

University of
Lethbridge



Program Planning Guide

Departments: Biological Sciences, and Geography and Environment

Calendar Year: 2020/2021

Name: _____

ID: _____

Bachelor of Science
Environmental Science

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
- _____ 3. Biology 2000 - Principles of Genetics
- _____ 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 2735 - Introduction to Geographical Information Science
- _____ 14. **One of:**
 - _____ Biology 2150 - Biostatistics
 - _____ Geography 2700 - Geographical Data and Analysis
- _____ 15. **One of:**
 - _____ Chemistry 2410 - Analytical Chemistry I
 - _____ Chemistry 2500 - Organic Chemistry I
- _____ 16-17. **Two of:**
 - _____ Mathematics 1410 - Elementary Linear Algebra
 - _____ Mathematics 1560 - Calculus I or Mathematics 1565 - Accelerated Calculus I
 - _____ Statistics 1770 - Introduction to Probability and Statistics
- _____ 18-20. **Three of:**
 - _____ Geography 2090 - Biogeography
 - _____ Geography 3035 - Fluvial Geomorphology
 - _____ Geography 3060 - Glaciology and Glacial Geomorphology
 - _____ Geography 3080 - Soils
 - _____ Geography 3300 - Microclimatology
 - _____ Geography 3400 - Hydrology
 - _____ Geography 3720 - Remote Sensing
 - _____ Geography 3740 - Geographical Information Systems
 - _____ ¹Geography 3780 - Field Research in Geography
 - _____ Geography 4400 - Advanced Hydrology
 - _____ Geography 4415 - Integrated Watershed Management
 - _____ Geography 4730 - Spatial Statistics
 - _____ Geology 2060 - Physical Geology
- _____ 21-23. **Three of (at least two must be offered with a lab):**
 - _____ Biology 3460 - Plant Physiology
 - _____ Biology 3520 - Invertebrate Zoology
 - _____ Biology 3530 - Vertebrate Zoology
 - _____ Biology 3630 - Field Biology

- _____ Biology 3660 - Field Botany
- _____ Biology 3700 - Ecosystem Ecology
- _____ Biology 3710 - Population Biology
- _____ Biology 3720 - Community Ecology
- _____ Biology 4605 - Conservation Biology
- _____ Biology 4700 - Molecular Ecology
- _____ Biology 4710 - Evolutionary and Ecological Modelling
- _____ Biology 4740 - Behavioural Ecology
- _____ Biology 4800 - Biology of Parasitism
- _____ 24. **One of:**
 - _____ Biology 3630 - Field Biology
 - _____ Geography 3710 - Field Techniques in the Earth Sciences
 - _____ ¹Geography 3780 - Field Research in Geography
 - _____ Geography 3792 - Field Excursion in Physical Geography (Series)
 - _____ ²An approved field course

²One Independent Study or Applied Study at the 3000/4000 level in Environmental Science

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. _____ | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

Notes

¹Prerequisite required: Geography 1200.

²Must 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 2020/2021 Calendar, p. 71, 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, 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. _____ 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 six courses (18.0 credit hours) from disciplines outside the Faculty of Arts and Science, Faculty of Fine Arts, or School of Liberal Education 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 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 3000/4000 level.

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

Minor (Optional): _____
See the 2020/2021 Calendar, p. 267, for more information.

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

Concentration: Geographical Information Science (Optional)

See the 2020/2021 Calendar, p. 98, 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 1020 or Biology 1010 Chemistry 1000 Geography 1000 Mathematics/Statistics requirement Lib Ed Requirement course</p>	<p>Year 1, Spring Biology 1010 or Biology 1020 Chemistry 2000 Environmental Science 2000 Geography 2735 Mathematics/Statistics requirement</p>
<p>Year 2, Fall Biology 2200 Chemistry 2410 or Chemistry 2500 Geography 2030 Geography 2300 Lib Ed Requirement course</p>	<p>Year 2, Spring Biology 2000 Biology 2150 or Geography 2700 Geography or Geology list course Lib Ed Requirement course Lib Ed Requirement course</p>
<p>Year 3, Fall Biology list course (lab-based) Geography or Geology 3000/ 4000-level list course Field course Lib Ed Requirement course Lib Ed Requirement course</p>	<p>Year 3, Spring Technical Studies Term¹(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</p>
<p>Year 4, Fall Biology list 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</p>	<p>Year 4, Spring Biology 3300 Biology list course Independent Study or Applied Study 3000/4000 level Lib Ed Requirement course 3000/ 4000 level Elective 3000/4000 level</p>

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 2020/2021 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 2020/2021 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).

