



Calendar Year: 2026/2027

# PROGRAM PLANNING GUIDE

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

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## Bachelor of Science

### Agricultural Biotechnology



Agricultural biotechnology examines agriculture and the natural world, emphasizing the relationships between food production, the environment, science and society. As a multidisciplinary major, agricultural biotechnology takes full advantage of resources and course offerings in the Departments of Biological Sciences, Chemistry & Biochemistry and Economics. This multi-faceted approach allows you to explore new applications in science and develop fresh perspectives about how to address challenges in food production through changes in economics, production or diversification.

#### 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:** 2026/2027 - 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):** Agricultural Biotechnology

**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)



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

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 ensuring they have met program requirements. This guide should be used in conjunction with the University of Lethbridge Academic Calendar, which is the final authority on program requirements and academic regulations.



**Required courses and notes**

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**Major Requirements (22 Courses)**

- \_\_\_\_\_ 1. Agricultural Studies 1000 - The Evolution of Agriculture
- \_\_\_\_\_ 2. Biochemistry 2000 - Introductory Biochemistry
- \_\_\_\_\_ 3. Biology 1010 - Cellular Basis of Life
- \_\_\_\_\_ 4. Biology 1020 - Diversity of Life
- \_\_\_\_\_ 5. Biology 2000 - Principles of Genetics
- \_\_\_\_\_ 6. Biology 2150 - Biostatistics
- \_\_\_\_\_ 7. Biology 2200 - Principles of Ecology
- \_\_\_\_\_ 8. Biology 2300 - Cell Biology
- \_\_\_\_\_ 9. Biology 3210 - Experimental Methods in Molecular and Cellular Biology
- \_\_\_\_\_ 10. Biology 3400 - Principles of Microbiology
- \_\_\_\_\_ 11. Chemistry 1000 - General Chemistry I
- \_\_\_\_\_ 12. Chemistry 2000 - General Chemistry II
- \_\_\_\_\_ 13. Chemistry 2500 - Organic Chemistry I
- \_\_\_\_\_ 14. Economics 1010 - Introduction to Microeconomics
- \_\_\_\_\_ 15. Economics 3300 - Agricultural Policy I
- \_\_\_\_\_ 16.-17. **Two of:**
  - \_\_\_\_\_ Biology 3000 - Gene Expression and Regulation
  - \_\_\_\_\_ Biology 3005 - Genomes
  - \_\_\_\_\_ Biology 3110 - Cell Signalling
- \_\_\_\_\_ 18. **One of:**
  - \_\_\_\_\_ Biology 3420 - Animal Physiology
  - \_\_\_\_\_ Biology 3460 - Plant Physiology
- \_\_\_\_\_ 19. **One of:**
  - \_\_\_\_\_ Biology 4100 - Advances in Biotechnology
  - \_\_\_\_\_ Biology 4130 - Medical Genomics
- \_\_\_\_\_ 20. **One of:**
  - \_\_\_\_\_ Economics 2150 - Economics of Agricultural Issues
  - \_\_\_\_\_ Economics 2350 - Economics of Agricultural Markets I
- \_\_\_\_\_ 21. **One of:**
  - \_\_\_\_\_ Mathematics 1410 - Elementary Linear Algebra
  - \_\_\_\_\_ Mathematics 1560 - Calculus I
  - \_\_\_\_\_ Mathematics 1565 - Accelerated Calculus I
- \_\_\_\_\_ 22. **One of:**
  - \_\_\_\_\_ Physics 1000 - Introduction to Physics I
  - \_\_\_\_\_ Physics 1050 - Introduction to Biophysics

**Electives (18 Courses)**

- \_\_\_\_\_ 23.-40. Eighteen additional courses (54.0 credit hours) chosen to complete program requirements
- \_\_\_\_\_ 23. \_\_\_\_\_
- \_\_\_\_\_ 24. \_\_\_\_\_
- \_\_\_\_\_ 25. \_\_\_\_\_
- \_\_\_\_\_ 26. \_\_\_\_\_
- \_\_\_\_\_ 27. \_\_\_\_\_
- \_\_\_\_\_ 28. \_\_\_\_\_
- \_\_\_\_\_ 29. \_\_\_\_\_
- \_\_\_\_\_ 30. \_\_\_\_\_
- \_\_\_\_\_ 31. \_\_\_\_\_
- \_\_\_\_\_ 32. \_\_\_\_\_
- \_\_\_\_\_ 33. \_\_\_\_\_
- \_\_\_\_\_ 34. \_\_\_\_\_
- \_\_\_\_\_ 35. \_\_\_\_\_
- \_\_\_\_\_ 36. \_\_\_\_\_
- \_\_\_\_\_ 37. \_\_\_\_\_
- \_\_\_\_\_ 38. \_\_\_\_\_
- \_\_\_\_\_ 39. \_\_\_\_\_
- \_\_\_\_\_ 40. \_\_\_\_\_

**Notes:**

A student who successfully completes this degree program and major may apply to the Alberta Institute of Agrologists (AIA) to be registered as a Professional Agrologist within Alberta. Students should contact the Coordinator of Agricultural Biotechnology early in the program for further information.

**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 2026/2027 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. \_\_\_\_\_



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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. Geography 3225/Global Business 3225 counts toward the limit for Geography and Dhillon School of Business courses).

Only four courses (12.0 credit hours) in total from the Faculty of Education (EDUC), Faculty of Health Sciences (AMHC, HLSC, INHL, NURS, PUBH, and TREC), and the Dhillon School of Business (ACCT, AGEM, DGTR, 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 2026/2027 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, AGEM, AMHC, CDEV, CRED, DGTR, 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, AGEM, AMHC, CDEV, CRED, DGTR, 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 2026/2027 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. \_\_\_\_\_



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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

- Agricultural Studies 1000
- Biology 1010**
- Biology 1020**
- Chemistry 1000**
- Chemistry 2000**
- Economics 1010**
- One of: Physics 1000 or Physics 1050
- Mathematics Requirement**
- Lib Ed Requirement course
- Lib Ed Requirement course

### Second Year

- Biochemistry 2000**
- Biology 2000**
- Biology 2150**
- Biology 2200**
- Biology 2300**
- Chemistry 2500**
- One of: Economics 2150 or Economics 2350
- Lib Ed Requirement course
- Lib Ed Requirement course
- Elective

### Third Year

- Economics 3300
- Biology 3210
- Biology 3400
- Biology 3000-level list course
- Biology 3000-level list course
- Elective 3000/4000 level
- Elective 3000/4000 level
- Elective 3000/4000 level
- Elective
- Elective

### Fourth Year

- One of: Biology 3420 or Biology 3460
- One of: Biology 4100 or Biology 4130
- Elective 3000/4000 level
- Elective
- 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.

Students choosing to complete requirements for the Concentration in Agricultural Business should choose those prescribed courses in place of Elective courses.

Students are strongly advised to consult with the Department of Biological Sciences and the Department of Chemistry and Biochemistry regarding the sequencing of the above courses.