

University of
Lethbridge



Program Planning Guide

Department: Biological Sciences

Calendar Year: 2018/2019

Name: _____

ID: _____

Bachelor of Science
Biological Sciences

Major in Biological Sciences:

www.uleth.ca/artsci/biological-sciences

Academic Calendar:

www.uleth.ca/ross/academic-calendar

High School Admission Requirements:

www.uleth.ca/ross/admissions/undergrad/high-school

Current and Past Program Planning Guides:

www.uleth.ca/ross/ppgs

Faculty of Arts and Science Advising:

www.uleth.ca/artsci/advising
artsci.advising@uleth.ca
403-329-5106
SU060

Co-operative Education:

www.uleth.ca/artsci/coop

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. Biological Sciences

Completion of at least 40 courses (120.0 credit hours) with a grade point average of at least 2.00.

Major Requirements (20 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. Biology 4500 - Seminars in Biological Sciences
- _____ 8. Chemistry 1000 - General Chemistry I
- _____ 9. Chemistry 2000 - General Chemistry II
- _____ 10. Chemistry 2500 - Organic Chemistry I
- _____ 11. Chemistry 2600 - Organic Chemistry II
- _____ 12. **One of:**
 - _____ Mathematics 1410 - Elementary Linear Algebra
 - _____ Mathematics 1560 - Calculus I
 - _____ Mathematics 1565 - Accelerated Calculus I
- _____ 13. **One of:**
 - _____ Physics 1000 - Introduction to Physics I
 - _____ Physics 1050 - Introduction to Biophysics (preferred)
- _____ 14. **One of:**
 - _____ One course (3.0 credit hours) in English at the 1000 level or higher
 - _____ Writing 1000 - Introduction to Academic Writing

¹Six courses (18.0 credit hours) at the 3000/4000 level, including two from each of the subfield lists (right); one of the six courses must be at the 4000 level:

List 1 - Cellular and Molecular Biology

- 15. _____
- 16. _____

List 2 - Organismal Biology

- 17. _____
- 18. _____

List 3 - Ecology and Evolutionary Biology

- 19. _____
- 20. _____

Other Courses (minimum 20 courses)

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____
- 11. _____
- 12. _____
- 13. _____
- 14. _____
- 15. _____
- 16. _____
- 17. _____
- 18. _____
- 19. _____
- 20. _____

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 |
| ² Biology 3610 | Biology 3800 | Biology 4740 |
| Biology 3630 | Biology 3810 | Biology 4800 |
| Biology 3700 | Biology 4700 | |

Recommended course:

Statistics 1770 - Introduction to Probability and Statistics

Notes

¹Topics 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.

²Prerequisite required: Environmental Science 2000.

Applied Studies, Independent Studies, and the Undergraduate Thesis may not be counted as part of the minimum requirements for the major; however, they are strongly encouraged for students taking courses beyond this minimum.

See also:

- Bachelor of Science/Bachelor of Education - Biological Sciences/Science Education
- Bachelor of Science/Bachelor of Management - Biological Sciences

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 Faculties of Education (EDUC), Health Sciences (ABHL, ADCS, HLSC, NURS, PUBH, and TREC), and Management (MGT) may be counted towards the Lib Ed Requirement.

See the 2018/2019 Calendar, p. 95, 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 12 courses (36.0 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. _____ | 7. _____ |
| 2. _____ | 8. _____ |
| 3. _____ | 9. _____ |
| 4. _____ | 10. _____ |
| 5. _____ | 11. _____ |
| 6. _____ | 12. _____ (max.) |

Completion of at least 15 courses (45.0 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). Out-of-faculty courses (i.e. labelled ABHL, ADCS, CDEV, CRED, EDUC, HLSC, MGT, NURS, PUBH, and TREC) will not meet this requirement.

- | | |
|----------|------------------|
| 1. _____ | 9. _____ |
| 2. _____ | 10. _____ |
| 3. _____ | 11. _____ |
| 4. _____ | 12. _____ |
| 5. _____ | 13. _____ |
| 6. _____ | 14. _____ |
| 7. _____ | 15. _____ (min.) |
| 8. _____ | |

____ Not more than five Independent Study courses (15.0 credit hours) may be completed for credit towards the degree.

____ Not more than five Disciplinary Credit Applied Studies courses (15.0 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 24 courses (72.0 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).

____ Not more than four courses (12.0 credit hours) from disciplines offered outside the Faculty of Arts and Science or the Faculty of Fine Arts may be completed for credit towards the degree (i.e. labelled ABHL, ADCS, CDEV, CRED, EDUC, HLSC, MGT, NURS, PUBH, and TREC). Courses cross-listed between the Faculty of Arts and Science and another Faculty do not count towards this limit.

____ **Residence requirement:**

Degree: a minimum of 20 courses (60.0 credit hours) must be completed at the University of Lethbridge, including at least 10 Arts and Science courses (30.0 credit hours) at the 3000/4000 level.

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

Minor (Optional): _____
See the 2018/2019 Calendar, p. 291, for eligible minors.

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

Concentration: Research Internship (Optional)
See the 2018/2019 Calendar, p. 118, for more information.

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

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 four 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>Year 1, Fall Biology 1010 or Biology 1020 Chemistry 1000 Mathematics 1410, 1560, or 1565 English 1900 or Writing 1000 Lib Ed Requirement course</p>	<p>Year 1, Spring Biology 1020 or Biology 1010 Chemistry 2000 Physics 1050 or Physics 1000 Lib Ed Requirement course Lib Ed Requirement course</p>
<p>Year 2, Fall Biology 2000¹ Biology 2200 Chemistry 2500 Lib Ed Requirement course Lib Ed Requirement course</p>	<p>Year 2, Spring Biochemistry 2000 Chemistry 2600 Statistics 1770 (<i>recommended</i>) Lib Ed Requirement course Lib Ed Requirement course</p>
<p>Year 3, Fall Biology 3000/4000 level Biology 3000/4000 level Elective 3000/4000 level Elective Elective</p>	<p>Year 3, Spring Biology 3300 Biology 3000/4000 level Elective 3000/4000 level Elective 3000/4000 level Elective</p>
<p>Year 4, Fall Biology 3000/4000 level Biology 4000 level Elective 3000/4000 level Elective 3000/4000 level Elective</p>	<p>Year 4, Spring Biology 4500 Biology 3000/4000 level Elective 3000/4000 level Elective 3000/4000 level Elective</p>

¹ *Biology 2000 may be completed in Fall or Spring of Year 2. Students may select a Lib Ed Requirement course in the Fall Term if they choose to complete Biology 2000 in the Spring.*

If you have questions regarding the Biological Sciences major, please contact one of the Department Advisors.

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 3505, 3520, 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 2018/2019 University of Lethbridge Calendar, School of Liberal Education 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 2018/2019 University of Lethbridge Calendar, Course Catalogue). 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 24 courses from any one discipline).

