

University of
Lethbridge



Program Planning Guide

Departments: Geography, and Mathematics and Computer Science

Calendar Year: 2020/2021

Name: _____

ID: _____

Bachelor of Science Computer Science and Geographical Information Science

Major in Computer Science and GIS:

www.uleth.ca/artsci/gis

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. Computer Science and GIS

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

Major Requirements (22 courses)

- _____ 1. Computer Science 1620 - Fundamentals of Programming I
- _____ 2. Computer Science 1820 - Discrete Structures
- _____ 3. Computer Science 2620 - Fundamentals of Programming II
- _____ 4. Computer Science 2720 - Practical Software Development
- _____ 5. Computer Science 3620 - Data Structures and Algorithms
- _____ 6. Computer Science 3660 - Introduction to Database Systems
- _____ 7. Computer Science 3710 - Computer Graphics
- _____ 8. Computer Science 4660 - Database Management Systems
- _____ 9. Geography 1000 - Introduction to Physical Geography
- _____ 10. Geography 1200 - Introduction to Human Geography
- _____ 11. Geography 2700 - Geographical Data and Analysis
- _____ 12. Geography 2735 - Introduction to Geographical Information Science
- _____ 13. Geography 3720 - Remote Sensing
- _____ 14. Geography 3740 - Geographical Information Systems
- _____ 15. Geography 4725 - Advanced Remote Sensing
- _____ 16. Geography 4740 - Advanced Geographical Information Systems
- _____ 17. **One of:**
 - _____ Geography 4400 - Advanced Hydrology
 - _____ Geography 4415 - Integrated Watershed Management
 - _____ Geography 4700 - Advanced Digital Mapping
 - _____ Geography 4710 - Remote Sensing Field Techniques
 - _____ Geography 4751 - Spatial Modelling
 - _____ Geography 4753 - Seminar in Remote Sensing

One course (3.0 credit hours) in Computer Science at the 4000 level, excluding Computer Science 4850 (Topics), Computer Science 4980 (Applied Studies), and Computer Science 4990 (Independent Study)

22. _____

Other Courses (minimum 18 courses)

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

- _____ 18-21. **Four of:**
 - _____ Any of the courses listed above but not already selected as required courses
 - _____ Computer Science 2610 - Introduction to Digital Systems
 - _____ Computer Science 3720 - Introduction to Software Engineering
 - _____ ¹Computer Science 3740 - Programming Languages
 - _____ Computer Science 3750 - Artificial Intelligence
 - _____ Computer Science 3770 - Human-Computer Interaction
 - _____ Computer Science 3780 - Data Communications and Networking
 - _____ Geography 2030 - Geomorphology
 - _____ Geography 2300 - Weather and Climate
 - _____ Geography 3400 - Hydrology
 - _____ Geography 3700 - Mapping in the Cloud
 - _____ Geography 3710 - Field Techniques in the Earth Sciences
 - _____ Geography 3750 - GIS Applications in Human Geography
 - _____ Geography 4730 - Spatial Statistics
 - _____ ²Statistics 2780 - Statistical Inference

Notes

¹Prerequisite required: Mathematics 2000.

²Prerequisite required: Statistics 1770.

See also:

- Bachelor of Science - Computer Science
- Bachelor of Science - Geography

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. _____ |

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

Computer Science 1620

Computer Science 1820

Geography 1000

Lib Ed Requirement course

Lib Ed Requirement course

Year 2, Fall

Computer Science 2720¹

Computer Science 3620

Geography 2700

Lib Ed Requirement course

Lib Ed Requirement course

Year 3, Fall

Geography 3720

Geography 3740²

Computer Science or Geography

list course 3000/4000 level

Elective

Elective

Year 4, Fall

Computer Science 4660

Geography 4740

Geography 4000-level list course

Elective 3000/4000 level

Elective

Year 1, Spring

Computer Science 2620

Geography 1200

Geography 2735

Lib Ed Requirement course

Lib Ed Requirement course

Year 2, Spring

Computer Science 3710²

Computer Science or Geography
list course

Lib Ed Requirement course

Elective

Elective

Year 3, Spring

Computer Science 3660

Computer Science or Geography
list course

Computer Science or Geography
list course 3000/4000 level

Elective 3000/4000 level

Elective

Year 4, Spring

Geography 4725

Computer Science 4000 level

Elective 3000/4000 level

Elective

Elective

¹ Computer Science 2720 may be completed Year 2, Spring

² Term of offering may vary.

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.

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).

