Program Planning Guide

Department: Mathematics and Computer Science
Calendar Year: 2019/2020
Name: ___________________________________
ID: ___________________________________

Major in Computer Science:
www.uleth.ca/artsci/math-computer-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.
Bachelor of Science - Computer Science

Name: ___________________________________________________________  ID: _______________________

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

Major Requirements (18 courses)                      Other Courses (minimum 22 courses)

____ 2. Computer Science 1820 - Discrete Structures          2. __________________________ 13. ____________
____ 3. Computer Science 2610 - Introduction to Digital Systems
____ 4. Computer Science 2620 - Fundamentals of Programming II
____ 5. Computer Science 2720 - Practical Software Development
____ 6. Computer Science 3615 - Computer Architecture
____ 7. Computer Science 3620 - Data Structures and Algorithms
____ 8. Computer Science 3740 - Programming Languages

   10. One of:
       ____ Mathematics 1410 - Elementary Linear Algebra
       ____ Mathematics 1510 - Calculus for Management and Social Sciences
       ____ Mathematics 1560 - Calculus I
       ____ Mathematics 1565 - Accelerated Calculus I
       ____ Statistics 1770 - Introduction to Probability and Statistics

   6. __________________________ 17. __________________

1Six additional courses (18.0 credit hours) in Computer Science at the 3000/4000 level

11. __________________________ 18. __________________

12. __________________________ 19. __________________

13. __________________________ 20. __________________

14. __________________________ 21. __________________

Two courses (6.0 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)

17. __________________________ 18. __________________

Notes

1One of the six additional 3000/4000-level courses may be replaced by a course from the following list:
   Physics 3900 - Intermediate Experimental Physics (Series)
   (Digital Electronics)
   Any 3000/4000-level Mathematics course

It is strongly recommended that Computer Science majors include additional Mathematics courses in their program. Students intending to take Physics 3900 should plan carefully to include the appropriate Mathematics and Physics prerequisites in their programs.

Some senior courses are scheduled for alternate years. Since these courses are frequently sequential and dependent upon adequate preparation, students are urged to seek advice before the end of their third term in planning a major and selecting courses.

It is strongly recommended that a student attain a grade of 'C' or higher in any course used to satisfy prerequisites for courses in Computer Science and Mathematics.

See also:
• Bachelor of Science - Computer Science and Geographical Information Science
• Bachelor of Science/Bachelor of Management - Computer Science
• Bachelor of Science - Mathematics
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. ___________________
7. ___________________
8. ___________________
9. ___________________
10. __________________
11. __________________
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. ___________________
2. ___________________
3. ___________________
4. ___________________
5. ___________________
6. ___________________
7. ___________________
8. ___________________
9. ___________________
10. _____________ (min.)

Note: Disciplines are identified by a specific course label (e.g. KNES, ASTR, and HIST are separate disciplines).

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_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).

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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.

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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.

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Minor (Optional):

See the 2019/2020 Calendar, p. 277, for more information.

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

<table>
<thead>
<tr>
<th>Year 1, Fall</th>
<th>Year 1, Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science 1620</td>
<td>Computer Science 2620</td>
</tr>
<tr>
<td>Computer Science 1820</td>
<td>Mathematics 2000</td>
</tr>
<tr>
<td>Lib Ed Requirement course</td>
<td>Mathematics or Statistics list course</td>
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<tr>
<td>Lib Ed Requirement course</td>
<td>Lib Ed Requirement course</td>
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<td>Lib Ed Requirement course</td>
<td>Lib Ed Requirement course</td>
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<table>
<thead>
<tr>
<th>Year 2, Fall</th>
<th>Year 2, Spring</th>
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<tbody>
<tr>
<td>Computer Science 2610¹</td>
<td>Computer Science 3620</td>
</tr>
<tr>
<td>Computer Science 2720²</td>
<td>Computer Science 3000/4000 level</td>
</tr>
<tr>
<td>Lib Ed Requirement course</td>
<td>Lib Ed Requirement course</td>
</tr>
<tr>
<td>Lib Ed Requirement course</td>
<td>Elective</td>
</tr>
<tr>
<td>Elective</td>
<td>Elective</td>
</tr>
<tr>
<td>(Mathematics or Statistics recommended)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 3, Fall</th>
<th>Year 3, Spring</th>
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<tbody>
<tr>
<td>Computer Science 3615</td>
<td>Computer Science 3740</td>
</tr>
<tr>
<td>Computer Science 3000/4000 level</td>
<td>Elective 3000/4000 level</td>
</tr>
<tr>
<td>Computer Science 3000/4000 level</td>
<td>Elective</td>
</tr>
<tr>
<td>Elective</td>
<td>Elective</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 4, Fall</th>
<th>Year 4, Spring</th>
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</thead>
<tbody>
<tr>
<td>Computer Science 3000/4000 level</td>
<td>Computer Science 3000/4000 level</td>
</tr>
<tr>
<td>Computer Science 4000 level</td>
<td>Computer Science 4000 level</td>
</tr>
<tr>
<td>Elective 3000/4000 level</td>
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<tr>
<td>Elective</td>
<td>Elective</td>
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</tbody>
</table>

¹ Computer Science 2610 may be completed in Year 1, Spring or Year 2, Spring
² Computer Science 2720 may be completed in Year 2, Spring

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 elective 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 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).