Program Planning Guide

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

Faculty of Arts and Science Advising:
www.uleth.ca/artsci/advising
artsci.advising@uleth.ca
403-329-5106
M2102

Major in Mathematics:
www.uleth.ca/artsci/math-computer-science

Co-operative Education:
www.uleth.ca/artsci/coop

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

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

Major Requirements (18 courses)

1. Computer Science 1620 - Fundamentals of Programming I
2. Computer Science 2620 - Fundamentals of Programming II
3. Mathematics 1410 - Elementary Linear Algebra
5. Mathematics 2570 - Calculus III
6. Mathematics 2580 - Calculus IV
7. Mathematics 3400 - Group and Ring Theory
8. Mathematics 3410 - Linear Algebra
9. Mathematics 3500 - Analysis I
10. Statistics 1770 - Introduction to Probability and Statistics
11. Statistics 3500 - Mathematical Probability
12. One of:
   - Mathematics 1560 - Calculus I
   - Mathematics 1565 - Accelerated Calculus I (recommended)
13. One of:
   - Mathematics 2560 - Calculus II
   - Mathematics 2565 - Accelerated Calculus II (recommended)

Three additional courses (9.0 credit hours) in Mathematics or Statistics at the 3000/4000 level
14. __________________
15. __________________
16. __________________

Two courses (6.0 credit hours) in Mathematics or Statistics at the 4000 level, excluding Mathematics 4980 and Statistics 4980 (Applied Studies), and Mathematics 4990 and Statistics 4990 (Independent Study)
17. __________________
18. __________________

Other Courses (minimum 22 courses)

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

Notes

1. Three additional courses (9.0 credit hours) in Mathematics or Statistics at the 3000/4000 level
2. Two courses (6.0 credit hours) in Mathematics or Statistics at the 4000 level, excluding Mathematics 4980 and Statistics 4980 (Applied Studies), and Mathematics 4990 and Statistics 4990 (Independent Study)

One of the additional 3000/4000-level courses may be replaced by a course from the following list:

Computer Science 3630 - Theoretical Foundations of Computing
Physics 3200 - Mechanics

Students who intend to take Physics 3200 as a course contributing to the Mathematics major should carefully plan their program to include the required prerequisites.

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, Mathematics, and Statistics.

See also:
- Bachelor of Science/Bachelor of Education - Mathematics/Mathematics Education
- Bachelor of Science/Bachelor of Management - Mathematics
- Bachelor of Science - Computer Science
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. _________________
11. _________________
12. ___________________

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. ___________________ (min.)
8. ___________________
9. ___________________
10. _________________
11. _________________
12. _________________
13. _________________
14. _________________
15. _________________ (max.)

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>
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</thead>
<tbody>
<tr>
<td>Mathematics 1410</td>
<td>Mathematics 2000</td>
</tr>
<tr>
<td>Mathematics 1565 or</td>
<td>Mathematics 2565 or</td>
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<tr>
<td>Mathematics 1560</td>
<td>Mathematics 2560</td>
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<td>Lib Ed Requirement course</td>
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<td>Lib Ed Requirement course</td>
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<thead>
<tr>
<th>Year 2, Fall</th>
<th>Year 2, Spring</th>
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<tbody>
<tr>
<td>Computer Science 1620</td>
<td>Computer Science 2620</td>
</tr>
<tr>
<td>Mathematics 2570</td>
<td>Mathematics 2580</td>
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<tr>
<td>Statistics 1770</td>
<td>Lib Ed Requirement course</td>
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<tr>
<td>Lib Ed Requirement course</td>
<td>Elective</td>
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<tr>
<td>Elective</td>
<td>Elective</td>
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<table>
<thead>
<tr>
<th>Year 3, Fall</th>
<th>Year 3, Spring</th>
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<tbody>
<tr>
<td>Mathematics 3400</td>
<td>Mathematics 3410</td>
</tr>
<tr>
<td>Mathematics 3500</td>
<td>Mathematics or Statistics 3000/4000 level</td>
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<tr>
<td>Statistics 3500</td>
<td>Elective 3000/4000 level</td>
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<td>Elective</td>
<td>Elective 3000/4000 level</td>
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<tr>
<td>Elective</td>
<td>Elective 3000/4000 level</td>
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<tr>
<th>Year 4, Fall</th>
<th>Year 4, Spring</th>
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<tbody>
<tr>
<td>Mathematics 4000 level</td>
<td>Mathematics 4000 level</td>
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<tr>
<td>Mathematics or Statistics 3000/4000 level</td>
<td>Mathematics or Statistics 3000/4000 level</td>
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<tr>
<td>Elective 3000/4000 level</td>
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<tr>
<td>Elective</td>
<td>Elective</td>
</tr>
</tbody>
</table>

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 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).