for more information.*

**LIST I: Fine Arts and Humanities Courses**

- |          |          |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |

**LIST II: Social Science Courses**

- |          |          |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |

**LIST III: Science Courses**

- |          |          |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |

Not more than 10 courses (30.0 credit hours) may be 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. _____ | 6. _____         |
| 2. _____ | 7. _____         |
| 3. _____ | 8. _____         |
| 4. _____ | 9. _____         |
| 5. _____ | 10. _____ (max.) |

Completion of at least 10 courses (30.0 credit hours) from disciplines offered by the Faculty of Arts and Science or the Faculty of Fine Arts at the 3000/4000 level, excluding Activity courses (labelled PHAC and MUSE).

- |          |                  |
|----------|------------------|
| 1. _____ | 6. _____         |
| 2. _____ | 7. _____         |
| 3. _____ | 8. _____         |
| 4. _____ | 9. _____         |
| 5. _____ | 10. _____ (min.) |

\_\_\_\_ 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.

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

\_\_\_\_ 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:**

**Art and Science:** at least 15 courses (45.0 credit hours) offered by the Faculty of Arts and Science or the Faculty of Fine Arts 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.

**Education Minor (If Applicable):** \_\_\_\_\_  
*See the 2017/2018 Calendar, p. 159, for eligible minors.*

- |          |          |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | 6. _____ |
- Education (methods requirement)

**Education Specialization (If Applicable):** \_\_\_\_\_  
*See the 2017/2018 Calendar, p. 163, for details.*

- |          |          |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ |          |

**Please refer to page 4 of this guide for Faculty of Education admission requirements.**

## Sample Sequencing Plan

Shown below is a sample sequence of courses for your degree. If you follow this plan, you should be able to graduate in fourfive years, provided you complete five courses per 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.

<p><b>Year 1, Fall</b>  <b>Biology 1010 or Biology 1020</b>  <b>Chemistry 1000</b>                      Mathematics 1410, 1560, or 1565                      Physics 1050 (<i>preferred</i>)                      Lib Ed Requirement course</p>	<p><b>Year 1, Spring</b>  <b>Biology 1020 or Biology 1010</b>  <b>Chemistry 2000</b>                      Environmental Science 2000                      (<i>recommended</i>)                      Lib Ed Requirement course                      Lib Ed Requirement course</p>
<p><b>Year 2, Fall</b>  <b>Biology 2000</b>  <b>Biology 2200</b>                      Chemistry 2500                      Education 2500<sup>1</sup>                      Lib Ed Requirement course</p>	<p><b>Year 2, Spring</b>                      Biochemistry 2000                      Biology 3300                      Lib Ed Requirement course                      Lib Ed Requirement course                      Lib Ed Requirement course</p>
<p><b>Year 3, Fall</b>                      Professional Semester I</p>	<p><b>Year 3, Spring</b>                      Biology 3000/4000 level                      Biology 3000/4000 level                      Elective 3000/4000 level                      Elective 3000/4000 level                      Lib Ed Requirement course</p>
<p><b>Year 4, Fall</b>                      Biology 3000/4000 level                      Biology 3000/4000 level                      Elective 3000/4000 level                      Elective 3000/4000 level                      Elective</p>	<p><b>Year 4, Spring</b>                      Professional Semester II</p>
<p><b>Year 5, Fall</b>                      Professional Semester III</p>	<p><b>Year 5, Spring</b>                      Biology 4000 level                      Education Foundation course                      Education elective                      Education elective                      Education elective</p>
<p><b>Elementary Education and Special/Inclusive Education students will reverse the fall and spring terms in Year 5 and complete PS III in the spring.</b></p>	

<sup>1</sup> Education 2500 may also be taken in spring or summer term.

**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 electives courses within the major and plan accordingly.

3000- and 4000-level Biology courses are not typically offered every term. Please use the following guidelines when planning your schedule:

Courses typically offered in the fall term  
 Biology 3005, 3210, 3420, 3605, 3630, 3700, 3710, 4110, 4130, 4200, 4560, 4700, 4740

Courses typically offered in the spring term  
 Biology 3115, 3310, 3400, 3460, 3800, 4100, 4170, 4230

Courses typically offered in alternate years  
 Biology 3520, 3505, 3530, 3560, 3610, 4140, 4420, 4440, 4710, 4800

## Terms Used

**Lib Ed Requirement course:** A course that could count toward the Liberal Education List Requirement. You may use courses in your major towards this 12-course requirement. See the 2017/2018 University of Lethbridge Calendar, Part 4 - Academic Regulations for complete information.

The Faculty of Arts and Science offers Liberal Education 1000 and 2000, specifically designed to introduce first-year students to the wide scope of human knowledge and teach essential university success skills, critical thinking, and integrative thinking (see the 2017/2018 University of Lethbridge Calendar, Part 14 - Courses). LBED 1000 and 2000 may be used toward satisfying the Lib Ed Requirement.

**Elective:** A course that you may choose freely from all those available and applicable to your program. Use courses inside or outside your major, bearing in mind any restrictions that may apply (e.g., a maximum of 1724 courses from any one discipline).

## Faculty of Education Admission

Admission to the Faculty of Education requires successful completion of the following:

- \_\_\_\_\_ 20 term courses (60.0 credit hours).
- \_\_\_\_\_ Minimum cumulative grade point average of 2.50 on all U of L and transferable courses taken within the terms containing the last 20 courses (60.0 credit hours). All courses must be graded with the exception of Education 2500.
- \_\_\_\_\_ Minimum of eight courses (24.0 credit hours) in the major.
- \_\_\_\_\_ Minimum cumulative grade point average of 2.50 on all graded courses comprising the major, including all transferable courses.
- \_\_\_\_\_ Credit in Education 2500 - Practicum I - Orientation to Teaching (or equivalent) including a favourable recommendation from the instructor.

For specific information on admission requirements, please refer to the Combined Degrees section of the Academic Calendar:  
[www.uleth.ca/ross/academic-calendar/part13.pdf](http://www.uleth.ca/ross/academic-calendar/part13.pdf)

Students are advised to contact Student Program Services in the Faculty of Education (TH421; tel. 403-329-2254) for guidelines regarding the requirements stated above.

For application and document deadlines please refer to:  
[www.uleth.ca/ross/admissions/undergrad/deadlines](http://www.uleth.ca/ross/admissions/undergrad/deadlines)

### 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 the required prerequisites does not guarantee admission to the Faculty of Education. For students of Aboriginal descent, and students with a significant shift in academic performance, please see the current Calendar for the Faculty of Education's special case admission policy.

