

University of  
Lethbridge



## Program Planning Guide

**Department:** Biological Sciences

**Calendar Year:** 2015/2016

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

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

**Bachelor of Science**  
**Biological Sciences**

**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 Prerequisites by Course:**

[www.uleth.ca/ross/hs\\_prereqs/course](http://www.uleth.ca/ross/hs_prereqs/course)

**Current and Past Program Planning Guides:**

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

**Faculty of Arts and Science Student Program Services:**

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

**Co-operative Education:**

[www.uleth.ca/artsci/coop](http://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
- \_\_\_\_\_ 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

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

<sup>1</sup>Six 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. \_\_\_\_\_

**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 4740 |
| <sup>2</sup> Biology 3610 | Biology 3800 | Biology 4800 |
| Biology 3630              | Biology 4700 |              |
| Biology 3700              | Biology 4710 |              |

**Recommended course:**

Statistics 1770 - Introduction to Probability and Statistics

**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 semester timetable.

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

Independent Studies courses, Applied Studies courses, 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 General Liberal Education Requirement (GLER).**

*Only four courses (12.0 credit hours) in total may be counted from all courses offered by a single department. See the 2015/2016 Calendar, p. 83, 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).

- |          |                  |
|----------|------------------|
| 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).

- |          |                  |
|----------|------------------|
| 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 ADCS, CDEV, CRED, EDUC, HLSC, MGT, NURS, and PUBH). Courses cross-listed between the Faculty of Arts and Science and another Faculty do not count towards this limit.

\_\_\_\_ **Residence requirement:**

Degree: at least 20 courses (60.0 credit hours) must be completed at the University of Lethbridge, including the last 10 courses (30.0 credit hours) completed for credit towards the degree.

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

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

*See the 2015/2016 Calendar, p. 137, for eligible minors.*

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

## 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 semester. 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>                      Biology 1010                      Chemistry 1000                      Mathematics 1410 or                      Mathematics 1560                      English 1900 or Writing 1000                      GLER course</p>	<p><b>Year 1, Spring</b>                      Biology 1020                      Chemistry 2000                      Physics 1050 or Physics 1000                      GLER course                      GLER course</p>
<p><b>Year 2, Fall</b>                      Biology 2000<sup>1</sup>                      Biology 2200                      Chemistry 2500                      GLER course                      GLER course</p>	<p><b>Year 2, Spring</b>                      Biochemistry 2000                      Chemistry 2600                      Statistics 1770 (<i>recommended</i>)                      GLER course                      GLER course</p>
<p><b>Year 3, Fall</b>                      Biology 3000/4000 level                      Biology 3000/4000 level                      Elective 3000/4000 level                      Elective                      Elective</p>	<p><b>Year 3, Spring</b>                      Biology 3300                      Biology 3000/4000 level                      Elective 3000/4000 level                      Elective 3000/4000 level                      Elective</p>
<p><b>Year 4, Fall</b>                      Biology 3000/4000 level                      Biology 4000 level                      Elective 3000/4000 level                      Elective 3000/4000 level                      Elective</p>	<p><b>Year 4, Spring</b>                      Biology 4500                      Biology 3000/4000 level                      Elective 3000/4000 level                      Elective 3000/4000 level                      Elective</p>

<sup>1</sup> Biology 2000 may be completed in Fall or Spring of Year 2. Students may select a GLER course in the Fall Semester 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:** 3000- and 4000-level Biology courses are not typically offered every semester. Please use the following guidelines when planning your schedule:

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

*Courses typically offered in the Spring Semester*  
 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

**GLER course:** A course that could count toward the General Liberal Education Requirement. You may use courses in your major towards this 12-course requirement. See the 2015/2016 University of Lethbridge Calendar, Part 4 - Academic Regulations (p. 83) 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 2015/2016 University of Lethbridge Calendar, Part 14 - Courses, p. 301). LBED 1000 and 2000 may be used toward satisfying the GLER.

**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).

