

University of
Lethbridge



Program Planning Guide

Departments: Geography, and Mathematics and Computer Science

Calendar Year: 2017/2018

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

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. 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 - Hydrology II
 - _____ Geography 4415 - Integrated Watershed Management
 - _____ Geography 4700 - Advanced Computer Mapping
 - _____ Geography 4710 - Remote Sensing Field Techniques
 - _____ Geography 4750 - Glacial Processes, Measurements, and Models
 - _____ Geography 4751 - Project in Spatial Modelling
 - _____ Geography 4753 - Seminar in Remote Sensing
- _____ 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 I
 - _____ Geography 3700 - Cartography
 - _____ Geography 3710 - Field Techniques in the Earth Sciences
 - _____ Geography 3750 - GIS Applications in Human Geography
 - _____ Geography 4730 - Spatial Statistics
 - _____ ²Statistics 2780 - Statistical Inference

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. _____ |

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

See the 2017/2018 Calendar, p. 79, 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).

- | | |
|----------|------------------|
| 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, 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 2017/2018 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 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 Computer Science 1620 Computer Science 1820 Geography 1000 Lib Ed Requirement course Lib Ed Requirement course</p>	<p>Year 1, Spring Computer Science 2620 Geography 1200 Geography 2735 Lib Ed Requirement course Lib Ed Requirement course</p>
<p>Year 2, Fall Computer Science 2720 Computer Science 3620 Geography 2700 Lib Ed Requirement course Lib Ed Requirement course</p>	<p>Year 2, Spring Computer Science 3710¹ Geography 3740 Lib Ed Requirement course Elective Elective</p>
<p>Year 3, Fall Geography 3720 Computer Science or Geography list course Computer Science or Geography list course 3000/4000 level Elective Elective</p>	<p>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</p>
<p>Year 4, Fall Computer Science 4660 Geography 4740 Geography 4000-level list course Elective 3000/4000 level Elective</p>	<p>Year 4, Spring Geography 4725 Computer Science 4000 level Elective 3000/4000 level Elective Elective</p>

¹ 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 2017/2018 University of Lethbridge Calendar, Part 4 - Academic Regulations 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 2017/2018 University of Lethbridge Calendar, Part 14 - Courses). 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).

