

University of  
Lethbridge



## Program Planning Guide

Name: \_\_\_\_\_

ID: \_\_\_\_\_

Calendar Year: 2023/2024

**Major in Mathematics:**

[www.ulethbridge.ca/artsci/math-computer-science](http://www.ulethbridge.ca/artsci/math-computer-science)

**Academic Calendar:**

[www.ulethbridge.ca/ross/academic-calendar](http://www.ulethbridge.ca/ross/academic-calendar)

**High School Admission Requirements:**

[www.ulethbridge.ca/ross/admissions/undergrad/high-school](http://www.ulethbridge.ca/ross/admissions/undergrad/high-school)

**Current and Past Program Planning Guides:**

[www.ulethbridge.ca/ross/ppgs](http://www.ulethbridge.ca/ross/ppgs)

**Co-operative Education:**

[www.ulethbridge.ca/career-bridge/co-operative-education](http://www.ulethbridge.ca/career-bridge/co-operative-education)

**Faculty of Arts and Science Advising:**

[www.ulethbridge.ca/artsci/advising](http://www.ulethbridge.ca/artsci/advising)  
artsci.advising@uleth.ca  
403-329-5106  
M2102

**Bachelor of Science**  
**Mathematics**

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 ([www.ulethbridge.ca/ross/academic-advising](http://www.ulethbridge.ca/ross/academic-advising)) for advising information.

**Name :** \_\_\_\_\_

**ID :** \_\_\_\_\_

**Program Requirements**

Completion of at least 40 courses (120.0 credit hours) with cumulative and graduation grade point averages of at least 2.00.

**Major Requirements (19 courses)**

**Other Courses (minimum 21 courses)**

- \_\_\_\_\_ Computer Science 1620 - Fundamentals of Programming I
- \_\_\_\_\_ Computer Science 2620 - Fundamentals of Programming II
- \_\_\_\_\_ Mathematics 1410 - Elementary Linear Algebra
- \_\_\_\_\_ Mathematics 2000 - Mathematical Concepts
- \_\_\_\_\_ Mathematics 3400 - Group and Ring Theory
- \_\_\_\_\_ Mathematics 3410 - Linear Algebra
- \_\_\_\_\_ Mathematics 3500 - Analysis I
- \_\_\_\_\_ Statistics 1770 - Introduction to Probability and Statistics
- \_\_\_\_\_ Statistics 3500 - Mathematical Probability

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**One of:**

- \_\_\_\_\_ Mathematics 1560 - Calculus I
- \_\_\_\_\_ Mathematics 1565 - Accelerated Calculus I (recommended)

**One of:**

- \_\_\_\_\_ Mathematics 2560 - Calculus II
- \_\_\_\_\_ Mathematics 2565 - Accelerated Calculus II (recommended)

**One of the following Streams (a. or b.):**

**a. Standard Stream**

- \_\_\_\_\_ Mathematics 2570 - Calculus III
- \_\_\_\_\_ Mathematics 2580 - Calculus IV

**b. Accelerated Stream**

- \_\_\_\_\_ 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

\_\_\_\_\_ One additional course (3.0 credit hours) in Mathematics or Statistics at the 2000 level or above

1. \_\_\_\_\_

\_\_\_\_\_ <sup>1</sup> Three additional courses (9.0 credit hours) in Mathematics or Statistics at the 3000/4000 level

1. \_\_\_\_\_
2. \_\_\_\_\_
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\_\_\_\_\_ Two courses (6.0 credit hours) in Mathematics or Statistics at the 4000 level

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2. \_\_\_\_\_

**Notes**

<sup>1</sup> 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.

Independent Study (1990, 2990, 3990, 4990) or Applied Study (2980, 3980, 4980) courses may not be used to meet the minimum Mathematics or Statistics course requirements above, except for the additional course for students completing the accelerated calculus stream. Mathematics 2090 (Number Systems) may not be used to meet any requirements for the major.

**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 (ACCT, AGEM, FINC, HRLR, IGBM, IMGT, MGT, and MKTG) may be counted towards the Lib Ed Requirement.

See the 2023/2024 Calendar, p. 83, for more information.

\_\_\_\_\_ Four Fine Arts and Humanities courses:

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\_\_\_\_\_ Four Social Science courses:

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\_\_\_\_\_ Four Science courses:

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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.

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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, ACCT, ADCS, AGEM, CDEV, CRED, EDUC, FINC, HLSC, HRLR, IGBM, IMGT, MGT, MKTG, NURS, PUBH, and TREC) will not meet this requirement.

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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.

\_\_\_\_\_ 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, ACCT, ADCS, AGEM, CDEV, CRED, EDUC, FINC, HLSC, HRLR, IGBM, IMGT, MGT, MKTG, 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.

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

\_\_\_\_\_ **Minor (Optional):** \_\_\_\_\_  
See the 2023/2024 Calendar, p. 331, for more information.

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## Sample Sequencing Plan

Shown below is a sample sequence of courses for your degree. Consult timetables for course offerings, prerequisites, and corequisites before registering each 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  
 Mathematics 1410  
**Mathematics 1565 or Mathematics 1560**  
 Lib Ed Requirement course  
 Lib Ed Requirement course

### **Year 2, Fall**

Computer Science 2620  
**Mathematics 2570 or 2575**  
 Lib Ed Requirement course  
 Lib Ed Requirement course  
 Elective

### **Year 3, Fall**

Mathematics 3400  
 Statistics 3500  
 Mathematics or Statistics 3000/4000 level  
 Elective  
 Elective

### **Year 4, Fall**

Mathematics or Statistics 4000 level  
 Mathematics or Statistics 3000/4000 level  
 Elective 3000/4000 level  
 Elective 3000/4000 level  
 Elective

### **Year 1, Spring**

Mathematics 2000  
**Mathematics 2565 or Mathematics 2560**  
 Statistics 1770  
 Lib Ed Requirement course  
 Lib Ed Requirement course

### **Year 2, Spring**

Mathematics 2580 or additional Mathematics,  
 Statistics, or Computer Science  
 Mathematics 3410  
 Lib Ed Requirement course  
 Lib Ed Requirement course  
 Elective

### **Year 3, Spring**

Mathematics 3500  
 Mathematics or Statistics 3000/4000 level  
 Mathematics or Statistics Elective  
 Elective 3000/4000 level  
 Elective 3000/4000 level

### **Year 4, Spring**

Mathematics or Statistics 4000 level  
 Elective 3000/4000 level  
 Elective 3000/4000 level  
 Elective  
 Elective

**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.

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.