Program Planning Guide

Departments: Biological Sciences and Geography
Calendar Year: 2019/2020
Name: _____________________________
ID: _______________________________

Major in Environmental Science:
www.uleth.ca/artsci/environmental-science

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
M2102

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

Major Requirements (25 courses)

1. Biology 1010 - Cellular Basis of Life
2. Biology 1020 - Diversity of Life
4. Biology 2200 - Principles of Ecology
5. Biology 3300 - Evolution
6. Chemistry 1000 - General Chemistry I
7. Chemistry 2000 - General Chemistry II
8. Environmental Science 2000 - Fundamentals of Environmental Science
9. Environmental Science 4000 - Selected Studies in Environmental Science II (Series)
10. Geography 1000 - Introduction to Physical Geography
11. Geography 2030 - Geomorphology
12. Geography 2300 - Weather and Climate
13. Geography 2700 - Geographical Data and Analysis
14. Geography 2735 - Introduction to Geographical Information Science
15-17. Three of:
   15. Geography 2090 - Biogeography
   16. Geography 3035 - Fluvial Geomorphology
   17. Geography 3060 - Glaciology and Glacial Geomorphology
   18. Geography 3080 - Soils
   19. Geography 3300 - Microclimatology
   20. Geography 3400 - Hydrology
   22. Geography 3740 - Geographical Information Systems
   23. Geography 3780 - Field Research in Geography
   24. Geography 3792 - Field Excursion in Physical Geography (Series)
   25. An approved field course

18. One of:
   18.1. Chemistry 2140 - Analytical Chemistry I
   18.2. Chemistry 2500 - Organic Chemistry I

19-20. Two of:
   19. Mathematics 1410 - Elementary Linear Algebra
   20. Mathematics 1560 - Calculus I or Mathematics 1565 - Accelerated Calculus I
   21. Statistics 1770 - Introduction to Probability and Statistics

21. One of:
   21.1. Biology 3630 - Field Biology
   21.2. Geography 3710 - Field Techniques in the Earth Sciences
   21.3. Geography 3780 - Field Research in Geography
   21.4. Geography 3792 - Field Excursion in Physical Geography (Series)

Three courses (9.0 credit hours) from Biology List 2 (Organismal Biology) and List 3 (Ecology and Evolutionary Biology) of which two must be lab-based (see the 2019/2020 Calendar, p. 104, for Biology lists). Some Topics courses in Biology may also qualify.

22. __________________
23. __________________
24. __________________
25. __________________

Technical Studies Term (five courses)

1. Environmental Science 2000 unspecified
2. Environmental Science 2000 unspecified
3. Environmental Science 2000 unspecified
4. Environmental Science 3000 unspecified
5. Environmental Science 3000 unspecified

Other Courses (minimum 10 courses)

1. __________________
2. __________________
3. __________________
4. __________________
5. __________________
6. __________________
7. __________________
8. __________________
9. __________________
10. __________________

Notes

1Prerequisite required: Geography 1200.
2Must be approved by the Coordinator of Environmental Science. An approved external field course offered by a Field Station may be counted among the final 10 courses taken for credit toward the B.Sc. degree.
3Must be approved by the Coordinator of Environmental Science.

Students may not receive credit for courses at the University of Lethbridge for which close equivalents have been taken at Lethbridge College, and vice versa. Students must ensure that their course selection has been approved by the Coordinator of Environmental Science.

Students should consider including an introductory Physics course (Physics 1050 - Introduction to Biophysics is recommended) as an Elective in their degree program. Many other courses offered by the Faculty of Arts and Science complement an Environmental Science focus. Consult the Coordinator of Environmental Science for further information.
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 (MGT) may be counted towards the Lib Ed Requirement. See the 2019/2020 Calendar, p. 83, for more information.

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

1. ___________________
2. ___________________
3. ___________________
4. ___________________

**LIST II: Social Science Courses**

1. ___________________
2. ___________________
3. ___________________
4. ___________________

**LIST III: Science Courses**

1. ___________________
2. ___________________
3. ___________________
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. ___________________
2. ___________________
3. ___________________
4. ___________________
5. ___________________
6. ___________________ (max.)
7. ___________________
8. ___________________
9. ___________________
10. _____________ (min.)
11. ___________________
12. ___________________
13. ___________________
14. ___________________
15. ___________________

Completion of at least 15 courses (45.0 credit hours) from disciplines offered by the Faculty of Arts and Science, Faculty of Fine Arts, or the School of Liberal Education 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. ___________________
2. ___________________
3. ___________________
4. ___________________
5. ___________________
6. ___________________
7. ___________________
8. ___________________
9. ___________________
10. _____________ (min.)
11. ___________________
12. ___________________
13. ___________________
14. ___________________
15. ___________________

Minor (Optional): See the 2019/2020 Calendar, p. 277, for more information.

1. ___________________
2. ___________________
3. ___________________
4. ___________________
5. ___________________
6. ___________________

Concentration: Geographical Information Science (Optional)
See the 2019/2020 Calendar, p. 111, for more information.

1. ___________________
2. ___________________
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.

### Year 1, Fall
- Biology 1020 or Biology 1010
- Chemistry 1000
- Geography 1000
- Mathematics/Statistics requirement
- Lib Ed Requirement course

### Year 1, Spring
- Biology 1010 or Biology 1020
- Chemistry 2000
- Environmental Science 2000
- Geography 2735
- Mathematics/Statistics requirement

### Year 2, Fall
- Biology 2200
- Chemistry 2410 or Chemistry 2500
- Geography 2030
- Geography 2300
- Lib Ed Requirement course

### Year 2, Spring
- Biology 2000
- Geography 2700
- Geography 2735
- Lib Ed Requirement course
- Lib Ed Requirement course

### Year 3, Fall
- Biology List 2 or List 3 course (lab-based)
- Geography or Geology 3000/4000-level list course
- Field course
- Lib Ed Requirement course
- Lib Ed Requirement course

### Year 3, Spring
- Technical Studies Term\(^1\) (15.0 credit hours)
- Students will receive credit for the following (upon successful completion and receipt of transcript):
  - 2 Environmental Science 3000-level courses
  - 3 Environmental Science 2000-level courses

### Year 4, Fall
- Biology List 2 or List 3 course (lab-based)
- Environmental Science 4000
- Geography or Geology 3000/4000-level list course
- Lib Ed Requirement course 3000/4000 level
- Elective 3000/4000 level

### Year 4, Spring
- Biology 3300
- Biology List 2 or List 3 course
- Independent Study or Applied Study 3000/4000 level
- Lib Ed Requirement course 3000/4000 level
- Elective 3000/4000 level

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1. If the Technical Studies Term is assigned for Fall, Year Three, students should follow the Fall, Year Three sequence in Spring, Year Three.

**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.

Students should complete Biology 1010, Biology 1020, Biology 2000, Biology 2200, Chemistry 1000, and Chemistry 2000 by the end of Year Two to be eligible to undertake the required Technical Studies Term in Year Three.

### 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 2019/2020 University of Lethbridge Calendar, School of Liberal Education for complete information.

The School of Liberal Education 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 2019/2020 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).