



# PROGRAM PLANNING GUIDE

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

ID: 

## Bachelor of Science

### Biological Sciences



Biological sciences delve into the world of living organisms — from microbes, to human beings, to entire ecosystems. It is the science of life on, under and above earth. Exploring the nature of life leads biologists out into the world where they study how organisms interact with their environment, how they function and how they evolved over time. The Department of Biological Sciences provides you with hands-on learning, moving you beyond textbooks and lectures to engaging research projects. Biology is a research-intensive science that can lead to a wide range of study areas, like environmental work, medicine, microbiology or agriculture.

#### What determines my program requirements?

Please refer to the Academic Calendar ([www.ulethbridge.ca/ross/academic-calendar](http://www.ulethbridge.ca/ross/academic-calendar)) for complete program information.

**Calendar Year:** 2025/2026 - Your calendar year is set to the academic year you are admitted (or readmitted) and you should follow the requirements for that year for the duration of your program.

**Faculty/School:** Faculty of Arts and Science ([www.ulethbridge.ca/artsci](http://www.ulethbridge.ca/artsci))

**Program(s):** Bachelor of Science

**Major(s):** Biological Sciences

**Minor:** A defined set of courses, designed to provide depth in a particular discipline, study in an interdisciplinary area, or focus on a theme-related topic. To learn more about optional minors see [www.ulethbridge.ca/ross/minors](http://www.ulethbridge.ca/ross/minors).

#### Am I admissible to this program?

**Admission:** [www.ulethbridge.ca/ross/admissions/undergrad](http://www.ulethbridge.ca/ross/admissions/undergrad)

**Transfer:** [www.ulethbridge.ca/ross/transfer-resources](http://www.ulethbridge.ca/ross/transfer-resources)

#### When/How do I apply to the University?

**Deadlines:** [www.ulethbridge.ca/ross/admissions/undergrad/deadlines](http://www.ulethbridge.ca/ross/admissions/undergrad/deadlines)

**Step-by-Step:** [www.ulethbridge.ca/ross/admissions/step-by-step](http://www.ulethbridge.ca/ross/admissions/step-by-step)

#### Where can I find information on courses?

**Course Catalogue:** [www.ulethbridge.ca/ross/courses](http://www.ulethbridge.ca/ross/courses)

**Registration Guide:** [www.ulethbridge.ca/ross/registration-guide](http://www.ulethbridge.ca/ross/registration-guide)

#### When can I register for classes?

**Register early!** (March for Summer and Fall; November for Winter)

**Registration Dates:** [www.ulethbridge.ca/ross/registration-dates](http://www.ulethbridge.ca/ross/registration-dates)

#### How can I enhance my program?

**Career Bridge:** [www.ulethbridge.ca/career-bridge](http://www.ulethbridge.ca/career-bridge)

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

**Honours Thesis:** [www.ulethbridge.ca/ross/undergraduate-thesis](http://www.ulethbridge.ca/ross/undergraduate-thesis)

**Double Major:** [www.ulethbridge.ca/ross/double-major](http://www.ulethbridge.ca/ross/double-major)

#### What supports are available to students?

**Student Services:** [www.ulethbridge.ca/campus-life/student-services](http://www.ulethbridge.ca/campus-life/student-services)

**Student Success Centre:** [www.ulethbridge.ca/student-success-centre](http://www.ulethbridge.ca/student-success-centre)

**Accessible Learning:** [www.ulethbridge.ca/ross/alc](http://www.ulethbridge.ca/ross/alc)

**Counselling Services:** [www.ulethbridge.ca/counselling](http://www.ulethbridge.ca/counselling)





# PROGRAM REQUIREMENTS (2025/2026)

## Required courses and notes

### Major Requirements (23 Courses)

- \_\_\_\_\_ 1. Biochemistry 2000 - Introductory Biochemistry
- \_\_\_\_\_ 2. Biology 1010 - Cellular Basis of Life
- \_\_\_\_\_ 3. Biology 1020 - Diversity of Life
- \_\_\_\_\_ 4. Biology 2000 - Principles of Genetics
- \_\_\_\_\_ 5. Biology 2150 - Biostatistics
- \_\_\_\_\_ 6. Biology 2200 - Principles of Ecology
- \_\_\_\_\_ 7. Biology 2300 - Cell Biology
- \_\_\_\_\_ 8. Biology 3300 - Evolution
- \_\_\_\_\_ 9. Biology 4500 - Seminars in Biological Sciences
- \_\_\_\_\_ 10. Chemistry 1000 - General Chemistry I
- \_\_\_\_\_ 11. Chemistry 2000 - General Chemistry II
- \_\_\_\_\_ 12. Chemistry 2500 - Organic Chemistry I
- \_\_\_\_\_ 13. **One of:**
  - \_\_\_\_\_ Mathematics 1410 - Elementary Linear Algebra
  - \_\_\_\_\_ Mathematics 1560 - Calculus I
  - \_\_\_\_\_ Mathematics 1565 - Accelerated Calculus I
- \_\_\_\_\_ 14. **One of:**
  - \_\_\_\_\_ Physics 1000 - Introduction to Physics I
  - \_\_\_\_\_ Physics 1050 - Introduction to Biophysics (preferred)
- \_\_\_\_\_ 15. **One of:**
  - \_\_\_\_\_ One course (3.0 credit hours) in English at the 1000 level or higher
  - \_\_\_\_\_ Writing 1000 - Introduction to Academic Writing
- \_\_\_\_\_ 16.-21.<sup>1</sup> Six courses (18.0 credit hours) in Biology at the 3000 level, including two from each of the subfield lists.
  - Two of (List 1 - Cellular and Molecular Biology):**
    - \_\_\_\_\_ Biochemistry 3100 - Proteins, Enzymes and Nucleic Acids
    - \_\_\_\_\_ Biochemistry 3700/Neuroscience 3700 - Introduction to Bioinformatics
    - \_\_\_\_\_ Biology 3000 - Gene Expression and Regulation
    - \_\_\_\_\_ Biology 3005 - Genomes
    - \_\_\_\_\_ Biology 3110 - Cell Signalling
    - \_\_\_\_\_ Biology 3210 - Experimental Methods in Molecular and Cellular Biology
    - \_\_\_\_\_ Biology 3400 - Principles of Microbiology
  - Two of (List 2 - Organismal Biology):**
    - \_\_\_\_\_ Biology 3310 - Developmental Biology
    - \_\_\_\_\_ Biology 3420 - Animal Physiology
    - \_\_\_\_\_ Biology 3460 - Plant Physiology
    - \_\_\_\_\_ Biology 3520 - Invertebrate Zoology
    - \_\_\_\_\_ Biology 3530 - Vertebrate Zoology
    - \_\_\_\_\_ Biology 3560 - Integrative Plant Biology
  - Two of (List 3 - Ecology and Evolutionary Biology):**
    - \_\_\_\_\_ Biology 3095/Geography 3095 - Advanced Biogeography
    - \_\_\_\_\_ Biology 3630 - Field Biology
    - \_\_\_\_\_ Biology 3660 - Field Botany
    - \_\_\_\_\_ Biology 3700 - Ecosystem Ecology
    - \_\_\_\_\_ Biology 3710 - Population Biology
    - \_\_\_\_\_ Biology 3720 - Community Ecology
- \_\_\_\_\_ 22.-23. Two additional courses (6.0 credit hours) in Biology at the 4000 level.
  - \_\_\_\_\_ 22. \_\_\_\_\_
  - \_\_\_\_\_ 23. \_\_\_\_\_

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### Notes

<sup>1</sup> Topics courses (Biology 3850) may be assigned to one of the Biological Sciences lists at the time of scheduling. Please refer to the current term timetable.

Applied Studies, Independent Studies, and the Undergraduate Thesis may not be counted as part of the minimum requirements for the major; however, they are strongly encouraged for students taking courses beyond this minimum.

### Electives (17 Courses)

- \_\_\_\_\_ 24.-40. Seventeen additional courses (51.0 credit hours) chosen to complete program requirements
  - \_\_\_\_\_ 24. \_\_\_\_\_
  - \_\_\_\_\_ 25. \_\_\_\_\_
  - \_\_\_\_\_ 26. \_\_\_\_\_
  - \_\_\_\_\_ 27. \_\_\_\_\_
  - \_\_\_\_\_ 28. \_\_\_\_\_
  - \_\_\_\_\_ 29. \_\_\_\_\_
  - \_\_\_\_\_ 30. \_\_\_\_\_
  - \_\_\_\_\_ 31. \_\_\_\_\_
  - \_\_\_\_\_ 32. \_\_\_\_\_
  - \_\_\_\_\_ 33. \_\_\_\_\_
  - \_\_\_\_\_ 34. \_\_\_\_\_
  - \_\_\_\_\_ 35. \_\_\_\_\_
  - \_\_\_\_\_ 36. \_\_\_\_\_
  - \_\_\_\_\_ 37. \_\_\_\_\_
  - \_\_\_\_\_ 38. \_\_\_\_\_
  - \_\_\_\_\_ 39. \_\_\_\_\_
  - \_\_\_\_\_ 40. \_\_\_\_\_

### Optional Concentration: \_\_\_\_\_

**Courses taken to complete the concentration will fill in as electives in the program requirements above.**

For information about the optional concentrations, see **Faculty of Arts and Science** in the 2025/2026 University of Lethbridge Calendar, [www.ulethbridge.ca/ross/academic-calendar](http://www.ulethbridge.ca/ross/academic-calendar).

- \_\_\_\_\_ 1.-5. **Required Courses**
  - \_\_\_\_\_ 1. \_\_\_\_\_
  - \_\_\_\_\_ 2. \_\_\_\_\_
  - \_\_\_\_\_ 3. \_\_\_\_\_
  - \_\_\_\_\_ 4. \_\_\_\_\_
  - \_\_\_\_\_ 5. \_\_\_\_\_



## Required courses and notes

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

ID: 

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### Liberal Education List 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. Cross-listed courses count toward the limit for both disciplines (e.g. IGBM 3250/INDG 3250 counts toward the limit for Dhillon School of Business courses and Indigenous Studies).

Only four courses (12.0 credit hours) in total from the Faculty of Education (EDUC), Faculty of Health Sciences (ADCS, HLSC, INHL, NURS, PUBH, and TREC), and the Dhillon School of Business (ACCT, AGEM, FINC, GLBU, HRLR, IGBM, MGT, and MKTG) may be counted towards the Lib Ed Requirement.

To determine if a course has a Liberal Education designation, see School of Liberal Education in the 2025/2026 University of Lethbridge Undergraduate Calendar, [www.ulethbridge.ca/ross/academic-calendar](http://www.ulethbridge.ca/ross/academic-calendar).

\_\_\_\_\_ **1.-4. List I: Fine Arts and Humanities**

- \_\_\_\_\_ 1. \_\_\_\_\_
- \_\_\_\_\_ 2. \_\_\_\_\_
- \_\_\_\_\_ 3. \_\_\_\_\_
- \_\_\_\_\_ 4. \_\_\_\_\_

\_\_\_\_\_ **5.-8. List II: Social Science**

- \_\_\_\_\_ 5. \_\_\_\_\_
- \_\_\_\_\_ 6. \_\_\_\_\_
- \_\_\_\_\_ 7. \_\_\_\_\_
- \_\_\_\_\_ 8. \_\_\_\_\_

\_\_\_\_\_ **9.-12. List III: Science**

- \_\_\_\_\_ 9. \_\_\_\_\_
- \_\_\_\_\_ 10. \_\_\_\_\_
- \_\_\_\_\_ 11. \_\_\_\_\_
- \_\_\_\_\_ 12. \_\_\_\_\_

### General Requirements

\_\_\_\_\_ A minimum of 40 courses (120.0 credit hours) with a GPA of at least 2.00.

\_\_\_\_\_ A maximum of five Independent Study courses (15.0 credit hours) may be completed for credit towards the degree.

\_\_\_\_\_ A maximum of 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.

\_\_\_\_\_ A maximum of 24 courses (72.0 credit hours) may be completed from any one discipline for credit towards the degree. Disciplines are identified by a specific course label (e.g. KNES, ASTR, and HIST are separate disciplines).

\_\_\_\_\_ A maximum of 6.0 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).

\_\_\_\_\_ A maximum of six courses (18.0 credit hours) from disciplines offered 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 ACCT, ADCS, AGEM, CDEV, CRED, EDUC, FINC, GLBU, HLSC, HRLR, IGBM, INHL, MGT, MKTG, NURS, PUBH, and TREC). Courses cross-listed between the Faculty of Arts and Science and another Faculty or School do not count towards this limit.

\_\_\_\_\_ Residence requirement: 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. At least half of the courses required in the major must be completed at the University of Lethbridge.

A **maximum** of 12 courses (36.0 credit hours) may be completed at the 1000 level (or lower) for credit towards the degree, excluding Activity courses (labelled PHAC and MUSE) and courses numbered in the range of 0520 to 0530.

\_\_\_\_\_ **1.-12. Introductory Course Limit**

- \_\_\_\_\_ 1. \_\_\_\_\_
- \_\_\_\_\_ 2. \_\_\_\_\_
- \_\_\_\_\_ 3. \_\_\_\_\_
- \_\_\_\_\_ 4. \_\_\_\_\_
- \_\_\_\_\_ 5. \_\_\_\_\_
- \_\_\_\_\_ 6. \_\_\_\_\_
- \_\_\_\_\_ 7. \_\_\_\_\_
- \_\_\_\_\_ 8. \_\_\_\_\_
- \_\_\_\_\_ 9. \_\_\_\_\_
- \_\_\_\_\_ 10. \_\_\_\_\_
- \_\_\_\_\_ 11. \_\_\_\_\_
- \_\_\_\_\_ 12. \_\_\_\_\_

A **minimum** of 15 courses (45.0 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, excluding Activity courses (labelled PHAC and MUSE). Out-of-faculty courses (i.e. labelled ACCT, ADCS, AGEM, CDEV, CRED, EDUC, FINC, GLBU, HLSC, HRLR, IGBM, INHL, MGT, MKTG, NURS, PUBH, and TREC) will not meet this requirement.

\_\_\_\_\_ **1.-15. Senior Course Requirement**

- \_\_\_\_\_ 1. \_\_\_\_\_
- \_\_\_\_\_ 2. \_\_\_\_\_
- \_\_\_\_\_ 3. \_\_\_\_\_
- \_\_\_\_\_ 4. \_\_\_\_\_
- \_\_\_\_\_ 5. \_\_\_\_\_
- \_\_\_\_\_ 6. \_\_\_\_\_
- \_\_\_\_\_ 7. \_\_\_\_\_
- \_\_\_\_\_ 8. \_\_\_\_\_
- \_\_\_\_\_ 9. \_\_\_\_\_
- \_\_\_\_\_ 10. \_\_\_\_\_
- \_\_\_\_\_ 11. \_\_\_\_\_
- \_\_\_\_\_ 12. \_\_\_\_\_
- \_\_\_\_\_ 13. \_\_\_\_\_
- \_\_\_\_\_ 14. \_\_\_\_\_
- \_\_\_\_\_ 15. \_\_\_\_\_

### Optional Minor:

For information about minors see **Minors** in the 2025/2026 University of Lethbridge Calendar, [www.ulethbridge.ca/ross/academic-calendar](http://www.ulethbridge.ca/ross/academic-calendar). Consult with an Academic Advisor if you wish to add a minor to your program.

\_\_\_\_\_ **1.-6. Required Courses**

- \_\_\_\_\_ 1. \_\_\_\_\_
- \_\_\_\_\_ 2. \_\_\_\_\_
- \_\_\_\_\_ 3. \_\_\_\_\_
- \_\_\_\_\_ 4. \_\_\_\_\_
- \_\_\_\_\_ 5. \_\_\_\_\_
- \_\_\_\_\_ 6. \_\_\_\_\_



Shown below is the recommended sequence of courses for your degree. Consult timetables for course offerings, prerequisites, and corequisites before registering each term as some courses may have limited offerings (ie. once a year, alternating years, or only offered in the Fall or Winter terms).

Consult with an Academic Advisor in your faculty if you wish to alter this sequence with regard to the specifically listed courses.

**Note that this sequence was prepared based on course scheduling at the time of publication and may change during your studies.**

### First Year

**Biology 1010**

**Biology 1020**

**Chemistry 1000**

**Chemistry 2000**

One of: English 1900 or Writing 1000

One of: Physics 1050 or Physics 1000

**Mathematics Requirement**

Lib Ed Requirement course

Lib Ed Requirement course

Lib Ed Requirement course

### Second Year

**Biochemistry 2000**

**Biology 2000**

**Biology 2150**

**Biology 2200**

**Biology 2300**

**Chemistry 2500**

Lib Ed Requirement course

Lib Ed Requirement course

Lib Ed Requirement course

Lib Ed Requirement course

### Third Year

Biology 3300

Biology 3000 level

Biology 3000 level

Biology 3000 level

Biology 3000 level

Biology 3000 level

Elective 3000/4000 level

Elective

Elective

Elective

### Fourth Year

Biology 4500

Biology 3000 level

Biology 4000 level

Biology 4000 level

Elective 3000/4000 level

Elective 3000/4000 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.