

University of
Lethbridge



Program Planning Guide

Department: Mathematics and Computer Science

Calendar Year: 2020/2021

Name: _____

ID: _____

Bachelor of Science
Mathematics

Major in Mathematics:

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.

Name : _____

ID : _____

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)

Other Courses (minimum 22 courses)

- _____ 1. Computer Science 1620 - Fundamentals of Programming I
- _____ 2. Computer Science 2620 - Fundamentals of Programming II
- _____ 3. Mathematics 1410 - Elementary Linear Algebra
- _____ 4. Mathematics 2000 - Mathematical Concepts
- _____ 5. Mathematics 3400 - Group and Ring Theory
- _____ 6. Mathematics 3410 - Linear Algebra
- _____ 7. Mathematics 3500 - Analysis I
- _____ 8. Statistics 1770 - Introduction to Probability and Statistics
- _____ 9. Statistics 3500 - Mathematical Probability

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

- _____ 10. **One of:**
 - _____ Mathematics 1560 - Calculus I
 - _____ Mathematics 1565 - Accelerated Calculus I (recommended)

- _____ 11. **One of:**
 - _____ Mathematics 2560 - Calculus II
 - _____ Mathematics 2565 - Accelerated Calculus II (recommended)

- _____ 12-13. **One of the following pairs:**
 - _____ Mathematics 2570 - Calculus III
 - _____ Mathematics 2580 - Calculus IV
- OR**
- _____ Mathematics 2575 - Accelerated Calculus III (recommended)
- _____ One additional course (3.0 credit hours) in Mathematics, Statistics, or Computer Science at the 2000 level or above

¹Three 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. _____

Notes

¹One 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 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.

<p>Year 1, Fall Computer Science 1620 Mathematics 1410 Mathematics 1565 or Mathematics 1560 Lib Ed Requirement course Lib Ed Requirement course</p>	<p>Year 1, Spring Mathematics 2000 Mathematics 2565 or Mathematics 2560 Statistics 1770 Lib Ed Requirement course Lib Ed Requirement course</p>
<p>Year 2, Fall Computer Science 2620 Mathematics 2570 or 2575 Lib Ed Requirement course Lib Ed Requirement course Elective</p>	<p>Year 2, Spring Mathematics 2580 or additional Mathematics, Statistics, or Computer Science Mathematics 3410 Lib Ed Requirement course Lib Ed Requirement course Elective</p>
<p>Year 3, Fall Mathematics 3400 Statistics 3500 Mathematics or Statistics 3000/ 4000 level Elective Elective</p>	<p>Year 3, Spring Mathematics 3500¹ Mathematics or Statistics 3000/ 4000 level Elective 3000/4000 level Elective 3000/4000 level Elective</p>
<p>Year 4, Fall Mathematics 4000 level Mathematics or Statistics 3000/ 4000 level Elective 3000/4000 level Elective 3000/4000 level Elective</p>	<p>Year 4, Spring Mathematics 4000 level Elective 3000/4000 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.

There are two main paths to complete the required calculus sequence:

- Accelerated Stream: MATH 1565-2565-2575

- Regular Stream: MATH 1560-2560-2570-2580

Both streams cover the same material, the accelerated stream covers it more quickly thereby allowing students to progress deeper into the Mathematics program sooner. The accelerated stream is recommended for any student who did well in high school calculus (Mathematics 31 or equivalent), or otherwise feels confident in their ability to handle the higher pace of the material. Please contact the Department of Mathematics and Computer Science if you are unsure which stream to take.

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).

