



# PROGRAM PLANNING GUIDE

ID: 

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

## Bachelor of Science

### Applied Statistics



Statistics is the study of the collection, organization, analysis, interpretation and presentation of data. In a world that is increasingly data-driven, knowing how to extract and interpret information is key. Statistics help evaluate ideas, test hypotheses and give clarity to complex issues. The major in applied statistics is structured to provide a firm theoretical background in statistics and to allow you to apply specific statistical techniques within your discipline of interest. The program has three possible concentrations: economics, geography, psychology.

#### 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:** 2024/2025 - 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):** Applied Statistics

**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)





## Required courses and notes

### Major Requirements (21-23 Courses)

- \_\_\_\_\_ 1. Computer Science 1620 - Fundamentals of Programming I
- \_\_\_\_\_ 2. Mathematics 1410 - Elementary Linear Algebra
- \_\_\_\_\_ 3. Statistics 1770 - Introduction to Probability and Statistics
- \_\_\_\_\_ 4. Statistics 2200 - Survey Design and Analysis
- \_\_\_\_\_ 5. Statistics 3500 - Mathematical Probability
- \_\_\_\_\_ 6. Statistics 3510 - Mathematical Statistics
- \_\_\_\_\_ 7. Statistics 3700 - Design and Analysis of Experiments
- \_\_\_\_\_ 8. **One of:**
  - \_\_\_\_\_ Mathematics 1560 - Calculus I
  - \_\_\_\_\_ Mathematics 1565 - Accelerated Calculus I
- \_\_\_\_\_ 9. **One of:**
  - \_\_\_\_\_ Mathematics 2560 - Calculus II
  - \_\_\_\_\_ Mathematics 2565 - Accelerated Calculus II
- \_\_\_\_\_ 10. **One of:**
  - \_\_\_\_\_ Statistics 2780 - Statistical Inference
  - \_\_\_\_\_ Economics 2900 - Economics and Business Statistics
- \_\_\_\_\_ 11. One course (3.0 credit hours) at the 4000 level in Statistics

- \_\_\_\_\_ Geography 4740 - Advanced Geographical Information Systems
- \_\_\_\_\_ Remote Sensing 4650 - Physics of Remote Sensing
- \_\_\_\_\_ One additional course (3.0 credit hours) in Geography at the 3000/4000 level

### Required Concentration:

For the Major in Applied Statistics, all students must complete one of the following concentrations:

- \_\_\_\_\_ **12.-21. Concentration in Economics (10 courses)**
  - \_\_\_\_\_ Economics 1010 - Introduction to Microeconomics
  - \_\_\_\_\_ Economics 1012 - Introduction to Macroeconomics
  - \_\_\_\_\_ Economics 2750 - Quantitative Methods in Economics
  - \_\_\_\_\_ Economics 3010 - Intermediate Microeconomic Theory
  - \_\_\_\_\_ Economics 3012 - Intermediate Macroeconomic Theory
  - \_\_\_\_\_ Economics 3950 - Econometrics I
  - \_\_\_\_\_ Economics 4960 - Econometrics II
  - \_\_\_\_\_ One additional course (3.0 credit hours) in Economics at the 3000/4000 level
- \_\_\_\_\_ Two additional courses (6.0 credit hours) in Economics at the 4000 level

- \_\_\_\_\_ Two additional courses (6.0 credit hours) in Psychology or Neuroscience at the 3000/4000 level
- \_\_\_\_\_ One course (3.0 credit hours) in Psychology at the 4000 level

- \_\_\_\_\_ **12.-21. Concentration in Geography (10 courses)**
  - \_\_\_\_\_ Geography 1000 - Introduction to Physical Geography
  - \_\_\_\_\_ Geography 1200 - Introduction to Human Geography
  - \_\_\_\_\_ Geography 2210 - Spatial Organization of Economic Activity
  - \_\_\_\_\_ Geography 2700 - Geographical Data and Analysis
  - \_\_\_\_\_ Geography 2735 - Introduction to Geographical Information Science
  - \_\_\_\_\_ Geography 3720 - Remote Sensing
  - \_\_\_\_\_ Geography 3740 - Geographical Information Systems
- \_\_\_\_\_ **One of:**
  - \_\_\_\_\_ Geography 2030 - Geomorphology
  - \_\_\_\_\_ Geography 2300 - Weather and Climate
- \_\_\_\_\_ **One of:**
  - \_\_\_\_\_ Geography 3735 - Analysis of Environmental Data
  - \_\_\_\_\_ Geography 4725 - Advanced Remote Sensing

### 12.-23. Concentration in Psychology (12 courses)

- \_\_\_\_\_ Psychology 1010 - Introduction to Psychology A: Evolution, Mechanisms, and Cognition/ Perception
- \_\_\_\_\_ Psychology 1020 - Introduction to Psychology B: Developmental, Sociocultural, and Abnormal
- \_\_\_\_\_ Psychology 1030 - Key Skills in Psychology
- \_\_\_\_\_ Psychology 2030 - Thinking with Data I
- \_\_\_\_\_ Psychology 3400 - Thinking with Data II
- \_\_\_\_\_ Four courses (12.0 credit hours) in Psychology or Neuroscience at the 2000 level

### Electives (17-19 Courses)

- \_\_\_\_\_ **22.-23. Economics and Geography Concentrations only**
  - Two additional courses (6.0 credit hours) chosen to complete program requirements
  - \_\_\_\_\_ 22. \_\_\_\_\_
  - \_\_\_\_\_ 23. \_\_\_\_\_
- \_\_\_\_\_ **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. \_\_\_\_\_

**Required courses and notes**

**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 (ABHL, ADCS, HLSC, NURS, PUBH, and TREC), and the Dhillon School of Business (ACCT, AGEM, FINC, HRLR, IGBM, IMG T, 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 2024/2025 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 ABHL, ACCT, ADCS, AGEM, CDEV, CRED, EDUC, FINC, HLSC, HRLR, IGBM, IMG T, 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 ABHL, ACCT, ADCS, AGEM, CDEV, CRED, EDUC, FINC, HLSC, HRLR, IGBM, IMG T, 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 2024/2025 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. \_\_\_\_\_



## Recommended Course Sequence

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

- Mathematics 1410
- One of: **Mathematics 1560** or **Mathematics 1565**
- One of: **Mathematics 2560** or **Mathematics 2565**
- Statistics 1770**
- Concentration course
- Concentration course
- Lib Ed Requirement course
- Lib Ed Requirement course
- Lib Ed Requirement course
- Lib Ed Requirement course

### Second Year

- Computer Science 1620
- Statistics 2200
- One of: **Statistics 2780** or **Economics 2900**
- Concentration course
- Concentration course
- Concentration course or Elective
- Concentration course or Elective
- Lib Ed Requirement course
- Lib Ed Requirement course
- Elective

### Third Year

- Statistics 3500
- Statistics 3510
- Statistics 3700
- Concentration course
- Concentration course
- Concentration course
- Elective 3000/4000 level
- Elective 3000/4000 level
- Elective
- Elective

### Fourth Year

- Statistics 4000 level
- Concentration course
- Concentration course
- Concentration course
- Elective 3000/4000 level
- Elective 3000/4000 level
- Elective 3000/4000 level
- Elective 3000/4000 level
- Elective 3000/4000 level
- 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.

The above sequence only lists 10 concentration courses (suitable for the Concentration in Geography or Economics). Students completing the 12-course Concentration in Psychology need to replace 2 Electives above with concentration courses.