

Part 7

FACULTY OF ARTS AND SCIENCE

1. PHILOSOPHY AND PROGRAMS	94	13. BACHELOR OF ARTS (B.A.)	102
a. Liberal Education Skills	94	a. General Requirements	102
b. Breadth and General Intellectual Background	94	b. Major Requirements	102
c. Depth of Knowledge	94	14. BACHELOR OF SCIENCE (B.SC.)	102
d. Programs	95	a. General Requirements	102
2. ADVISING AND INFORMATION	95	b. Major Requirements	103
a. Dean of Arts and Science	95	15. BACHELOR OF ARTS AND SCIENCE (BASC.)	103
b. Academic Advisors	95	a. General Requirements	103
c. Department Advisors	95	b. Major Requirements	103
3. ADMISSION	96	16. MAJORS	104
a. Bachelor of Arts, Bachelor of Science, or Bachelor of Arts and Science	96	a. Agricultural Biotechnology	104
b. Bachelor of Arts/Bachelor of Management and Bachelor of Science/Bachelor of Management	96	b. Agricultural Studies (B.A.)	105
c. Bachelor of Arts/Bachelor of Education and Bachelor of Science/Bachelor of Education	96	c. Agricultural Studies (B.Sc.)	106
d. Post-Diploma Bachelor of Arts or Bachelor of Science programs	96	d. Anthropology	108
e. Bachelor of Arts, Bachelor of Science, or Bachelor of Arts and Science After an Approved Degree	97	e. Applied Statistics	108
f. Pre-Professional Transfer Program in Engineering	97	f. Archaeology and Geography (B.A. or B.Sc.)	109
g. First Nations' Transition Program	97	g. Art	110
h. Readmission after an Absence from the Faculty of Arts and Science	97	h. Biochemistry	110
4. ACADEMIC STANDARDS	98	i. Biological Sciences	111
a. Probation	98	j. Canadian Studies	113
b. Required Withdrawal - Academic Indices	98	k. Chemistry	114
c. Required Withdrawal - Terms on Probation	98	l. Computer Science	114
5. INSTITUTIONAL HONOURS	98	m. Computer Science and Geographical Information Science	115
a. Dean's Honour List	98	n. Dramatic Arts	116
b. Standards for Distinction and Great Distinction	98	o. Economics	116
6. ARTS AND SCIENCE DISCIPLINES	98	p. English	117
7. APPLIED STUDIES	99	q. Environmental Science	118
8. INDEPENDENT STUDY	99	r. French	119
9. TOPICS COURSES	99	s. French/German	120
10. CROSS-LISTED COURSES	99	t. French/Spanish	120
11. UNDERGRADUATE THESIS COURSES ('HONOURS THESIS' DESIGNATION)	99	u. General Major in the Humanities	121
a. Prerequisites	100	v. General Major in the Sciences	122
b. Supervisory Committee	100	w. General Major in the Social Sciences	122
c. Initial Approval	100	x. Geography (B.A.)	123
d. Final Assessment	100	y. Geography (B.Sc.)	124
e. Eligibility for 'Honours Thesis' Designation	101	z. German	125
12. CO-OPERATIVE EDUCATION/INTERNSHIP PROGRAMS	101	aa. History	125
		bb. Kinesiology (B.A.)	126
		cc. Kinesiology (B.Sc.)	126
		dd. Mathematics	127
		ee. Music	128
		ff. Native American Studies	128
		gg. Neuroscience	129
		hh. Philosophy	130
		ii. Physics	131
		jj. Political Science	131
		kk. Psychology (B.A. or B.Sc.)	132
		ll. Religious Studies	132
		mm. Remote Sensing	133
		nn. Sociology	134
		oo. Urban and Regional Studies	134
		pp. Women and Gender Studies	135
		qq. Double Majors	136
		rr. Individual Multidisciplinary Majors	136

17. MINORS	137	20. B.A., B.SC. OR BASC. AFTER AN APPROVED DEGREE.	140
a. Asian Studies	137	a. General Requirements	140
b. Computer Science	137	b. Major Requirements	141
c. Economics	137	21. B.A. OR B.SC. AFTER COMPLETION OF A PROFESSIONAL DEGREE	141
d. English	137	22. POST-DIPLOMA DEGREE PROGRAMS	141
e. French	138	a. Post-Diploma Bachelor of Arts (B.A.) in Agricultural Studies	141
f. German	138	b. Post-Diploma Bachelor of Science (B.Sc.) in Agricultural Studies	142
g. History	138	c. Post-Diploma Bachelor of Science (B.Sc.) in Computer Science	143
h. Japanese	138	d. Post-Diploma Bachelor of Science (B.Sc.) in Environmental Science	144
i. Liberal Education	138	e. Post-Diploma Bachelor of Science (B.Sc.) in Geography, With a Concentration in Geographical Information Science	145
j. Linguistics	138	23. FIRST NATIONS' TRANSITION PROGRAM ...	146
k. Mathematics	139	24. PRE-NURSING PATHWAY	146
l. Philosophy	139	25. PRE-PROFESSIONAL TRANSFER PROGRAMS.	146
m. Physics	139	a. Dentistry (Alberta)	147
n. Political Science	139	b. Pre-Professional Transfer Program in Engineering	147
o. Religious Studies	139	c. Journalism (Regina)	148
p. Spanish	139	d. Law (Alberta)	149
q. Women and Gender Studies	140	e. Law (Calgary)	149
18. CONCENTRATIONS	140	f. Medicine (Alberta or Calgary)	149
a. Optional Concentration: Agricultural Business	140	g. Social Work (Calgary)	149
b. Optional Concentration: Geographical Information Science	140	h. Veterinary Medicine (Saskatchewan)	150
c. Optional Concentration: Legal Reasoning ..	140		
d. Optional Concentration: Research Internship	140		
e. Required Concentration: Economics, Geography, or Psychology	140		
f. Required Concentration: Geographical Information Science	140		
19. COMBINED DEGREES	140		

I. PHILOSOPHY AND PROGRAMS

The Faculty of Arts and Science offers instruction in a broad range of subjects, from the humanities and social sciences to the natural and mathematical sciences. The Faculty of Arts and Science commits itself to the development of well-educated persons through the pillars of Liberal Education, including breadth and connections across disciplines, critical thinking skills, and engaged citizenship at all levels. We emphasize the skills developed by a Liberal Education, and a balance of breadth of general intellectual background with depth of knowledge in a particular area.

a. Liberal Education Skills

Literacy: the ability to read and interpret texts from diverse media, discourses and genres, and to express oneself in writing.

Information literacy: the ability to discern when information is needed, and the ability to find, evaluate and use information effectively.

Oral expression: the ability to listen and understand oral messages, and to express oneself effectively in a wide range of interpersonal contexts.

Numeracy: the ability to work effectively with quantitative ideas and mathematical relations.

Critical thinking: the ability to evaluate reasoning systematically and to argue well in support of deserving ideas.

Integrative thinking: the ability to make connections among diverse and superficially unconnected things.

Problem solving: the ability to recognize the problematic nature of the world and the ability to address those problems in a rigorous and imaginative way.

b. Breadth and General Intellectual Background

A sense of historical consciousness; an awareness of events in time and their significance to each other; and the relation of oneself and one's community within them.

A wide-ranging grasp of what the sciences tell us about the world in which we live; their methods, limitations, purposes and interactions with the global community and the world.

An understanding of the importance of evidence-based and logical reasoning, as the basis for informed decision-making.

Reflection of one's own values and an openness to change.

An understanding of, and a respect for, the causes and consequences of cultural, group and interpersonal differences.

A critical understanding and an appreciation of the creative and aesthetic dimensions of life.

The ability to comprehend and analyze the many facets of social life.

An awareness of the body and the physical contexts in which we apprehend reality, and the development of well-being.

c. Depth of Knowledge

A capacity to comprehend the complexity of ideas through sequential, developmental learning in a single subject or discipline.

The development of the competency to do rigorous independent work in a subject or discipline.

A critical grasp of the assumptions, arguments, approaches and controversies that have shaped particular claims and findings within a subject or discipline, and an understanding of the connections among disciplines.

d. Programs

The Faculty of Arts and Science offers three baccalaureate (i.e. bachelor's) degrees: the Bachelor of Arts (B.A.), the Bachelor of Science (B.Sc.), and the Bachelor of Arts and Science (BASc.).

A baccalaureate degree is an academic degree awarded by a university to a person who has successfully completed undergraduate studies.

The Bachelor of Arts is awarded in recognition of the satisfactory completion of a prescribed set of program requirements. Students must declare a major in a Humanities, Fine Arts or Social Science discipline and complete all the requirements for the chosen major and the degree.

The Bachelor of Science is awarded in recognition of the satisfactory completion of a prescribed set of program requirements. Students must declare a major in a Science discipline and complete all the requirements for the chosen major and the degree.

The Bachelor of Arts and Science is awarded in recognition of the satisfactory completion of a prescribed set of program requirements. Students must declare two majors, one in a Humanities, Fine Arts or Social Science discipline and one in a Science discipline, and complete all the requirements for both chosen majors and for the degree.

All undergraduate degree programs in the Faculty of Arts and Science require students to complete the Liberal Education List Requirement (Lib Ed Requirement). In some post-diploma programs or for the second degree program students must complete a modified Lib Ed Requirement. For details, see **Part 4 - Academic Regulations, Liberal Education List Requirement (p. 80)**.

The Faculty of Arts and Science offers the following programs:

- A 40-course (120.0 credit hour) program leading to the Bachelor of Arts (B.A.) (see **p. 102**).
- A 40-course (120.0 credit hour) program leading to the Bachelor of Science (B.Sc.) (see **p. 102**).
- A 40-course (120.0 credit hour) program leading to the Bachelor of Arts and Science (BASc.) (see **p. 103**).
- A 20-course (60.0 credit hour) post-diploma program in Agricultural Studies leading to the Bachelor of Arts (B.A.) (see **p. 141**).
- A 20-course (60.0 credit hour) post-diploma program in Agricultural Studies leading to the Bachelor of Science (B.Sc.) (see **p. 142**).
- A 20-course (60.0 credit hour) post-diploma program in Computer Science leading to the Bachelor of Science (B.Sc.) (see **p. 143**).
- A 20-course (60.0 credit hour) post-diploma program in Environmental Science leading to the Bachelor of Science (B.Sc.) (see **p. 144**).
- A 20-course (60.0 credit hour) post-diploma program in Geography, with a Concentration in Geographical Information Science, leading to the Bachelor of Science (B.Sc.) (see **p. 145**).
- A 30-course (90.0 credit hour) program leading to the Bachelor of Arts (B.A.) or Bachelor of

Science (B.Sc.) portion of the Bachelor of Arts/ Bachelor of Education (B.A./B.Ed.) or Bachelor of Science/Bachelor of Education (B.Sc./B.Ed.). Neither degree is granted until requirements for the entire combined degrees program are completed. See **Part 13 - Combined Degrees**.

- A 30-course (90.0 credit hour) program leading to the Bachelor of Arts (B.A.) or Bachelor of Science (B.Sc.) portion of the Bachelor of Arts/ Bachelor of Management (B.A./B.Mgt.) or Bachelor of Science/Bachelor of Management (B.Sc./B.Mgt.). Neither degree is granted until requirements for the entire combined degrees program are completed. See **Part 13 - Combined Degrees**.

Students who hold an undergraduate degree may be eligible to complete a minimum 20-course program leading to the B.A., B.Sc., or BASc. as a second degree. See **B.A., B.Sc. or BASc. After an Approved Degree (p. 140)**.

The 40-course B.A., B.Sc., and BASc. programs can be completed in eight consecutive terms if students complete five courses (15.0 credit hours) per term. Students may choose to reduce their course load to accommodate other commitments such as family or employment responsibilities. Students in good standing may take up to six courses (18.0 credit hours) in a term. Students on academic probation may not register in more than four courses (12.0 credit hours).

2. ADVISING AND INFORMATION

Academic advising in Arts and Science takes account of the variety of educational goals for which the Faculty wholly or partly provides and affiliates with other student services in the University.

a. Dean of Arts and Science

As well as being the administrative head of the Faculty of Arts and Science, the Dean of Arts and Science has direct responsibility for all academic programs and all years of study in Arts and Science. Appeals and issues of interpretation for students in Arts and Science should be directed to the Office of the Dean of Arts and Science.

b. Academic Advisors

Academic advising for the Faculty of Arts and Science is the responsibility of academic advisors, located in the Arts and Science Student Program Services Office, Students' Union Building, Level 0.

Students may consult academic advisors for assistance with a variety of academic concerns, including program planning, declaration of majors, General majors, readmission, applications for Incompletes or Withdrawals with Cause, authorized study at another university, and pre-professional transfer programs.

c. Department Advisors

Each Arts and Science department and program designates an advisor who knows in detail department courses, prerequisites and course schedules, as well as all aspects of the department's major program. In some departments, the Chair serves as Department Advisor. Although the minimum requirements for each major program are fully detailed in this Calendar, students should plan their major programs in consultation with the Department Advisor in order to ensure meeting their

own individual aims. These aims may include graduate school or professional school admission and vocational goals.

However, department advisors have no authority regarding degree, program or major requirements as set out in this Calendar. For information on such matters, students should consult academic advisors.

3. ADMISSION

Applicants to Faculty of Arts and Science programs are advised to refer to **Part I - Admission** for general admission requirements, policies and application deadlines.

a. Bachelor of Arts, Bachelor of Science, or Bachelor of Arts and Science

Admission to the Bachelor of Arts (B.A.), Bachelor of Science (B.Sc.), or Bachelor of Arts and Science (B.A.Sc.) programs may be gained by fulfilling the general admission requirements outlined in **Part I - Admission**.

Effective beginning with Fall 2018 admission

In addition, applicants to the following majors must satisfactorily complete the Alberta high school courses indicated, or equivalents:

Major	Additional High School Admission Requirement(s)
Agricultural Biotechnology	Biology 30 Chemistry 30 Mathematics 30-1
Agricultural Studies (B.A.)	Mathematics 30-1 or Mathematics 30-2
Agricultural Studies (B.Sc.)	Biology 30 Chemistry 30 Mathematics 30-1
Applied Statistics	Mathematics 30-1 (Mathematics 31 recommended)
Biochemistry	Biology 30 Chemistry 30 Mathematics 30-1
Biological Sciences	Biology 30 Chemistry 30 Mathematics 30-1
Chemistry	Biology 30 Chemistry 30 Mathematics 30-1
Computer Science	Mathematics 30-1
Computer Science and Geographical Information Science	Mathematics 30-1
Economics	Mathematics 30-1or Mathematics 30-2
Environmental Science	Biology 30 Chemistry 30 Mathematics 30-1
Geography (B.Sc.)	Mathematics 30-1
Kinesiology (B.Sc.)	Biology 30
Mathematics	Mathematics 30-1 (Mathematics 31 recommended)
Neuroscience	Biology 30 Chemistry 30 Mathematics 30-1
Physics	Mathematics 30-1 (Mathematics 31 recommended)
Remote Sensing	Mathematics 30-1

Concentration in Geographical Information Science (available for select majors only)	Mathematics 30-1or Mathematics 30-2 (in addition to major requirements)
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Enrolment in the Bachelor of Arts, Bachelor of Science, and Bachelor of Arts and Science degree programs is limited, based on major, and fulfilment of the minimum admission requirements does not guarantee admission. The Faculty of Arts and Science reserves the right of selection of all applicants for admission and readmission based on admission average.

b. Bachelor of Arts/Bachelor of Management and Bachelor of Science/Bachelor of Management

See **Part 13 - Combined Degrees, (p. 231)**.

c. Bachelor of Arts/Bachelor of Education and Bachelor of Science/Bachelor of Education

See **Part 13 - Combined Degrees, (p. 231)**.

d. Post-Diploma Bachelor of Arts or Bachelor of Science programs

1. **Post-Diploma Bachelor of Arts in Agricultural Studies**
Post-Diploma Bachelor of Science in Agricultural Studies
Post-Diploma Bachelor Science in Computer Science
Post-Diploma Bachelor of Science in Geography, with a Concentration in Geographical Information Science

Admission to these post-diploma programs is available to applicants who have completed an approved college diploma with a cumulative grade point average (GPA) of 2.50 or higher (on the University of Lethbridge 4.00 scale). Applicants with a diploma GPA below 2.50 but not less than 2.00 (on the University of Lethbridge 4.00 scale) will be considered for admission on a case-by-case basis.

See www.uleth.ca/postdiploma for current information on diplomas approved for admission to these post-diploma degree programs. The Faculty of Arts and Science will consider related diplomas not previously approved for admission on a case-by-case basis.

2. **Post-Diploma Bachelor of Science in Environmental Science**

Admission to the Post-Diploma Bachelor of Science in Environmental Science program is guaranteed to applicants who have completed an approved college diploma with a cumulative GPA of 2.75 or higher (on the University of Lethbridge 4.00 scale). Subject to permission of the Faculty of Arts and Science, applicants with related work experience may be admitted with a GPA below 2.75 but not less than 2.00 (on the University of Lethbridge 4.00 scale). Applicants must submit a resume detailing related work experience to Admissions.

See www.uleth.ca/postdiploma for current information on diplomas approved for admission to these Post-Diploma Bachelor of Science in Environmental Science programs. The Faculty of Arts and Science will consider related diplomas not previously approved for admission on a case-by-case basis.

e. **Bachelor of Arts, Bachelor of Science, or Bachelor of Arts and Science After an Approved Degree**

The Bachelor of Arts (B.A.), Bachelor of Science (B.Sc.), or Bachelor of Arts and Science (BASc.) After an Approved Degree programs are available to applicants who have completed an approved undergraduate degree. These programs are primarily of interest to degree-holders wishing to pursue an entirely different field of study to enhance or change their career focus and to international students seeking North American credentials.

An approved degree is a baccalaureate degree requiring a minimum of 30 or more courses (90.0 credit hours) from a recognized degree-granting institution. (See **Part I - Admission, Previous Degree, p. 29**). Applicants are not eligible to pursue a second degree which is similar to one already completed at a recognized institution. Generally, degrees with identical or closely related majors are considered to be similar. International applicants who possess a related degree will be considered for admission on a case-by-case basis and are not eligible for admission without the approval of the Faculty of Arts and Science. The decision of the Faculty of Arts and Science will be final in these matters.

f. **Pre-Professional Transfer Program in Engineering**

Admission to the Pre-Professional Transfer Program in Engineering is competitive. All applicants, including high school, transfer and adult (mature) applicants must present the following courses:

- Chemistry 30
- English Language Arts 30-1
- Mathematics 30-1 or Pure Mathematics 30
- Mathematics 31
- Physics 30

Enrolment in the Pre-Professional Transfer Program in Engineering is limited, and fulfilment of the minimum admission requirements does not guarantee admission. Typically, applicants require a minimum average of 75% on these five courses, with at least 70% in each course. Transfer and Adult applicants must also meet the admission requirements identified in **Part I - Admission**. Applicants changing programs or seeking transfer credit should seek advice from an Arts and Science academic advisor.

g. **First Nations' Transition Program**

To be eligible for admission to the program, applicants must have been enrolled in high school until grade twelve OR have been out of high school for at least one year and, at a minimum, hold credit for the following Alberta high school courses or their equivalents:

One academic English Language Arts course chosen from:

- English Language Arts 20-1
- English Language Arts 30-2

Three academic courses chosen from:

- Aboriginal Studies 20
- Biology 20
- Chemistry 20
- One Fine Arts course:
 - Art 30 or Art 31
 - Dance 35
 - Drama 30
 - Choral Music 30, General Music 30, or Instrumental Music 30
- Mathematics 20-1 or Mathematics 20-2

- Physics 20
- Science 20
- Social Studies 20-1 or Social Studies 30-2
- A 20-level language

Enrolment in the FNTP is limited. Students may be contacted by the Admissions Office or the Faculty of Arts and Science for further information.

Students are encouraged to complete a range of 30-level high school courses, or equivalent, before application. Some option courses within the transition program have specific high school prerequisites (see **Part 14 - Course Catalogue** for details).

h. **Readmission after an Absence from the Faculty of Arts and Science**

1. Good Academic Standing or Academic Probation
 - a. Students who left the Faculty of Arts and Science in good standing or on academic probation and are seeking readmission after an absence of up to two years are eligible to return to their previous program of studies regardless of current admission requirements. Such students will be governed by the program requirements of the Calendar in effect at the time of readmission (see **Part I - Admission, Year of the Calendar, p. 46**).
 - b. Students who left the Faculty of Arts and Science in good standing or on academic probation and are seeking readmission after an absence of more than two years, without completing transferable post-secondary courses, must meet current program-specific admission requirements, as indicated above.
 - c. Students who have completed transferable post-secondary courses during an absence must meet current admission requirements to be eligible for readmission (see **Part I - Admission, Transfer Admission Route, p. 28**).

2. Readmission after Required Withdrawal

Students dismissed for academic reasons will not be granted readmission until after the lapse of one year. Applicants for readmission after required withdrawal must complete no less than eight transferable courses (24.0 credit hours) with an overall GPA of 2.00 or higher (on the University of Lethbridge 4.00 scale), after being required to withdraw, to be eligible for readmission. Students required to withdraw twice are not eligible for readmission without approval from the Faculty.

Tabula Rasa will be granted to all first-degree University of Lethbridge students upon readmission to the University into a program offered by the Faculty of Arts and Science after required withdrawal for unsatisfactory academic performance. *Tabula Rasa* will be granted only once, upon readmission after the first required withdrawal. Credit is retained for all previous courses completed with a grade of 'C-' or above, or 'P', or 'CR', up to the following limits (includes transfer courses):

Single Degrees Programs

B.A., B.Sc., and BASc. 20 ungraded courses
(60.0 credit hours)

Combined Degrees Programs

with B.A. and B.Sc. 15 ungraded courses
(45.0 credit hours)

Post-Diploma

B.A. and B.Sc.

Five ungraded courses
(15.0 credit hours)

Although credit is retained, the grades for these courses are not calculated in the GPA. Students readmitted after required withdrawal are readmitted on condition of academic probation and limited to registration in a maximum of four courses (12.0 credit hours).

4. ACADEMIC STANDARDS

For graduation, students must attain a minimum cumulative GPA of 2.00 on a minimum of 20 courses taken at the University of Lethbridge for credit toward the degree.

Student who fall within the cumulative GPA ranges below will be in good standing, on academic probation, or required to withdraw respectively.

Number of Completed Courses (includes transfer courses)	Good Standing	Academic Probation	Required Withdrawal
0-5	1.70 or higher	0.00-1.69	-
6-10	1.70 or higher	1.50-1.69	Below 1.50
11-20	1.85 or higher	1.70-1.84	Below 1.70
21-30	2.00 or higher	1.85-1.99	Below 1.85
31-40 (or more)	2.00 or higher	-	Below 2.00

The number of completed courses is based on a standard 3.0 credit hour course. For the purposes of these regulations, students in post-diploma degree programs will be considered to have 20 courses completed at the beginning of the program. Students in a second degree program must maintain a minimum 2.00 at all times.

a. Probation

Students whose cumulative GPA falls within the levels identified above are considered to be on academic probation. Students on academic probation may not register in more than four courses in a term.

b. Required Withdrawal - Academic Indices

Students whose cumulative GPA, at the end of the spring term, falls within the levels identified above are required to withdraw from the University. Students who have taken fewer than six courses (18.0 credit hours) at the University of Lethbridge will not be required to withdraw.

c. Required Withdrawal - Terms on Probation

Students who, at the end of the spring term, have remained on academic probation for two or more consecutive terms are required to withdraw from the University.

Students who have taken fewer than six courses (18.0 credit hours) at the University of Lethbridge will not be required to withdraw.

Note: The required withdrawal legislation, as indicated in b. and c., applies both to students registered in the fall term who did not continue in the spring term and to students registered in the spring term. All students' records are reviewed once per year, at the end of the spring term.

5. INSTITUTIONAL HONOURS

a. Dean's Honour List

Students with outstanding academic performance are recognized on the Dean's Honour List. The list is compiled twice yearly at the end of the fall and spring terms.

Students completing four or more graded courses in one term must achieve a GPA of 3.75 or higher on these courses to qualify.

b. Standards for Distinction and Great Distinction

Students who have displayed outstanding academic performance during their undergraduate degree programs are awarded their degrees 'With Distinction' or 'With Great Distinction.'

Students with an award GPA of 3.50 to 3.74 are awarded their degree 'With Distinction.' Students with an award GPA of 3.75 or higher are awarded their degree 'With Great Distinction.'

For purposes of awarding degrees 'With Distinction' or 'With Great Distinction,' the Faculty of Arts and Science determines an award GPA by factoring into the University of Lethbridge cumulative GPA, actual grades on transfer courses, and 'A+' grades as 4.30 grade points.

6. ARTS AND SCIENCE DISCIPLINES

A discipline is a branch of knowledge or learning. Disciplines are indicated in the Calendar by distinct course titles and course subject abbreviations. The Faculty of Arts and Science (in conjunction with the Faculty of Fine Arts) offers courses at the undergraduate level in the following disciplines:

Agricultural Biotechnology (AGBT)	History (HIST)
Agricultural Studies (AGST)	Interdisciplinary Studies (IDST)
Anthropology (ANTH)	Japanese (JPNS)
Applied Studies (APST)	Japanese Studies (JPST)
Archaeology (ARKY)	Kinesiology (KNES)
Art (ART)*	Latin (LATI)
Art History (ARHI)*	Liberal Education (LBED)
Asian Studies (ASIA)	Library Science (LBSC)
Astronomy (ASTR)	Linguistics (LING)
Biochemistry (BCHM)	Logic (LOGI)
Biology (BIOL)	Mathematics (MATH)
Blackfoot (BKFT)	Modern Languages (MODL)
Canadian Studies (CNST)	Museum Studies (MSTU)*
Chemistry (CHEM)	Music (MUSI)*
Cinema (CINE)*	Music Ensemble Activity (MUSE)*
Computer Science (CPSC)	Native American Studies (NAS)
Cree (CREE)	Neuroscience (NEUR)
Drama (DRAM)*	New Media (NMED)*
Economics (ECON)	Philosophy (PHIL)
Engineering (ENGG)	Physical Activity (PHAC)
English (ENGL)	Physics (PHYS)
Environmental Science (ENVS)	Political Science (POLI)
Exercise Science (EXSC)	Psychology (PSYC)

Fine Arts (FA)*	Religious Studies (RELS)
French (FREN)	Remote Sensing (RMTS)
First Nations' Transition (FNT)	Sociology (SOCI)
Geography (GEOG)	Spanish (SPAN)
Geology (GEOL)	Statistics (STAT)
German (GERM)	Urban and Regional Studies (UBRE)
Greek (GREK)	Women and Gender Studies (WGST)
Hebrew (HEBR)	Writing (WRIT)
Hispanic Studies (HPST)	

Note: Disciplines indicated by an asterisk (*) are offered by the Faculty of Fine Arts. For all degree regulations, disciplines offered by the Faculty of Fine Arts are considered in the same way as Arts and Science disciplines.

7. APPLIED STUDIES

Applied Studies courses offer students the opportunity to earn academic credit for employment or volunteer experiences that offer significant learning at a level suitable for the awarding of university credit. During the field placement, students explore their interests and aptitudes, and test and reinforce the theories and principles learned in the classroom.

To be eligible for an Applied Studies course, students must have a minimum cumulative GPA of 2.00 and second-year standing (a minimum of 30.0 credit hours).

Credit is earned in Applied Studies 2000 or 2001 for successful completion of 120 placement hours, an employer evaluation and written assignments. Additional credit in Applied Studies 2010 or 2011 may be earned by successful completion of a *Learning Plan* and a project or paper exploring a job-related issue within a specific academic context.

Disciplinary Credit involves an employer evaluation, submission of a *Learning Plan* that outlines learning objectives, and an academic project or paper to be graded by a supervising faculty member from within the selected discipline.

Disciplinary credit is signified by the series numbers 2980-85, 3980-85, and 4980-85.

To register in Applied Studies courses, students must apply to the Applied Studies Office no later than the deadline published in the timetable. Application packages may be obtained from Career Bridge - Co-operative Education & Applied Studies (AH151; 403-329-2000; artsci.coop@uleth.ca; www.ulethbridge.ca/career-bridge).

The Applied Studies Office coordinates Applied Studies for students in all Faculties and majors.

8. INDEPENDENT STUDY

An Independent Study is a course for which credit is earned through individual study under the supervision of an instructor. Independent Study may be taken for credit inside or outside of the student's major subject or in an interdisciplinary mode. Some major programs require an Independent Study component. Each Arts and Science program has a limit on the number of Independent Study courses that may be completed for credit. Please refer to the appropriate entry later in this section and **Part 4 - Academic Regulations, Exceeding Course Limits, p. 66**). Independent Study numbers 2990, 3990 and 4990 indicate the level of advancement.

Independent Study may be elected as early as the second term or as late as the last, depending upon the capability of the student for undertaking academic work with a minimum of guidance. Independent Study may take a variety of forms including library research, laboratory research projects or field

study. Since Independent Study is intended to expand a student's program beyond the limits of the regular curriculum, it may not be used to duplicate course offerings.

Admission to Independent Study is achieved through consent of the instructor, who agrees to guide the study, and by approval of the Department and the Dean. Enrolment may be for a regular term or during a summer session. Credit for Independent Study is at the discretion of the Department, upon recommendation of the instructor. Grades are due at the end of the term of registration, as for regular courses. For further information, students should consult the Department or faculty member under whom they wish to pursue an Independent Study.

9. TOPICS COURSES

Topics courses (numbered 1850, 2850, 3850, or 4850) may be offered in a discipline. The subject matter of Topics courses varies with each offering, with different offerings indicated by distinct titles. Students may take more than one offering of a Topics course for credit if the offerings are distinct (i.e. if each offering taken has a different title).

Topics courses are offered on an irregular basis and do not appear in Part 14 (Course Catalogue) of the Calendar; Topics courses are listed in the current term Timetable. Contact hours for Topics courses may vary according to the nature of the course and will appear in the Timetable entry.

Prerequisites/corequisites/recommended background for individual offerings will appear in the Timetable entry and will normally specify one or more of the following: level-appropriate courses in the discipline/related disciplines, year of standing, appropriate majors, admission to a University of Lethbridge program, or some other special requirement (e.g. an interview).

10. CROSS-LISTED COURSES

There are two types of cross-listed courses available at the University of Lethbridge: courses cross-listed between two different Faculties, and courses cross-listed between two different disciplines within a Faculty. Cross-listed courses appear in the Calendar and will appear on the student's academic records in the dual form, for example, Economics 2070/Management 2070.

Courses cross-listed between Faculties count within a B.A., B.Sc., or B.A.Sc. program as the Arts and Science discipline. For example, Economics 2070/Management 2070 will be used as Economics 2070 for all regulations and requirements relating to the B.A., B.Sc., and B.A.Sc.

Courses cross-listed between two disciplines within the Faculty of Arts and Science may be used to meet major/minor requirements in either discipline, but not both (in the case of a double major or major/minor combination). However, cross-listed courses will count toward both disciplines with respect to any limits that exist within a student's program (including disciplinary course limit and Liberal Education List Requirement). For example, History 3850/Women and Gender Studies 3850 will count toward the limit on the number of disciplinary courses allowed in both History and Women and Gender Studies. A student may not assign a cross-listed course to one discipline or the other in order to avoid exceeding a limit.

11. UNDERGRADUATE THESIS COURSES ('HONOURS THESIS' DESIGNATION)

In some disciplines, qualified students in the Bachelor of Arts, Bachelor of Science, or Bachelor of Arts and Science programs may elect to complete an Undergraduate Thesis course (6.0 credit hours) linked to their declared major. Students who

complete all requirements and satisfy the academic standards required for the Undergraduate Thesis course for their declared major are eligible to receive the 'Honours Thesis' designation on their official transcript and degree parchment. Students completing a combined degrees program, post-diploma program, or a B.A., B.Sc., or BASc. as a second degree may not count the 6.0 credit hour Undergraduate Thesis towards the requirements of their chosen major or degree program, although they are eligible to receive the 'Honours Thesis' designation by completing this course in addition to the minimum requirements for their chosen major and degree program.

Undergraduate Thesis courses are numbered 4995 and are available for Arts and Science majors as indicated below:

Arts and Science major	Undergraduate Thesis course allowed
Agricultural Biotechnology	Agricultural Biotechnology 4995
Agricultural Studies (B.A. or B.Sc.)	Agricultural Studies 4995
Anthropology	Anthropology 4995
Applied Statistics	Statistics 4995
Archaeology and Geography (B.A. or B.Sc.)	Archaeology 4995 or Geography 4995
Art	Art 4995, Art History 4995, or Museum Studies 4995
Biochemistry	Biochemistry 4995
Biological Sciences	Biology 4995
Canadian Studies	Canadian Studies 4995
Chemistry	Chemistry 4995
Computer Science	Computer Science 4995
Computer Science and Geographical Information Science	Computer Science 4995 or Geography 4995
Dramatic Arts	Not currently available
Economics	Economics 4995
English	English 4995
Environmental Science	Environmental Science 4995
French	French 4995
French/German	French 4995 or German 4995
French/Spanish	French 4995 or Spanish 4995
General Major in the Humanities	Not available
General Major in the Sciences	Not available
General Major in the Social Sciences	Not available
Geography (B.A. or B.Sc.)	Geography 4995
German	German 4995
History	History 4995
Kinesiology (B.A. or B.Sc.)	Kinesiology 4995
Mathematics	Mathematics 4995
Music	Not currently available
Native American Studies	Native American Studies 4995
Neuroscience	Neuroscience 4995
Philosophy	Philosophy 4995 or Logic 4995

Physics	Physics 4995
Political Science	Political Science 4995
Psychology (B.A. or B.Sc.)	Psychology 4995
Religious Studies	Religious Studies 4995
Remote Sensing	Remote Sensing 4995
Sociology	Sociology 4995
Urban and Regional Studies	Urban and Regional Studies 4995
Women and Gender Studies	Women and Gender Studies 4995

(See **Part 14 - Course Catalogue** for details on approved courses.)

a. Prerequisites

Prospective 'Honours Thesis' candidates must meet the following prerequisites:

1. Fourth-year standing (a minimum of 90.0 credit hours).
2. A cumulative GPA of 3.30 (or higher if the department/unit requires).
3. Any further prerequisite(s) as determined by the department/unit. (See **Part 14 - Course Catalogue**).

b. Supervisory Committee

For each prospective 'Honours Thesis' candidate, a Supervisory Committee will be established. The Supervisory Committee, approved by the department offering the Undergraduate Thesis course, will consist of the Thesis Supervisor from the department and a minimum of one other reader, who may be from outside the department.

Note: For majors not housed in a department, the Supervisory Committee composition shall be proposed by the Program Coordinator, subject to endorsement by the Dean.

c. Initial Approval

1. The prospective student must present a *Thesis Proposal* to be approved by the Supervisory Committee prior to registration for the course.
2. The Supervisory Committee will establish at the outset the weighting of the written and oral components of the Thesis, as well as the procedure for determining the final grade.
3. Subsequent changes to the approved *Thesis Proposal* must be approved by the Supervisory Committee.
4. The prospective student must submit an unofficial transcript for review by the Supervisory Committee.
5. Admission to the course is achieved through approval of the Supervisory Committee and the Department, or Program Coordinator, endorsed by the Dean whose signature indicates that the necessary resources are available for the project.
6. The student must register for the Undergraduate Thesis course by the last day for course add/drop for the given fall/spring term or summer session.

d. Final Assessment

The final assessment for the Undergraduate Thesis is based on two criteria:

- I. Written Component
 - a. The Undergraduate Thesis must be a sustained piece of supervised research demonstrating a superior level of academic ability on a matter approved by the Supervisory Committee prior to registration in the course.
 - b. The Thesis should be of high quality and made publicly available by the department.

2. Oral Component

The student will be required to make a formal oral presentation demonstrating the ability to articulate clearly the nature of the project undertaken, the research methodology and the results of the project. This component is a demonstration of the student's competence in oral communication and not necessarily an oral defence of the Thesis, unless so specified by the department.

- e. **Eligibility for 'Honours Thesis' Designation**

Students are eligible to receive the 'Honours Thesis' designation on their official transcript and degree parchment only if they achieve a minimum grade of 'B+' (3.30 or higher) for the Undergraduate Thesis course, and have satisfactorily completed the required oral component. Students who achieve grades between 'D' and 'B', inclusive, and/or do not complete the oral component will retain credit for the equivalent of two courses (6.0 credit hours) but will not be eligible for the 'Honours Thesis' designation.

Students may not repeat an Undergraduate Thesis course and may not complete more than one Undergraduate Thesis course per degree.

Inquiries about the availability of the 'Honours Thesis' option should be directed to the respective department/unit. Please refer to **Part 4 - Academic Regulations, Honours Thesis Designation (p. 68)** for more information on the 'Honours Thesis' designation.

12. CO-OPERATIVE EDUCATION/INTERNSHIP PROGRAMS

Co-operative Education/Internship Programs are available to students in all majors in the Humanities and Social Sciences in the B.A., Post-Diploma B.A., B.A./B.Ed. (including pre-B.A./B.Ed.) and B.A./B.Mgt. degree programs, and are available to students in all Science majors in the B.Sc., Post-Diploma B.Sc., B.A.Sc., B.Sc./B.Ed. (including pre-B.Sc./B.Ed.) and B.Sc./B.Mgt. degree programs.

Co-operative Education/Internship Programs differ from other forms of education in that they formally integrate a student's academic and career studies on campus with relevant and productive work experience in industry, business or government. The Coordinator, the Faculty of Arts and Science and the employer share in the enrichment of the student's academic program and in the intellectual, personal and professional development of the student.

Faculty of Arts and Science Co-operative Education Programs are accredited by the Canadian Association for Co-operative Education (CAFCE).

Further information and details concerning admission and requirements may be obtained from Career Bridge - Co-operative Education & Applied Studies (AH151; 403-329-2000; artsci.coop@uleth.ca; www.ulethbridge.ca/career-bridge).

- a. **Admission**

Students are often able to secure a Co-op placement at the end of their first year. Students are therefore encouraged to contact the Faculty of Arts and Science Co-operative Education Office as soon as possible in their program.

The criteria for admission include:

1. Minimum second-year standing (a minimum of 30.0 credit hours)
2. GPA and academic standing
3. Resumé and application form
4. Personal interview
5. Ability to perform in a work setting

Other factors such as labour market conditions, work experience, volunteer experience and extracurricular activities are also considered when selecting participants for the program.

- b. **Requirements**

Students may complete between one and six work terms in one or more placements. Co-op work terms are normally four months in length and can begin in January, May or September each year. Co-op internships are usually undertaken by students in the third or fourth year of their program and are usually 12-16 months (i.e. three or four work terms) in duration.

To receive the Co-op designation for the degree students must complete successfully the course, major and degree requirements for the degree program in addition to a minimum of three work terms:

- Arts and Science 3011 - Co-op Work Experience I
- Arts and Science 3012 - Co-op Work Experience II
- Arts and Science 3013 - Co-op Work Experience III

Students may also opt for the maximum of three additional work terms:

- Arts and Science 3014 - Co-op Work Experience IV
- Arts and Science 3015 - Co-op Work Experience V
- Arts and Science 3016 - Co-op Work Experience VI

Students are also required to complete pre-employment preparation training prior to the first work term.

Students must be registered for the entire duration of the work term(s) applied for through the Co-op program, including extensions, and, once registered, are not permitted to withdraw from the work placement without penalty of failure. A grade of 'F' (fail) will be entered on the transcript for the whole term(s) unless extenuating circumstances warrant granting of a Withdrawal with Cause ('WC'), in accordance with University of Lethbridge policy (see **Part 4 - Academic Regulations, Academic Regulations, p. 64**). Where approval is granted by the Coordinator of Co-operative Education and the Dean of Arts and Science, a 'WC' will be entered on the transcript. Tuition fees will be assessed as per the University's Withdrawal with Cause policy. Students may consult the Co-op student handbook for further information/regulations and should contact the Coordinator of Co-operative Education for assistance with the procedure.

c. Continuation in the Programs

Students must acknowledge, accept and abide by the requirements and regulations as outlined in the Calendar and the Co-op student handbook.

d. Transfer of Co-op Terms

For the purpose of fulfilling the Arts and Science Co-operative Education requirement of three work term courses to earn the Co-op designation, a maximum of one Co-op work term from another institution with formal Co-operative Education programs shall be eligible for recognition toward the requirement. To be eligible for recognition, the Co-op work term shall be subject to special assessment by the Arts and Science Co-operative Education Office. An approved Co-op work term must be registered as a non-academic course on the student's transcript from the sending institution and must have received a passing grade (either a letter grade or 'Pass').

13. BACHELOR OF ARTS (B.A.)

a. General Requirements

1. Completion of at least 40 courses (120.0 credit hours) with a GPA of at least 2.00.
2. Completion of the Liberal Education List Requirement (see **Part 4 - Academic Regulations, Liberal Education List Requirement, p. 80**).
3. Not more than 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.
4. Completion of at least 15 courses (45.0 credit hours) from disciplines offered by the Faculty of Arts and Science or the Faculty of Fine Arts at the 3000/4000 level, excluding Activity courses (labelled PHAC and MUSE).
5. Not more than five Independent Study courses (15.0 credit hours) may be completed for credit towards the degree.
6. 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.
7. 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).*
8. 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).
9. Not more than four courses (12.0 credit hours) from disciplines offered outside the Faculty of Arts and Science or the Faculty of Fine Arts may be completed for credit towards the degree. Courses cross-listed between the Faculty of Arts and Science and another Faculty do not count towards this limit.

10. Residence requirement: a minimum of 20 courses (60.0 credit hours) must be completed at the University of Lethbridge, including at least 10 Arts and Science courses (30.0 credit hours) at the 3000/4000 level.

(See **Part 4 - Academic Regulations, Exceeding Course Limits, p. 66**.)

b. Major Requirements

For the Bachelor of Arts, a major program must be chosen and completed from among the following majors: Agricultural Studies, Anthropology, Archaeology and Geography, Art, Canadian Studies, Dramatic Arts, Economics, English, French, French/German*, French/Spanish, a General Major in the Humanities, a General Major in the Social Sciences, Geography, German*, History, Kinesiology, Music, Native American Studies, Philosophy, Political Science, Psychology, Religious Studies, Sociology, Urban and Regional Studies, Women and Gender Studies, or an individual multidisciplinary major program.

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

**Majors in French/German and German have been suspended (see p. 120 and p. 125)*

14. BACHELOR OF SCIENCE (B.Sc.)

a. General Requirements

1. Completion of at least 40 courses (120.0 credit hours) with a GPA of at least 2.00.
2. Completion of the Liberal Education List Requirement (see **Part 4 - Academic Regulations, Liberal Education List Requirement, p. 80**).
3. Not more than 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.
4. Completion of at least 15 courses (45.0 credit hours) from disciplines offered by the Faculty of Arts and Science or the Faculty of Fine Arts at the 3000/4000 level, excluding Activity courses (labelled PHAC and MUSE).
5. Not more than five Independent Study courses (15.0 credit hours) may be completed for credit towards the degree.
6. 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.
7. 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).*
8. 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).

9. Not more than four courses (12.0 credit hours) from disciplines offered outside the Faculty of Arts and Science or the Faculty of Fine Arts may be completed for credit towards the degree. Courses cross-listed between the Faculty of Arts and Science and another Faculty do not count towards this limit.
10. Residence requirement: a minimum of 20 courses (60.0 credit hours) must be completed at the University of Lethbridge, including at least 10 Arts and Science courses (30.0 credit hours) at the 3000/4000 level.

(See **Part 4 - Academic Regulations, Exceeding Course Limits, p. 66.**)

b. Major Requirements

For the Bachelor of Science, a major program must be chosen and completed from among the following majors: Agricultural Biotechnology, Agricultural Studies, Applied Statistics, Archaeology and Geography, Biochemistry, Biological Sciences, Chemistry, Computer Science, Computer Science and Geographical Information Science, Environmental Science, a General Major in the Sciences, Geography, Kinesiology, Mathematics, Neuroscience, Physics, Psychology, Remote Sensing, or an individual multidisciplinary major program.

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

15. BACHELOR OF ARTS AND SCIENCE (BASc.)

a. General Requirements

1. Completion of at least 40 courses (120.0 credit hours) with a GPA of at least 2.00.
2. Completion of the Liberal Education List Requirement (see **Part 4 - Academic Regulations, Liberal Education List Requirement, p. 80.**)
3. Not more than 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.
4. Completion of at least 15 courses (45.0 credit hours) from disciplines offered by the Faculty of Arts and Science or the Faculty of Fine Arts at the 3000/4000 level, excluding Activity courses (labelled PHAC and MUSE).
5. Not more than five Independent Study courses (15.0 credit hours) may be completed for credit towards the degree.
6. 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.
7. 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).

8. 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).
9. Not more than four courses (12.0 credit hours) from disciplines offered outside the Faculty of Arts and Science or the Faculty of Fine Arts may be completed for credit towards the degree. Courses cross-listed between the Faculty of Arts and Science and another Faculty do not count towards this limit.
10. Residence requirement: a minimum of 20 courses (60.0 credit hours) must be completed at the University of Lethbridge, including at least 10 Arts and Science courses (30.0 credit hours) at the 3000/4000 level.

(See **Part 4 - Academic Regulations, Exceeding Course Limits, p. 66.**)

b. Major Requirements

For the Bachelor of Arts and Science, students must complete two majors: an Arts major chosen from the list of eligible majors below, and a Science major chosen from the list of eligible majors below.

Eligible Arts Majors

Anthropology	History
Art	Kinesiology
Dramatic Arts	Music
Economics	Native American Studies
English	Philosophy
French	Political Science
French/German*	Psychology
French/Spanish	Religious Studies
Geography	Sociology
German*	Women and Gender Studies

Eligible Science Majors

Biological Sciences	Kinesiology
Chemistry	Mathematics
Computer Science	Physics
Geography	Psychology

*Majors in French/German and German have been suspended (see **p. 120** and **p. 125**)

Note: Majors in Geography, Kinesiology, and Psychology may be used as either the Arts major or the Science major but not both.

Students must complete the minimum course requirements for both majors. Students may not double count courses in fulfilling requirements for their two majors.

In some cases, depending on the choice of majors, more than 40 courses (120.0 credit hours) may be required to satisfy all degree and major requirements.

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

16. MAJORS

The section on majors lists all majors available for the various degree programs offered by the Faculty of Arts and Science. Majors are listed alphabetically, and each entry provides pertinent information about the major and outlines the requirements. Further details may be obtained from Department Chairs, Program Coordinators, academic advising, or the Arts and Science Dean or Dean's Designate. Each entry also provides a web address for each program.

a. Agricultural Biotechnology

Departments: Biological Sciences, Chemistry and Biochemistry, and Economics.

The major in Agricultural Biotechnology provides background for a diverse range of activities such as graduate study in the life sciences and career development within the agricultural industry; the program is often taken as a means of completing pre-professional requirements leading to a veterinary degree.

Please refer to the program website (www.uleth.ca/artscil/agricultural-biotechnology) for more information.

Required courses:

Agricultural Studies 1000 - The Evolution of Agriculture
Biochemistry 2000 - Introductory Biochemistry
Biology 1010 - Cellular Basis of Life
Biology 1020 - Diversity of Life
Biology 2000 - Principles of Genetics
Biology 2200 - Principles of Ecology
Biology 3000 - Gene Expression and Regulation
Biology 3105 - Signal Transduction
Biology 3210 - Experimental Methods in Molecular and Cellular Biology
Biology 3300 - Evolution
Biology 3400 - Principles of Microbiology
Biology 4100 - Advances in Agricultural Biotechnology
Chemistry 1000 - General Chemistry I
Chemistry 2000 - General Chemistry II
Chemistry 2500 - Organic Chemistry I
Chemistry 2600 - Organic Chemistry II
Economics 1010 - Introduction to Microeconomics
Economics 3300 - Agricultural Policy I

One of:

Biology 3005 - Genome Maintenance
Biology 3115 - Principles of Cell Growth

One of:

Biology 3420 - Animal Physiology
Biology 3460 - Plant Physiology

One of:

Economics 2150 - Economics of Agricultural Issues
Economics 2350 - Economics of Agricultural Markets I

One of:

Mathematics 1410 - Elementary Linear Algebra
Mathematics 1560 - Calculus I
Mathematics 1565 - Accelerated Calculus I

One of:

Physics 1000 - Introduction to Physics I
Physics 1050 - Introduction to Biophysics

Recommended courses:

Neuroscience 2600 - Brain and Behaviour
Neuroscience 3600 - Fundamental Neurobiology
Statistics 1770 - Introduction to Probability and Statistics

Notes

Students are advised to complete both Biology 3005 and Biology 3115 as part of their Agricultural Biotechnology major (only one of these is required).

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.

See also:

- Pre-Professional Transfer Programs
- Bachelor of Science - Biological Sciences
- Bachelor of Science - Biochemistry
- Bachelor of Science - Environmental Science

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Concentration: Agricultural Business (optional)

Agricultural Biotechnology majors in the B.Sc. degree program may declare a Concentration in Agricultural Business.

Required courses:

Management 2020 - Marketing
Management 2100 - Introductory Accounting

Three of:

Economics 3030 - Managerial Economics
Economics 3080/Management 3780 - Principles of Industrial Organization I
Management 3010 - Management Law
Political Science 2210 - Canadian Politics and Government
¹ Management 3050 - Human Resource Management

Notes

¹ Has prerequisites: Management 2030, and one of Writing 1000 or a university English course (3.0 credit hours).

For students who complete all requirements, the Concentration in Agricultural Business will be acknowledged on the official transcript.

Agricultural Biotechnology (B.Sc.)

Number of courses required for the major 23

(Independent Study - optional; may not be counted in required courses for major)

Concentration: Agricultural Business (optional)

Number of courses required for concentration 5

Total number of courses required for major and concentration 28

b. Agricultural Studies (B.A.)

Department: Economics

Agricultural Studies is a broad multidisciplinary program encompassing a purposeful blend of the physical sciences, economics and other social sciences. The aim of the program is to improve the understanding and practice of activities that transform natural capital, plants and animals to satisfy myriad human wants. The curriculum enables aspiring agriculturalists to explore and learn about the physical and economic interrelationships between agricultural production, marketing and trade, nutrient management, water, grazing, rangeland and riparian management. The program provides the foundation for a wide variety of career alternatives related to primary production, input supply services including banking, commodity marketing and processing, and agri-food retailing.

Please refer to the program website (www.uleth.ca/artsci/agricultural-studies) for more information.

Required core (10 courses):

Agricultural Studies 1000 - The Evolution of Agriculture
Agricultural Studies 3300 - Modelling of Agricultural Systems
Agricultural Studies 4000 - Seminar in Agricultural Issues
Agricultural Studies 4300 - Advanced Modelling of Agricultural Systems
Biology 1020 - Diversity of Life
Economics 1010 - Introduction to Microeconomics
Geography 1200 - Introduction to Human Geography
Statistics 1770 - Introduction to Probability and Statistics

One of:

Philosophy 2001 - Introduction to Ethics
Philosophy 2236 - Environmental Philosophy

One of:

Anthropology 1000 - The Anthropological Perspective
Political Science 1000 - Introduction to Political Science
Sociology 1000 - Introduction to Sociology

Subfield requirements (10 courses):

Eight courses (24.0 credit hours) from either subfield list 1. or 2. below
Two courses (6.0 credit hours) from the other subfield list below
Four of the subfield courses (12.0 credit hours) must be at the 3000/4000 level

Students choosing Agricultural Economics as their eight-course subfield must complete the Quantitative Methods requirement: Economics 2900. Students choosing Rural Sociology and Development as their eight-course subfield must complete the Research Methodology requirement: Sociology 2100.

I. Agricultural Economics

Economics 1012 - Introduction to Macroeconomics
Economics 2150 - Economics of Agricultural Issues
Economics 2350 - Economics of Agricultural Markets I
Economics 2750 - Quantitative Methods in Economics
Economics 3010 - Intermediate Microeconomic Theory
Economics 3030 - Managerial Economics
Economics 3220 - Environmental Economics
Economics 3300 - Agricultural Policy I

Economics 3350 - Economics of Agricultural Markets II

Economics 4300 - Agricultural Policy II

Quantitative Methods Requirement:

Economics 2900 - Economics and Business Statistics

2. Rural Sociology and Development

¹ Anthropology 4500 - Anthropological Methods (Series) (Ethnographic Methods)

Economics 2150 - Economics of Agricultural Issues

Economics 3300 - Agricultural Policy I

Economics 3800 - Economic Development

Economics 4300 - Agricultural Policy II

Geography 1000 - Introduction to Physical Geography

Geography 2210 - Spatial Organization of Economic Activity

Geography 2700 - Geographical Data and Analysis

Geography 3210 - Agricultural Geography

Geography 4200 - Project in Agricultural Geography

Political Science 2210 - Canadian Politics and Government

Political Science 3260 - Canadian Public Policy

Political Science 3400 - Public Administration

Sociology 3110 - Survey Research

Sociology 3120 - Qualitative Research Methods

Research Methodology Requirement:

Sociology 2100 - Research Methodology

Technical Studies Term (five courses)

Students are required to complete a term of study at an approved college. The Technical Studies term counts as the equivalent of 15.0 credit hours at the University of Lethbridge (i.e., three unspecified 2000-level and two unspecified 3000-level Agricultural Studies courses).

The Technical Studies term should be taken after at least 20 university courses have been completed and prior to registration in the final 10 courses for the degree.

Students must have the college course selection approved by the Coordinator of Agricultural Studies. Further details are available from the Coordinator.

Notes

¹ Prerequisite required: Anthropology 3000.

Courses which appear in both subfield lists may be counted in only one of the subfields. Students choosing Agricultural Economics as their eight-course subfield must choose two courses from the Rural Sociology and Development subfield which are not Economics courses.

Applied Studies, Independent Studies and Topics courses may be counted toward the subfield requirements provided:

1. They are clearly related to one of the subfields; and,
2. They are approved by the Coordinator of Agricultural Studies.

Students may not receive credit for courses at the University of Lethbridge for which close equivalents have been taken at the college, and vice versa. Students must ensure that their course selection has been approved by the Coordinator of Agricultural Studies.

Students wishing to pursue graduate studies in Agricultural Economics should also include Economics 3012, Economics 4010, Economics 4012, and Mathematics 1560 in their programs.

A student who successfully completes this 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 Studies early in the program for further information.

See also:

- Post-Diploma Bachelor of Arts - Agricultural Studies
- Bachelor of Science - Agricultural Studies

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Concentration: Agricultural Business (optional)

Agricultural Studies majors in the B.A. degree program may declare a Concentration in Agricultural Business.

Required courses:

Management 2020 - Marketing
Management 2100 - Introductory Accounting

Three of:

- Economics 3030 - Managerial Economics
- Economics 3080/Management 3780 - Principles of Industrial Organization I
- Management 3010 - Management Law
- Political Science 2210 - Canadian Politics and Government

¹ Management 3050 - Human Resource Management

Notes

¹ Has prerequisites: Management 2030, and one of Writing 1000 or a university English course (3.0 credit hours).

Students may not double count courses required for the Concentration in Agricultural Business in fulfilling requirements for subfields of the Major in Agricultural Studies. In such cases, students must select another option from the subfield list.

For students who complete all requirements, the Concentration in Agricultural Business will be acknowledged on the official transcript.

Agricultural Studies (B.A.)

Number of courses required for the major 20

(Independent Study - optional; may not be counted in required courses for major)

Concentration: Agricultural Business (optional)

Number of courses required for concentration 5

Total number of courses required for major and concentration 25

All students must also complete the Technical Studies Term (five courses).

c. Agricultural Studies (B.Sc.)

Departments: Biological Sciences, Chemistry and Biochemistry, Economics and Geography

Agricultural Studies is a broad multidisciplinary program encompassing the physical sciences, economics and other

social sciences. The aim of the program is to improve the understanding and practice of activities that transform natural capital, plants and animals to satisfy myriad human wants. The curriculum enables aspiring agriculturalists to explore and learn about the physical and economic interrelationships between agricultural production, marketing and trade, nutrient management, water, grazing, rangeland and riparian management. The program provides the foundation for a wide variety of career alternatives related to primary production, input supply services including banking, commodity marketing and processing, and agri-food retailing.

Please refer to the program website (www.uleth.ca/artsci/agricultural-studies) for more information.

Required core (12 courses):

- Agricultural Studies 1000 - The Evolution of Agriculture
- Agricultural Studies 3300 - Modelling of Agricultural Systems
- Agricultural Studies 4000 - Seminar in Agricultural Issues
- Agricultural Studies 4300 - Advanced Modelling of Agricultural Systems
- Biology 1010 - Cellular Basis of Life
- Biology 1020 - Diversity of Life
- Biology 2000 - Principles of Genetics
- Chemistry 1110 - Chemistry for Life Sciences I
- Economics 1010 - Introduction to Microeconomics
- Geography 1000 - Introduction to Physical Geography
- Statistics 1770 - Introduction to Probability and Statistics

One of:

- Computer Science 1620 - Fundamentals of Programming I
- Mathematics 1010 - Introduction to Calculus
- Mathematics 1560 - Calculus I
- Mathematics 1565 - Accelerated Calculus I
- Physics 1050 - Introduction to Biophysics

Subfield requirements (eight courses):

Six courses (18.0 credit hours) from either subfield list 1. or 2. below

Two courses (6.0 credit hours) from the other subfield list below

Four of the subfield courses (12.0 credit hours) must be at the 3000/4000 level

1. Biological Sciences

- Biology 2200 - Principles of Ecology
- Biology 3000 - Gene Expression and Regulation
- Biology 3105 - Signal Transduction
- ¹ Biology 3310 - Developmental Biology
- Biology 3400 - Principles of Microbiology
- Biology 3420 - Animal Physiology
- Biology 3460 - Plant Physiology
- Biology 3505 - Freshwater Biology
- Biology 3520 - Invertebrate Zoology
- Biology 3530 - Vertebrate Zoology
- Biology 3560 - Integrative Plant Biology
- Biology 3610 - Prairie Conservation
- Biology 3700 - Ecosystem and Community Ecology
- Biology 4100 - Advances in Agricultural Biotechnology
- Biology 4110 - Advances in Genetics, Molecular and Cellular Biology
- ² Biology 4170 - Plant Biotechnology
- Biology 4560 - Plant Development
- Chemistry 2120 - Chemistry for Life Sciences II
- Environmental Science 2000 - Fundamentals of Environmental Science

2. Geography

Environmental Science 2000 - Fundamentals of Environmental Science
Geography 2030 - Geomorphology
Geography 2300 - Weather and Climate
Geography 2700 - Geographical Data and Analysis
Geography 2735 - Introduction to Geographical Information Science
Geography 3075 - Environmental Resources Management
Geography 3080 - Soils
Geography 3210 - Agricultural Geography
Geography 3400 - Hydrology I
Geography 3700 - Cartography
Geography 3720 - Remote Sensing
Geography 3740 - Geographical Information Systems
Geography 4060 - Agricultural Soil Management
Geography 4065 - Irrigation Science
Geography 4200 - Project in Agricultural Geography
Geography 4400 - Hydrology II
Geography 4415 - Integrated Watershed Management
Geography 4725 - Advanced Remote Sensing
Geography 4740 - Advanced Geographical Information Systems
Geology 2060 - Physical Geology

Technical Studies Term (five courses)

Students are required to complete a term of study at an approved college. The Technical Studies term counts as the equivalent of 15.0 credit hours at the University of Lethbridge (i.e., three unspecified 2000-level and two unspecified 3000-level Agricultural Studies courses).

The Technical Studies term should be taken after at least 20 university courses have been completed and prior to registration in the final 10 courses for the degree.

Students must have the college course selection approved by the Coordinator of Agricultural Studies. Further details are available from the Coordinator.

Notes

¹ Prerequisite required: *Biochemistry 2000*.

² Prerequisite required: *Biology 3210*.

Applied Studies, Independent Studies and Topics courses may be counted toward the subfield requirements provided:

1. They are clearly related to one of the subfields; and,
2. They are approved by the Coordinator of Agricultural Studies.

Students may not receive credit for courses at the University of Lethbridge for which close equivalents have been taken at the college, and vice versa. Students must ensure that their course selection has been approved by the Coordinator of Agricultural Studies.

Students wishing to pursue the Concentration in Geographical Information Science must complete Geography 2735 among the eight courses required in the Geography subfield.

A student who successfully completes this 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 Studies early in the program for further information.

See also:

- Post-Diploma Bachelor of Science - Agricultural Studies
- Bachelor of Arts - Agricultural Studies

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Concentration: Agricultural Business (optional)

Agricultural Studies majors in the B.Sc. degree program may declare a Concentration in Agricultural Business.

Required courses:

Management 2020 - Marketing
Management 2100 - Introductory Accounting

Three of:

Economics 3030 - Managerial Economics
Economics 3080/Management 3780 - Principles of Industrial Organization I
Management 3010 - Management Law
Political Science 2210 - Canadian Politics and Government

¹ Management 3050 - Human Resource Management

Notes

¹ Has prerequisites: *Management 2030* and one of *Writing 1000* or a university English course (3.0 credit hours).

For students who complete all requirements, the Concentration in Agricultural Business will be acknowledged on the official transcript.

Concentration: Geographical Information Science (optional)

Agricultural Studies majors in the B.Sc. degree program may declare a Concentration in Geographical Information Science.

Required courses:

Computer Science 1620 - Fundamentals of Programming I
Geography 3720 - Remote Sensing
Geography 3740 - Geographical Information Systems
Geography 4725 - Advanced Remote Sensing
Geography 4740 - Advanced Geographical Information Systems

Notes

An alternate Geography course may be counted toward the Concentration requirements provided (1) it is clearly related to Geographical Information Science and (2) it is approved by the Chair of the Department of Geography. Students may not double count courses required for the Concentration in Geographical Information Science in fulfilling requirements for the major. In such cases, students must select another option.

For students who complete all the requirements, the Concentration in Geographical Information Science will be acknowledged on the official transcript.

Agricultural Studies (B.Sc.)

Number of courses required for the major 20

(Independent Study - optional; may be counted in required courses for major)

Concentration: Agricultural Business (optional)

Number of courses required for concentration 5

Concentration: Geographical Information Science (optional)

Number of courses required for concentration 5

Total number of courses required for major and both concentrations 30

All students must also complete the Technical Studies Term (five courses).

d. Anthropology

Department: Anthropology

Anthropology is the academic study of the diversity of human life in local settings, whether in the past or present. The particulars of any local life, society or culture, however, are not isolated from global influence. Contemporary anthropology examines the material, social and cultural conditions of human behaviour and life from this locally global perspective. Traditionally, long-term ethnographic and archaeological fieldwork in other societies has been the hallmark of the anthropological study of the human condition, but anthropologists are also cultural critics considering issues of race, gender, power, space and government in their own societies as well. The anthropological perspective makes significant contributions to fields as diverse as health, education, international development, religion, policy, urban studies, indigenous studies, economics and politics.

Please refer to the program website (www.uleth.ca/artsci/anthropology) for more information.

Required courses:

Anthropology 1000 - The Anthropological Perspective
Anthropology 2010 - Theory I: Historical Foundations of Anthropological Thought
Anthropology 2210 - Cultures of the World (Series)
Anthropology 3000 - Theory II: Contemporary Anthropological Theory
Anthropology 3010 - Methods, Knowledge, and Ethics

One of:

Anthropology 2410 - Anthropological Archaeology
Anthropology 2510 - Language, Culture, and Communication

Three additional courses (9.0 credit hours) in Anthropology at the 2000 level or above, excluding Anthropology 2990, 3990, and 4990 (Independent Study)

Two additional courses (6.0 credit hours) in Anthropology at the 3000/4000 level, excluding Anthropology 3980 (Applied Studies) and Anthropology 3990 (Independent Study)

Two courses (6.0 credit hours) in Anthropology at the 4000 level, excluding Anthropology 4980 (Applied Studies), Anthropology 4990 (Independent Study), and Anthropology 4995 (Undergraduate Thesis)

Notes

See also:

- Bachelor of Arts/Bachelor of Education - Anthropology/Social Studies Education
- Bachelor of Arts/Bachelor of Management - Anthropology

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Anthropology (B.A.)

Number of courses required for the major 13

(Independent Study - optional; may not be counted in required courses for major)

e. Applied Statistics

Departments: Mathematics and Computer Science, Economics, Geography, and Psychology

Statistics is the study of the collection, organization, analysis, interpretation and presentation of data. Application of statistical techniques is an essential part of decision making and study in a wide range of disciplines such as astronomy, biology, education, economics, geography, engineering, genetics, marketing, medicine, psychology, public health and sports, among many.

Please refer to the program website (www.uleth.ca/artsci/math-computer-science) for more information.

Required courses:

Computer Science 1620 - Fundamentals of Programming I
Mathematics 1410 - Elementary Linear Algebra
Statistics 1770 - Introduction to Probability and Statistics
Statistics 2200 - Survey Design and Analysis
Statistics 3500 - Mathematical Probability
Statistics 3510 - Mathematical Statistics
Statistics 3700 - Design and Analysis of Experiments

One of:

Mathematics 1560 - Calculus I
Mathematics 1565 - Accelerated Calculus I

One of:

Mathematics 2560 - Calculus II
Mathematics 2565 - Accelerated Calculus II

One of:

Statistics 2780 - Statistical Inference
Economics 2900 - Economics and Business Statistics

One course (3.0 credit hours) at the 4000 level in Statistics

Required Concentration:

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

1. Concentration in Economics

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

2. Concentration in Geography

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 3235 - Quantitative Models for Geographic Analysis
Geography 4730 - Spatial Statistics

One of:

Geography 2030 - Geomorphology
Geography 2300 - Weather and Climate

One of:

Geography 3740 - Geographical Information Systems
Geography 3750 - GIS Applications in Human Geography

One additional course (3.0 credit hours) in Geography at the 3000/4000 level

3. Concentration in Psychology

Psychology 1000 - Basic Concepts of Psychology
Psychology 2030 - Methods and Statistics
Psychology 3400 - Advanced Research Design and Data Analysis

Four courses (12.0 credit hours) in Psychology or Neuroscience at the 2000 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

For students who complete all requirements for the Major in Applied Statistics with one of the above concentrations, the concentration will be acknowledged on the official transcript.

Notes

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 - Mathematics

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Applied Statistics (B.Sc.)

Number of courses required for the major and concentration 21

(Independent Study - required in major)

f. Archaeology and Geography (B.A. or B.Sc.)

Department: Geography

Archaeology is the study of the human past based on cultural remains viewed in their spatial context. Archaeological research is often pursued using spatial and environmental models developed within the field of Geography. The major in Archaeology and Geography allows students to combine theoretical and methodological approaches, in tandem with advanced studies of particular cultures through conventional lecture courses and field work.

Please refer to the program website (www.uleth.ca/artsci/archaeology) for more information.

Required courses:

Anthropology 1000 - The Anthropological Perspective
Archaeology 1000 - Introduction to Archaeology
Archaeology 3300 - Archaeological Field Work (Series)
Archaeology 3700 - Geoarchaeology and Landscape Analysis
Geography 1000 - Introduction to Physical Geography
Geography 1200 - Introduction to Human Geography
Geography 2030 - Geomorphology
Geography 2700 - Geographical Data and Analysis
Geography 2735 - Introduction to Geographical Information Science

Two of:

Archaeology 3720 - Archaeological Materials Analysis
Geography 3720 - Remote Sensing
Geography 3740 - Geographical Information Systems
Geology 2060 - Physical Geology

One course (3.0 credit hours) in a language other than English

One course (3.0 credit hours) in Archaeology at the 4000 level

Four additional courses (12.0 credit hours) in Archaeology at the 3000/4000 level

Four additional courses (12.0 credit hours) in Geography, and/or Geology and/or Anthropology at the 3000/4000 level

Notes

Students wishing to complete the Concentration in Geographical Information Science must choose Geography 3720 and Geography 3740, which are prerequisites for the required 4000-level courses in the concentration.

See also:

- Bachelor of Arts or Bachelor of Science - Geography

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Concentration: Geographical Information Science (optional)

Majors in Archaeology and Geography may declare a Concentration in Geographical Information Science.

Required courses:

- Computer Science 1620 - Fundamentals of Programming I
- Geography 4725 - Advanced Remote Sensing
- Geography 4740 - Advanced Geographical Information Systems

Two of:

- ¹Geography 4400 - Hydrology II OR Geography 4415 - Integrated Watershed Management OR Geography 4750 - Glacial Processes, Measurements, and Models
- Geography 4700 - Advanced Computer Mapping
- Geography 4710 - Remote Sensing Field Techniques
- Geography 4730 - Spatial Statistics
- Geography 4751 - Project in Spatial Modelling
- Geography 4753 - Seminar in Remote Sensing

Notes

¹ Prerequisite required: Geography 3400.

An alternate Geography course may be counted toward the concentration requirements provided (1) it is clearly related to Geographical Information Science and (2) it is approved by the Chair of the Department of Geography.

Students may not double count courses required for the Concentration in Geographical Information Science in fulfilling requirements for the Major in Archaeology and Geography.

For students who complete all requirements, the Concentration in Geographical Information Science will be acknowledged on the official transcript.

Archaeology and Geography (B.A. or B.Sc.)	
Number of courses required for the major	21
<i>(Independent Study - optional; may be counted in required courses for major)</i>	
Concentration: Geographical Information Science (optional)	
Number of courses required for concentration	5
Total number of courses required for major and concentration	26

g. Art

Department: Art (Faculty of Fine Arts)

The major in Art is a broad, general program of study. Students complete required courses in both studio art and art history and museum studies as well as electives chosen from either or both areas. Studio instruction is available in drawing, painting, sculpture, photo-arts, printmaking, computer art, video, installation art, performance art and audio art. Art History and Museum Studies courses are available in all periods and genres of western art including First Nations' and Canadian Art history.

Please refer to the program website (www.uleth.ca/artsci/art) for more information.

Required courses:

- Art 2031 - Foundation Studio (Drawing and Image)
- Art 2032 - Foundation Studio (Object and Space)
- Art 3010 - Drawing (Principles and Practices)
- Art History 1000 - Introduction to Art
- Art History 2001 - Contemporary Art Practices and Theories
- Art History 2225 - A Brief History of World Art

One of:

- Art 3261 - Art NOW
- Art 3262 - Art NOW

One of:

- Art History 3200 - Issues in 19th-Century Art and Culture
- Art History 3215 - 20th-Century Art History to 1945
- Art History 3240 - Canadian Art History to 1960
- Museum Studies 2900 - Introduction to Museum Studies

One of:

- Art History 3151 - Art History (Series)
- Art History 3220 - Art from 1945 to 1980
- Art History 3245 - Canadian Art History from 1960 to the Present
- Art History 3250 - Northwest Coast Art
- Art History 3270 - Global Art Since 1980
- Art History 3850 - Topics Course
- Art History 4150 - Art History (Series)
- Museum Studies 3900 - Exhibiting Cultures: Art Galleries, Museums and Cultures of Display
- Museum Studies 4000 - Museum Studies Internship

Four additional courses (12.0 credit hours) in Art, Art History and/or Museum Studies

Notes

A student proceeding beyond these minimum requirements may choose to focus on Art Studio, Art History, or Museum Studies courses.

See also:

- Bachelor of Fine Arts - Art
- Bachelor of Arts/Bachelor of Education - Art/Art Education
- Bachelor of Fine Arts - Art/Bachelor of Education - Art/Art Education
- Bachelor of Arts/Bachelor of Management - Art

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Art (B.A.)	
Number of courses required for the major	13
<i>(Independent Study - optional; may not be counted in required courses for major)</i>	

h. Biochemistry

Departments: Biological Sciences, and Chemistry and Biochemistry

Biochemistry is the study of all living systems at the molecular level. It looks at the chemical and physical basis of life and how these microcosms interact with their

environments. The Biochemistry program will help students develop a strong background in the basic sciences and extensive laboratory skills. Thereby, the Biochemistry program provides background for a diverse range of careers in the life sciences, including professional programs such as medicine and veterinary medicine.

Please refer to the program website (www.uleth.ca/artsci/biochemistry) for more information.

Required courses:

- Biochemistry 2000 - Introductory Biochemistry
- Biochemistry 3100 - Proteins, Enzymes and Nucleic Acids
- Biochemistry 3300 - Bioenergetics and Metabolism
- Biology 1010 - Cellular Basis of Life
- Biology 1020 - Diversity of Life
- Biology 2000 - Principles of Genetics
- Biology 3000 - Gene Expression and Regulation
- Biology 3105 - Signal Transduction
- Biology 3210 - Experimental Methods in Molecular and Cellular Biology
- Biology 3400 - Principles of Microbiology
- Chemistry 1000 - General Chemistry I
- Chemistry 2000 - General Chemistry II
- Chemistry 2410 - Analytical Chemistry I
- Chemistry 2500 - Organic Chemistry I
- Chemistry 2600 - Organic Chemistry II
- Chemistry 2740 - Physical Chemistry
- Physics 2000 - Introduction to Physics II

One of:

- Mathematics 1560 - Calculus I
- Mathematics 1565 - Accelerated Calculus I

One of:

- Mathematics 2560 - Calculus II
- Mathematics 2565 - Accelerated Calculus II

One of:

- Physics 1000 - Introduction to Physics I (recommended)
- Physics 1050 - Introduction to Biophysics
- ²Engineering 2060 - Engineering Mechanics

Two of:

- Biology 3005 - Genome Maintenance
- Biology 3115 - Principles of Cell Growth
- Biology 3310 - Developmental Biology
- Biology 3420 - Animal Physiology
- Biology 3460 - Plant Physiology
- Chemistry 3410 - Analytical Chemistry II
- Chemistry 3730 - Advanced Physical Chemistry
- Chemistry 3830 - Inorganic Chemistry I
- Chemistry 3840 - Inorganic Chemistry II

Two courses (6.0 credit hours) in Biochemistry or Biology (List I - Cellular and Molecular Biology) at the 4000 level (see **Biological Sciences, p. 111**, for Biology lists)

Notes

¹ Prerequisite required: *Mathematics 1410*.

² Prerequisites required: *Engineering 2000 and Mathematics 1565*.

Independent Studies courses, Applied Studies courses, 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.

Students should choose appropriate 3000-level Biology or Chemistry courses to meet prerequisites for 4000-level courses in Biochemistry and/or Biology.

It is strongly recommended that students who are planning to pursue graduate studies in Biochemistry consider the Undergraduate Thesis option during the final two terms of their fourth year. Students interested in this option should consult potential supervisors at an early stage to discuss their background preparation.

See also:

- Bachelor of Science - Biological Sciences
- Bachelor of Science - Chemistry

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Biochemistry (B.Sc.)

Number of courses required for the major 24

(Independent Study - optional; may not be counted in required courses for major)

i. Biological Sciences

Department: Biological Sciences

The Biological Sciences delve into the world of living organisms—from microbes, to human beings, to entire ecosystems—on, under and above the earth. Exploring the nature of life leads biologists out into the world to study how organisms interact with their environment, how they function, and how they evolved. The curriculum provides basic studies in molecular and cellular biology, organismal biology, and ecology and evolutionary biology during a student's first two years, with subsequent opportunities for specialization. Advanced courses also offer opportunities for independent laboratory or field research projects in the three areas. The program provides background for a diverse range of careers in the life sciences and a gateway to professional programs such as medicine and veterinary medicine.

Please refer to the program website (www.uleth.ca/artsci/biological-sciences) for more information.

Required courses:

- Biochemistry 2000 - Introductory Biochemistry
- Biology 1010 - Cellular Basis of Life
- Biology 1020 - Diversity of Life
- Biology 2000 - Principles of Genetics
- Biology 2200 - Principles of Ecology
- Biology 3300 - Evolution
- Biology 4500 - Seminars in Biological Sciences
- Chemistry 1000 - General Chemistry I
- Chemistry 2000 - General Chemistry II
- Chemistry 2500 - Organic Chemistry I
- Chemistry 2600 - Organic Chemistry II

One of:

- Mathematics 1410 - Elementary Linear Algebra
- Mathematics 1560 - Calculus I
- Mathematics 1565 - Accelerated Calculus I

One of:

- Physics 1000 - Introduction to Physics I
- Physics 1050 - Introduction to Biophysics (preferred)

One of:

- One course (3.0 credit hours) in English at the 1000 level or higher

Writing 1000 - Introduction to Academic Writing

¹Six courses (18.0 credit hours) at the 3000/4000 level, including two from each of the following subfield lists; one of the six courses must be at the 4000 level:

List 1 - Cellular and Molecular Biology

Biology 3000 - Gene Expression and Regulation
Biology 3005 - Genome Maintenance
Biology 3105 - Signal Transduction
Biology 3115 - Principles of Cell Growth
Biology 3210 - Experimental Methods in Molecular and Cellular Biology
Biology 4100 - Advances in Agricultural Biotechnology
Biology 4110 - Advances in Genetics, Molecular and Cellular Biology
Biology 4130 - Genomics and Biotechnology
Biology 4140 - RNA Biology
Biology 4170 - Plant Biotechnology
Biology 4200 - Techniques in Molecular Biology
Biology 4230 - Molecular and Cellular Biology of Cancer

List 2 - Organismal Biology

Biology 3310 - Developmental Biology
Biology 3400 - Principles of Microbiology
Biology 3420 - Animal Physiology
Biology 3460 - Plant Physiology
Biology 3505 - Freshwater Biology
Biology 3520 - Invertebrate Zoology
Biology 3530 - Vertebrate Zoology
Biology 3560 - Integrative Plant Biology
Biology 4420 - Environmental Physiology
Biology 4440 - Toxicology
Biology 4560 - Plant Development

List 3 - Ecology and Evolutionary Biology

Biology 3605 - Conservation Biology
²Biology 3610 - Prairie Conservation
Biology 3630 - Field Biology
Biology 3700 - Ecosystem and Community Ecology
Biology 3710 - Population Biology
Biology 3800 - Aquatic Ecosystems
Biology 3810 - Experimental Design and Analysis
Biology 4700 - Molecular Ecology
Biology 4710 - Evolutionary and Ecological Modelling
Biology 4740 - Behavioural Ecology
Biology 4800 - Biology of Parasitism

Recommended course:

Statistics 1770 - Introduction to Probability and Statistics

Notes

¹Topics courses (Biology 3850 and 4850) may be assigned to one of the Biological Sciences lists at the time of scheduling. Please refer to the current term timetable.

²Prerequisite required: Environmental Science 2000.

Independent Studies courses, Applied Studies courses, 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.

See also:

- Bachelor of Science/Bachelor of Education - Biological Sciences/Science Education
- Bachelor of Science/Bachelor of Management - Biological Sciences

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Concentration: Research Internship (optional)

Students completing the major in Biological Sciences for the B.Sc. may declare a Research Internship Concentration.

Admission Requirements:

Students interested in the Research Internship option will need to qualify according to one of the following routes:

1. Direct Entry
Students applying to the Research Internship Concentration with fewer than four university courses completed will be considered direct entry applicants. Direct entry applicants must present a minimum 80% grade in Biology 30 and a minimum 75% admission average (see **Part I - Admissions**).
2. Delayed Entry
Students applying to the Research Internship Concentration after completing four or more university courses will be considered delayed entry applicants. Delayed entry applicants must present one of Biology 1010 or Biology 1020 and a minimum GPA of 3.00 (calculated on all completed university-level courses).

Fulfillment of one of the above admission routes does not guarantee admission due to a limited number of seats. Students may be ranked according to GPA, and may be asked for a *Letter of Intent*, references and/or an interview.

Continuation:

Students admitted to the Research Internship Concentration must maintain a minimum cumulative GPA of 3.00. Students who fall below 3.00 will be removed from the concentration.

Required courses:

Biology 2001 - Research Internship I: Scientific Discovery
Biology 2002 - Research Internship II: Scientific Data and Analysis
Biology 3001 - Research Internship III: Communicating Science

One of:

- Biology 4995 - Undergraduate Thesis (6.0 credit hours)
- Two Independent Study courses (6.0 credit hours) in Biology at the 3000/4000 level

Notes

Students are encouraged to complete additional research intensive activities (Applied Studies, Independent Studies, Co-operative Education).

For students who complete all requirements, the Research Internship Concentration will be acknowledged on the official transcript.

Biological Sciences (B.Sc.)
Number of courses required for the major 20
(Independent Study - optional; may not be counted in required courses for major)

j. Canadian Studies

The Canadian Studies major is for students wishing to deepen their understanding of Canada. The major comprises a core of courses that provide a foundation for more focused and advanced study. Beyond the core, students choose from amongst several interdisciplinary thematic areas. Many Canadian Studies graduates work in business, as teachers, in government at all levels; others have gone on to study for advanced degrees in law and public administration.

Please refer to the program website (www.uleth.ca/artsci/canadian-studies) for more information.

Required core (8-12 courses):

A minimum of eight courses (24.0 credit hours) and a maximum of 12 courses (36.0 credit hours) from the following list:

English 2000 - Survey of Canadian Literature

Two of:

- French 1000 - Beginners' French I
- French 1100 - Beginners' French II
- French 1500 - Intermediate Language I
- French 2000 - Intermediate Language II
- French 2001 - Intermediate Language for Immersion Graduates
- French 2200 - Culture and Civilization I
- French 2250 - French Immersion
- French 2300 - Introduction to Modern Literature and Literary Analysis

Two of:

- Economics 2170 - Economic History of Canada
- History 2710 - Canada to 1867
- History 2720 - Canada Since 1867

Three of:

- Geography 2600 - Canada
- Native American Studies 2100 - Aboriginal Peoples and Law
- Native American Studies 2400 - Traditional Aboriginal Political Economy
- Native American Studies 2500 - Canadian Indian History
- Native American Studies 2800 - Native American Politics
- Political Science 2210 - Canadian Politics and Government
- Sociology 2010 - Canadian Society
- Sociology 2410 - Sociology of Gender

Independent Study (1 course)

One Independent Study course (3.0 credit hours) in Canadian Studies at the 3000/4000 level

Options (7-11 courses):

A minimum of seven courses (21.0 credit hours) and a maximum of 11 courses (33.0 credit hours) from the following 3000/4000-level courses:

- Art History 3240 - Canadian Art History to 1960
- Art History 3245 - Canadian Art History from 1960 to the Present
- Economics 3210 - Natural Resource Economics
- Economics 4300 - Agricultural Policy II
- English 3001 - Canadian Poetry
- English 3002 - Contemporary Canadian Drama
- English 3008 - Canadian Literature, 1867 - 1914
- English 3810 - Contemporary Canadian Literature
- English 4000 - Seminars in Canadian and Post-Colonial Literature (Series)

- French 3001 - Advanced Language I
- French 3200 - Culture and Civilization II (Series)
- French 3500 - Survey of French or French-Canadian Literature (Series)
- French 3600 - Literary Genres (Series)
- French 4001 - Advanced Language II
- French 4002 - Advanced Studies in Language (Series)
- French 4600 - Seminar in Literature (Series)
- History 3703 - History of Western Canada
- History 3707 - Canada Since 1939
- History 3708 - History of Atlantic Canada
- History 4070 - Seminars in Canadian History (Series)
- Native American Studies 3300 - Canadian Indian Art History and Theory
- Native American Studies 3400 - Contemporary Aboriginal Political Economy
- Native American Studies 3500 - History of Prairie Indian Treaties
- Native American Studies 3700 - Native American Health
- Native American Studies 4200 - Law and Aboriginal Development in Canada
- Native American Studies 4400 - Indians and the Criminal Justice System
- Native American Studies 4700 - The Metis
- Political Science 3120 - Canadian Foreign Policy
- Political Science 3221 - The Politics of Canadian Federalism
- Political Science 3241 - Canadian Constitutional Law I: Federalism and First Nations
- Political Science 3242 - Canadian Constitutional Law II: The Charter
- Political Science 3250 - Alberta Politics and Government
- Political Science 3260 - Canadian Public Policy
- Political Science 3280 - Canadian Political Behaviour
- Political Science 3400 - Public Administration

Notes

Selected Topics courses, Applied Studies, Independent Studies, and offerings in the English 4000, French 3200, French 3500, French 3600, French 4002, and French 4600 Series may be counted toward the Options courses in the major provided (1) they are clearly related to Canadian Studies and (2) they are approved by the Coordinator of Canadian Studies.

Many of the Options courses require prerequisites, thus students should choose courses with this in mind.

The required Independent Study course should involve more than one discipline and must be approved by the Coordinator of Canadian Studies.

See also:

- Bachelor of Arts/Bachelor of Education - Canadian Studies/Social Studies Education
- Bachelor of Arts/Bachelor of Management - Canadian Studies

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

<p>Canadian Studies (B.A.)</p> <p>Number of courses required for the major 20</p> <p><i>(Independent Study - required in major)</i></p>

k. Chemistry

Department: Chemistry and Biochemistry

Chemistry is the central science of matter, dealing with the 118 known elements from which everything is made. It studies the transformations and properties of all substances - natural and synthetic. Chemistry students develop a strong background in theory and practice and acquire extensive laboratory skills. Chemistry is an experimental science, and students are strongly encouraged to perform original research in partial fulfillment of the degree requirements. The Major in Chemistry leads to professional certification (P.Chem.), and graduates are prepared for careers in industry or the public sector. The degree is also suitable for advanced study in chemistry and can be used to prepare for other professional programs (Medicine, Dentistry and Veterinary Medicine).

Please refer to the program website (www.uleth.ca/artsci/chemistry-biochemistry) for more information.

Required courses:

Biochemistry 2000 - Introductory Biochemistry
Biology 1010 - Cellular Basis of Life
Chemistry 1000 - General Chemistry I
Chemistry 2000 - General Chemistry II
Chemistry 2410 - Analytical Chemistry I
Chemistry 2500 - Organic Chemistry I
Chemistry 2600 - Organic Chemistry II
Chemistry 2740 - Physical Chemistry
Chemistry 3250 - Contemporary Chemistry
Chemistry 3410 - Analytical Chemistry II
Chemistry 3730 - Advanced Physical Chemistry
Chemistry 3830 - Inorganic Chemistry I
Chemistry 3840 - Inorganic Chemistry II
Mathematics 1410 - Elementary Linear Algebra
Physics 2000 - Introduction to Physics II

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:

Physics 1000 - Introduction to Physics I
(recommended)
Physics 1050 - Introduction to Biophysics
¹Engineering 2060 - Engineering Mechanics

²Two offerings (6.0 credit hours) chosen from the following list:

Chemistry 4000 - Advanced Chemistry (Series)
Chemistry 4010 - Advanced Chemistry with Laboratory (Series)

²Four additional courses (12.0 credit hours) in Chemistry or Biochemistry chosen from the following list:

Additional offerings of Chemistry 4000 - Advanced Chemistry (Series)
Additional offerings of Chemistry 4010 - Advanced Chemistry with Laboratory (Series)
Biochemistry 3100 - Proteins, Enzymes and Nucleic Acids
Biochemistry 3300 - Bioenergetics and Metabolism
Chemistry 3990 - Independent Study
Chemistry 4990 - Independent Study
Chemistry 4995 - Undergraduate Thesis (6.0 credit hours)

Notes

¹Has prerequisites: Engineering 2000 and Mathematics 1565.

²A minimum of two of the six selected courses must be lab-based. Offerings in the Chemistry 4000 Series do not meet this requirement. Chemistry 3990 and 4990 may meet this requirement if the Independent Study includes laboratory work.

This program has been accredited by the Canadian Society for Chemistry (CSC), which is the national organization representing chemists, and is acceptable for membership in the Association of the Chemical Profession of Alberta (ACPA). Students who complete a B.Sc. degree with the major in Chemistry outlined above will have a degree accredited by the CSC.

Those who plan to pursue graduate studies in Chemistry should take more than the minimum of 18 courses in Chemistry or Biochemistry and should obtain advice on their program from the department. Students can get credit for participating in original research as part of their studies, especially if preparing for advanced Chemistry degrees.

Chemistry courses are organized in sequences and must be taken in the proper order. In addition, several of the 3000-level courses are offered only in alternate years. Students at an early stage of their studies are advised to seek help in planning their programs from the Department Advisor or from any faculty member in the Department of Chemistry and Biochemistry.

See also:

- Bachelor of Science - Biochemistry
- Bachelor of Science/Bachelor of Education - Chemistry/Science Education
- Bachelor of Science/Bachelor of Management - Chemistry

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Chemistry (B.Sc.)

Number of courses required for the major 24

(Independent Study - optional; may be counted in required courses for major)

l. Computer Science

Department: Mathematics and Computer Science

Computer Science is the study of algorithms and data structures and their applications in designing new and efficient solutions to industrial, technological, environmental or social problems. The program is designed to enable students to gain both theoretical knowledge and practical experience, and includes access to state-of-the-art hardware and software.

Please refer to the program website (www.uleth.ca/artsci/math-computer-science) for more information.

Required courses:

Computer Science 1620 - Fundamentals of Programming I
Computer Science 1820 - Discrete Structures
Computer Science 2610 - Introduction to Digital Systems
Computer Science 2620 - Fundamentals of Programming II

Computer Science 2720 - Practical Software Development
 Computer Science 3615 - Computer Architecture
 Computer Science 3620 - Data Structures and Algorithms
 Computer Science 3740 - Programming Languages
 Mathematics 2000 - Mathematical Concepts

One of:

Mathematics 1410 - Elementary Linear Algebra
 Mathematics 1510 - Calculus for Management and Social Sciences
 Mathematics 1560 - Calculus I
 Mathematics 1565 - Accelerated Calculus I
 Statistics 1770 - Introduction to Probability and Statistics

¹Six additional courses (18.0 credit hours) in Computer Science at the 3000/4000 level

Two courses (6.0 credit hours) in Computer Science at the 4000 level, excluding Computer Science 4850 (Topics), Computer Science 4980 (Applied Studies), and Computer Science 4990 (Independent Study)

Notes

¹One of the six additional 3000/4000-level courses may be replaced by a course from the following list:

Physics 3900 - Intermediate Experimental Physics (Series) (Digital Electronics)
 Any 3000/4000-level Mathematics course

It is strongly recommended that Computer Science majors include additional Mathematics courses in their program. Students intending to take Physics 3900 should plan carefully to include the appropriate Mathematics and Physics prerequisites in their programs.

Some senior courses are scheduled for alternate years. Since these courses are frequently sequential and dependent upon adequate preparation, students are urged to seek advice before the end of their third term in planning a major and selecting courses.

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 and Mathematics.

See also:

- Bachelor of Science - Computer Science and Geographical Information Science
- Bachelor of Science/Bachelor of Management - Computer Science
- Bachelor of Science - Mathematics

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

<p>Computer Science (B.Sc.)</p> <p>Number of courses required for the major 18</p> <p><i>(Independent Study - optional; may be counted in required courses for major)</i></p>

m. Computer Science and Geographical Information Science

Departments: Geography, and Mathematics and Computer Science

Geographical Information Science (GIS) involves the use and analysis of digital maps, databases, models and mobile applications, as well as navigation and spatial integration tools. Major GIS application areas include remote sensing, geographical information systems, computer graphics, image processing and mapping and spatial modelling. These rely on advanced computer science algorithms and software development, platform integration, hardware design and operating system principles. The major provides applied training coupled with a solid theoretical and developmental foundation. Graduates have the choice of a wide range of employment opportunities that involve applications, development or both.

Please refer to the program website (www.uleth.ca/artsci/gis) for more information.

Required courses:

Computer Science 1620 - Fundamentals of Programming I
 Computer Science 1820 - Discrete Structures
 Computer Science 2620 - Fundamentals of Programming II
 Computer Science 2720 - Practical Software Development
 Computer Science 3620 - Data Structures and Algorithms
 Computer Science 3660 - Introduction to Database Systems
 Computer Science 3710 - Computer Graphics
 Computer Science 4660 - Database Management Systems
 Geography 1000 - Introduction to Physical Geography
 Geography 1200 - Introduction to Human Geography
 Geography 2700 - Geographical Data and Analysis
 Geography 2735 - Introduction to Geographical Information Science
 Geography 3720 - Remote Sensing
 Geography 3740 - Geographical Information Systems
 Geography 4725 - Advanced Remote Sensing
 Geography 4740 - Advanced Geographical Information Systems

One of:

Geography 4400 - Hydrology II
 Geography 4415 - Integrated Watershed Management
 Geography 4700 - Advanced Computer Mapping
 Geography 4710 - Remote Sensing Field Techniques
 Geography 4750 - Glacial Processes, Measurements, and Models
 Geography 4751 - Project in Spatial Modelling
 Geography 4753 - Seminar in Remote Sensing

Four of:

Any of the courses listed above but not already selected as required courses
 Computer Science 2610 - Introduction to Digital Systems
 Computer Science 3720 - Introduction to Software Engineering

¹Computer Science 3740 - Programming Languages
 Computer Science 3750 - Artificial Intelligence
 Computer Science 3770 - Human-Computer Interaction

- Computer Science 3780 - Data Communications and Networking
- Geography 2030 - Geomorphology
- Geography 2300 - Weather and Climate
- Geography 3400 - Hydrology I
- Geography 3700 - Cartography
- Geography 3710 - Field Techniques in the Earth Sciences
- Geography 3750 - GIS Applications in Human Geography
- Geography 4730 - Spatial Statistics
- ² Statistics 2780 - Statistical Inference

One course (3.0 credit hours) in Computer Science at the 4000 level, excluding Computer Science 4850 (Topics), Computer Science 4980 (Applied Studies), and Computer Science 4990 (Independent Study)

Notes

¹ Prerequisite required: *Mathematics 2000*.

² Prerequisite required: *Statistics 1770*.

See also:

- Bachelor of Science - Computer Science
- Bachelor of Science - Geography

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Computer Science and Geographical Information Science (B.Sc.)

Number of courses required for the major 22

(Independent Study - optional; may not be counted in required courses for major)

n. Dramatic Arts

Department: Drama (Faculty of Fine Arts)

The major in Dramatic Arts is a broad, general program of study. Students complete required courses in various aspects of the Dramatic Arts including theory and history as well as performance-based and technically-based courses. Beyond the required courses, students will choose electives based on their specific interests in the Dramatic Arts.

Please refer to the program website (www.uleth.ca/artsci/drama) for more information.

Required courses:

- Drama 1000 - Introduction to Dramatic Arts
- Drama 2010 - Performance Fundamentals
- Drama 2100 - Play Reading and Analysis
- Drama 2120 - History and Development of Theatre I
- Drama 2130 - History and Development of Theatre II
- Drama 2810 - Introduction to Stagecraft
- Drama 3100 - Theatre in Performance
- Drama 3130 - Canadian Theatre
- Drama 3151 - Play Reading and Analysis II
- Drama 4211 - Theories of Theatre

One of:

- Drama 2310 - Acting I
- Drama 2320 - Voice I
- Drama 2340 - Movement I
- Drama 2420 - Directing I
- Drama 2510 - Theatre for Young Audiences I

- Drama 2740 - Theatre Creation I
- Drama 2750 - Playwriting I
- Drama 2825 - Introduction to Design for Theatre

One of:

- Drama 2600 - Drama Portfolio I
- Drama 2611 - Technical Theatre Portfolio I

One of:

- English 3201 - Elizabethan and Jacobean Drama
- English 3602 - Shakespeare
- English 3620 - Modern Drama
- English 3660 - Contemporary Drama

One additional course (3.0 credit hours) in Drama at the 3000/4000 level

One additional course (3.0 credit hours) in Drama

Notes

It is recommended that students consider completing additional English courses from the Dramatic Literature Series.

See also:

- Bachelor of Fine Arts - Dramatic Arts
- Bachelor of Arts/Bachelor of Education - Dramatic Arts/Drama Education
- Bachelor of Fine Arts - Dramatic Arts/ Bachelor of Education - Dramatic Arts/Drama Education
- Bachelor of Arts/Bachelor of Management - Dramatic Arts

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Dramatic Arts (B.A.)

Number of courses required for the major 15

(Independent Study - optional; may be counted in required courses for major)

o. Economics

Department: Economics

Economics is the study of the allocation of scarce resources by societies to meet individual and social wants. The major includes a number of courses in microeconomics and macroeconomics. These provide the theoretical framework within which contemporary issues, such as pollution, non-renewable natural resources, free trade, agricultural subsidies, interest rates, government deficits, unemployment, inflation, poverty and third world development can be analyzed and appropriate policies can be recommended.

Please refer to the program website (www.uleth.ca/artsci/economics) for more information.

Required courses:

- Economics 1010 - Introduction to Microeconomics
- Economics 1012 - Introduction to Macroeconomics
- Economics 2750 - Quantitative Methods in Economics
- Economics 2900 - Economics and Business Statistics
- Economics 3010 - Intermediate Microeconomic Theory
- Economics 3012 - Intermediate Macroeconomic Theory
- Economics 3950 - Econometrics I

Statistics 1770 - Introduction to Probability and Statistics
Three courses (9.0 credit hours) in Economics at the 4000 level

Three additional courses (9.0 credit hours) in Economics

Notes

Please note that credit will not be granted for both Economics 2900 and Statistics 2780.

It is recommended that Economics majors include courses in Mathematics, especially courses in Calculus, as part of their overall programs.

It is also strongly recommended that students who are considering graduate studies in Economics include in their programs as many 4000-level courses as possible, and in particular the following courses:

- Economics 4010 - Advanced Microeconomic Theory
- Economics 4012 - Advanced Macroeconomic Theory
- Economics 4150 - Mathematical Economics

See also:

- Bachelor of Arts/Bachelor of Education - Economics/Social Studies Education
- Bachelor of Arts/Bachelor of Management - Economics

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Economics (B.A.)

Number of courses required for the major 14

(Independent Study - optional; may be counted in required courses for major)

p. English

Department: English

English is the study of the properties and powers of the English language and literature as the fundamental means by which we communicate our values, ideals and vision. Courses in the fundamentals of the three main literary genres of poetry, prose and drama prepare students for the close study of major works and periods of literature from the British, American, Canadian and post-Colonial traditions. In addition, the curriculum includes a variety of special courses in rhetoric, the history of language, literary theory, gender, children's literature and creative writing. At the senior level, courses concentrate on specific topics such as particular authors and are conducted in small seminar classes which stimulate open and intensive discussion between students and instructor.

Please refer to the program website (www.uleth.ca/artsci/english) for more information.

Required courses:

English 1900 - Introduction to Language and Literature

Two of (Literary Surveys):

- English 2000 - Survey of Canadian Literature
- English 2400 - Survey of English Literature I
- English 2450 - Survey of English Literature II
- English 2500 - Survey of American Literature I

- English 2550 - Survey of American Literature II
- English 2610 - Survey of Children's Literature
- English 2625 - Survey of World Literature
- English 2700 - Surveys of Literature (Series)

Two of (Genres, Approaches and Themes):

- English 2100 - Poetry
- English 2200 - Drama
- English 2300 - Prose Fiction
- English 2720 - Approaches to Literature (Series)
- English 2800 - Rhetoric
- English 2810 - Grammar

Six courses (18.0 credit hours) in English at the 3000/4000 level chosen from the subfield lists below

Two courses (6.0 credit hours) in English at the 4000 level chosen from the subfield lists below

For the above 3000/4000-level requirements, students must draw courses from at least five of the following subfield lists:

1. Theory, Language and Creative Writing
 - English 3010 - Literary Theory
 - English 3060 - Gender and Literature
 - English 3070 - Imperialism and Nationalism in Children's Literature
 - English 3800 - Creative Writing
 - English 3901 - History of the English Language
 - Any offering in the English 3700, English 4400, or English 4600 Series with an emphasis on Literary Theory, Language or Creative Writing
2. Old and Middle English
 - English 3401 - Medieval Literature
 - English 3450 - Old English
 - English 3601 - Chaucer
 - Any offering in the English 3700, English 4400, or English 4600 Series with an emphasis on Old or Middle English Literature
3. Renaissance
 - English 3201 - Elizabethan and Jacobean Drama
 - English 3410 - 17th-Century Literature
 - English 3602 - Shakespeare
 - Any offering in the English 3700, English 4400, or English 4600 Series with an emphasis on Renaissance Literature
4. Eighteenth Century and Romantic
 - English 3301 - Rise of the Novel
 - English 3310 - Restoration and 18th-Century Literature
 - English 3350 - Romanticism
 - Any offering in the English 3700, English 4400, or English 4600 Series with an emphasis on Eighteenth-Century or Romantic Literature
5. Nineteenth Century
 - English 3302 - 19th-Century British Novel
 - English 3500 - Victorian Literature
 - Any offering in the English 3700, English 4400, or English 4600 Series with an emphasis on Nineteenth-Century Literature
6. Twentieth Century and Contemporary
 - English 3610 - Modernism
 - English 3620 - Modern Drama
 - English 3630 - Modern Novel
 - English 3650 - Contemporary Literature

English 3660 - Contemporary Drama
Any offering in the English 3700, English 4400, or English 4600 Series with an emphasis on Twentieth-Century or Contemporary Literature

7. Canadian and Post-Colonial

English 3001 - Canadian Poetry
English 3002 - Contemporary Canadian Drama
English 3008 - Canadian Literature, 1867 - 1914
English 3810 - Contemporary Canadian Literature
English 3860 - Post-Colonial Literature
English 4000 - Seminars in Canadian and Post-Colonial Literature (Series)
Any offering in the English 3700, English 4400, or English 4600 Series with an emphasis on Canadian or Post-Colonial Literature

Notes

Independent Study courses, Applied Studies courses, and courses not listed under the seven subfields are not counted as part of the 13-course minimum for the major; they are strongly encouraged for students taking courses beyond this minimum, however.

Fourth-year English majors are especially encouraged to become involved in seminars and Independent Studies at the 4000 level. Suggestions for unique and imaginative projects and approaches to fourth-year studies are welcomed by the Department.

See also:

- Bachelor of Arts/Bachelor of Education - English/English Language Arts Education
- Bachelor of Arts/Bachelor of Management - English

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

<p>English (B.A.)</p> <p>Number of courses required for the major 13</p> <p><i>(Independent Study - optional; may not be counted in required courses for major)</i></p>
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q. **Environmental Science**

Departments: Biological Sciences and Geography
Environmental Science focuses on understanding the Earth's natural systems and how we, as humans, interact with them. Environmental scientists study the impact of these interactions on the biosphere, hydrosphere, lithosphere and atmosphere using an interdisciplinary approach. They provide us with the information we need to address some of the most pressing issues facing humanity today—like climate change. The Environmental Science program will provide students with the natural and physical science background needed to understand a multitude of environmental systems, as well as the broad perspective required to appreciate the role of humanity in global environmental change.

Please refer to the program website (www.uleth.ca/artsci/environmental-science) for more information.

Required courses:

Biology 1010 - Cellular Basis of Life
Biology 1020 - Diversity of Life
Biology 2000 - Principles of Genetics
Biology 2200 - Principles of Ecology
Biology 3300 - Evolution
Chemistry 1000 - General Chemistry I
Chemistry 2000 - General Chemistry II
Environmental Science 2000 - Fundamentals of Environmental Science
Environmental Science 4000 - Selected Studies in Environmental Science II (Series)
Geography 1000 - Introduction to Physical Geography
Geography 2030 - Geomorphology
Geography 2300 - Weather and Climate
Geography 2700 - Geographical Data and Analysis
Geography 2735 - Introduction to Geographical Information Science

Three of:

Geography 2090 - Biogeography
Geography 3035 - Fluvial Geomorphology
Geography 3060 - Glaciology and Glacial Geomorphology
Geography 3080 - Soils
Geography 3300 - Microclimatology
Geography 3400 - Hydrology I
Geography 3720 - Remote Sensing
Geography 3740 - Geographical Information Systems
¹Geography 3780 - Field Research in Geography
Geography 4400 - Hydrology II
Geography 4415 - Integrated Watershed Management
Geography 4730 - Spatial Statistics
Geography 4750 - Glacial Processes, Measurements, and Models
Geology 2060 - Physical Geology

One of:

Chemistry 2410 - Analytical Chemistry I
Chemistry 2500 - Organic Chemistry I

Two of:

Mathematics 1410 - Elementary Linear Algebra
Mathematics 1560 - Calculus I or Mathematics 1565 - Accelerated Calculus I
Statistics 1770 - Introduction to Probability and Statistics

One of:

Biology 3630 - Field Biology
Geography 3710 - Field Techniques in the Earth Sciences
Geography 3792 - Field Excursion in Physical Geography (Series)
²An approved field course

Three courses (9.0 credit hours) from Biology List 2 (Organismal Biology) and List 3 (Ecology and Evolutionary Biology) of which two must be lab-based (see **Section 16.i., p. III**, for Biology lists). Some Topics courses in Biology may also qualify.

³One Independent Study or Applied Study at the 3000/4000 level in Environmental Science

Technical Studies Term (five courses)

Students are required to complete a term of study at Lethbridge College, consisting of five courses from the College's Environmental Science program. The Technical Studies term counts as the equivalent of 15.0 credit hours

at the University of Lethbridge (three unspecified 2000-level and two unspecified 3000-level Environmental Science courses).

The Technical Studies term should be taken after at least 20 university courses have been completed and prior to registration in the final 10 courses for the degree.

Students must have the college course selection approved by the Coordinator of Environmental Science. Further details are available from the Coordinator.

Notes

¹ Prerequisite required: *Geography 1200*.

² Must be approved by the Coordinator of Environmental Science. An approved external field course offered by a Field Station may be counted among the final 10 courses taken for credit toward the B.Sc. degree.

³ Must be approved by the Coordinator of Environmental Science.

Students may not receive credit for courses at the University of Lethbridge for which close equivalents have been taken at Lethbridge College, and vice versa. Students must ensure that their course selection has been approved by the Coordinator of Environmental Science.

Students should consider including an introductory Physics course (Physics 1050 - Introduction to Biophysics is recommended) as an Elective in their degree program. Many other courses offered by the Faculty of Arts and Science complement an Environmental Science focus. Consult the Coordinator of Environmental Science for further information.

See also:

- Bachelor of Science - Biological Sciences
- Bachelor of Science - Geography

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Concentration: Geographical Information Science (optional)

Environmental Science majors in the B.Sc. degree program may declare a Concentration in Geographical Information Science.

Required courses:

- Computer Science 1620 - Fundamentals of Programming I
- Geography 3720 - Remote Sensing
- Geography 3740 - Geographical Information Systems
- Geography 4725 - Advanced Remote Sensing
- Geography 4740 - Advanced Geographical Information Systems

Notes

An alternate Geography course may be counted toward the concentration requirements provided (1) it is clearly related to Geographical Information Science and (2) it is approved by the Chair of the Department of Geography.

Students may not double count courses required for the Concentration in Geographical Information Science in fulfilling requirements for the Major in Environmental Science.

For students who complete all the requirements, the Concentration in Geographical Information Science will be acknowledged on the official transcript.

Environmental Science (B.Sc.)

Number of courses required for the major 25

(Independent or Applied Study - Required in major)

Concentration: Geographical Information Science (optional)

Number of courses required for concentration 5

Total number of courses required for major and concentration 30

All students must also complete the Technical Studies Term (five courses).

r. French

Department: Modern Languages

French is the study - in French - of the language, literature and culture of the francophone world. Upper-level students may choose to focus on language and linguistics, language and literature, or language and culture. In the course of their studies, students are encouraged to take French courses at a francophone university in Canada or abroad.

Please refer to the program website (www.uleth.ca/artsci/modern-languages) for more information.

Required courses:

One of the following pairs (a. or b.):

a. Non-Immersion Pair

(for students who have completed French 30, French 31, or equivalent)

French 1500 - Intermediate Language I
French 2000 - Intermediate Language II

OR

b. Immersion Pair

(for students who have completed French Language Arts 30, Français 30, or equivalent)

French 2001 - Intermediate Language for Immersion Graduates
One additional course in French

French 2300 - Introduction to Modern Literature and Literary Analysis

French 3001 - Advanced Language I

French 3100 - Survey of Pre-Revolutionary French Literature

One of:

French 4001 - Advanced Language II

French 4002 - Advanced Studies in Language (Series)

Three additional courses (9.0 credit hours) in French at the 3000/4000 level

One additional course (3.0 credit hours) in French at the 4000 level

Five additional courses (15.0 credit hours) in French

Notes

Students may **not** count either French 1000 (Beginners' French I) or French 2250 (French Immersion) among the minimum requirements for the major.

Students registering in introductory language courses must complete the *Student Information Form* to determine whether they are registered in the appropriate course. Students may be asked to write the *Student Placement Test*. Advanced placement may be granted to students who have acquired language skills outside of a formal academic environment. Please refer to www.uleth.ca/artsci/modern-languages/department-modern-languages-placement-policy for more information.

Students who have not completed French 30 or French 31 (or equivalent) should begin their program with French 1000 and/or French 1100 depending on placement test results.

It is recommended that students majoring in French complete the French Visiting Student Program. Please refer to www.uleth.ca/artsci/modern-languages/visiting-student-programs-vsp for information on the Visiting Student Program.

It is strongly recommended that a student attain a grade of 'C' or higher in any course used to satisfy prerequisites for courses in French. For more information see an academic advisor in the Student Program Services Office.

See also:

- Bachelor of Arts - French/German
- Bachelor of Arts - French/Spanish
- Bachelor of Arts/Bachelor of Education - Modern Languages Education
- Bachelor of Arts/Bachelor of Management - Modern Languages majors

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

French (B.A.)

Number of courses required for the major 15

(Independent Study - optional; may be counted in required courses for major)

s. French/German

Note: Admission to the Major in French/German for the B.A. and B.A.Sc. has been suspended, beginning May 1, 2013 (i.e. for the 2013/2014 academic year and thereafter, until further notice).

Department: Modern Languages

The French/German major combines a core of French courses with a slightly smaller number of German courses. Students majoring in French and German will study the language, literature and culture of both the francophone and German-speaking worlds in their respective languages. Upper-level French students may choose to focus on language and linguistics, language and literature, or language and culture. In the course of their studies, students are encouraged to take university classes in francophone Canada or abroad in countries where French or German are national languages.

Please refer to the program website (www.uleth.ca/artsci/modern-languages) for more information.

Required courses:

Eight courses (24.0 credit hours) in French

Six courses (18.0 credit hours) in German

Linguistics 2300 - Introduction to Linguistics I: Phonetics and Phonology

Linguistics 2600 - Introduction to Linguistics II: Morphology, Syntax and Semantics

Five of the above courses (15.0 credit hours) must be at the 3000/4000 level

Notes

All students registering in 1000-, 1100-, and 1500-level language courses must write the Department of Modern Languages Placement Test to determine whether they are registered in the appropriate course. Advanced placement may be granted to students who have acquired French or German language skills outside of a formal academic environment. Please refer to www.uleth.ca/artsci/modern-languages/department-modern-languages-placement-policy for more information.

It is recommended that students majoring in French/German complete either the French or German Visiting Student Program. Please refer to www.uleth.ca/artsci/modern-languages/visiting-student-programs-vsp for information on the Visiting Student Program.

It is strongly recommended that a student attain a grade of 'C' or higher in any course used to satisfy prerequisites for courses in French and German. For more information see an academic advisor in the Student Program Services Office.

See also:

- Bachelor of Arts - French
- Bachelor of Arts - German
- Bachelor of Arts/Bachelor of Education - Modern Languages Education
- Bachelor of Arts/Bachelor of Management - Modern Languages majors

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

French/German (B.A.)

Number of courses required for the major 16

(Independent Study - optional; may be counted in required courses for major)

t. French/Spanish

Department: Modern Languages

The French/Spanish major combines a core of French courses with an equal number of courses in Spanish. Students majoring in French and Spanish will study the language, literature and culture of both the francophone and Spanish worlds in their respective languages. Upper-level French students may choose to focus on language and linguistics, language and literature, or language and culture. Upper-level Spanish students will study the language and literature of Spain and Latin America. In the course of their studies, students are encouraged to take university classes in francophone Canada or abroad in countries where French and Spanish are national languages.

Please refer to the program website (www.uleth.ca/artsci/modern-languages) for more information.

Required courses:

- French 2300 - Introduction to Modern Literature and Literary Analysis
- French 3001 - Advanced Language I
- Spanish 2300 - Introduction to Hispanic Literature and Literary Analysis
- Spanish 3001 - Advanced Language
- Four courses (12.0 credit hours) in French at the 3000/4000 level
- Three courses (9.0 credit hours) in Spanish at the 3000/4000 level
- Two additional courses (6.0 credit hours) in French
- Three additional courses (9.0 credit hours) in Spanish

Recommended courses:

- Spanish 3002 - Spanish for Professional Contexts

Notes

Students may **not** count either French 1000 (Beginners' French I) or Spanish 1000 (Beginners' Spanish I) among the minimum requirements for the major.

Students may replace one course in Spanish with one course in Hispanic Studies.

Students registering in introductory language courses must complete the *Student Information Form* to determine whether they are registered in the appropriate course. Students may be asked to write the *Student Placement Test*. Advanced placement may be granted to students who have acquired language skills outside of a formal academic environment. Please refer to www.uleth.ca/artsci/modern-languages/department-modern-languages-placement-policy for more information.

It is recommended that students majoring in French/Spanish complete either the French or Spanish Visiting Student Program. Please refer to www.uleth.ca/artsci/modern-languages/visiting-student-programs-vsp for information on the Visiting Student Program.

It is strongly recommended that a student attain a grade of 'C' or higher in any course used to satisfy prerequisites for courses in French and Spanish. For more information see an academic advisor in the Student Program Services Office.

See also:

- Bachelor of Arts - French
- Bachelor of Arts/Bachelor of Education - Modern Languages Education
- Bachelor of Arts/Bachelor of Management - Modern Languages majors

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

French/Spanish (B.A.)

Number of courses required for the major 16

(Independent Study - optional; may be counted in required courses for major)

u. General Major in the Humanities

The General Major in the Humanities is a broad major that supports an ideal of liberal education.

Please refer to the program website (www.uleth.ca/artsci/general-majors) for more information.

Required courses:

- Five courses (15.0 credit hours) in each of three disciplinary streams chosen from the following list:
 - One of Art (including courses in Art History and/or Museum Studies), Dramatic Arts, or Music
 - English - all courses
 - One of French, German, Japanese, or Spanish

Note: The disciplinary stream in German has been suspended, beginning May 1, 2013. Students may not declare German as a disciplinary stream in the 2013/2014 academic year and thereafter, until further notice.

Classical Languages

- Greek - all courses
- Hebrew - all courses
- Latin - all courses

History - all courses

Linguistics - all courses

Native American Studies - all courses (including courses in Blackfoot and Cree)

Philosophy - all courses designated Humanities

Religious Studies - all courses

Four additional courses (12.0 credit hours) chosen from any of the Humanities disciplinary streams listed above

One course (3.0 credit hours) in a language other than English

Of the 20 courses (60.0 credit hours) required in the major, seven courses (21.0 credit hours) must be at the 3000/4000 level.

Notes

To determine if a given course in a disciplinary stream has a Humanities designation, see List I: Fine Arts and Humanities Courses (**Part 4, p. 82**).

If one of the disciplinary streams selected is a language discipline, students may use a course in a different language or a sixth course in the chosen stream to meet the language requirement.

See also:

- Bachelor of Arts/Bachelor of Education - General Major in the Humanities/English Language Arts Education
- Bachelor of Arts/Bachelor of Management - General Major in the Humanities

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

General Major in the Humanities (B.A.)

Number of courses required for the major 20

(Independent Study - optional; may be counted in required courses for major)

v. **General Major in the Sciences**

The General Major in the Sciences is a broad major that supports an ideal of liberal education.

Please refer to the program website (www.uleth.ca/artsci/general-majors) for more information.

Required courses:

Five courses (15.0 credit hours) in each of three disciplinary streams chosen from the following list:

- Archaeology - all courses designated Science
- Biological Sciences - all Biology courses
- Chemistry - all courses (including courses in Biochemistry)
- Computer Science - all courses
- Geography - all courses designated Science (including courses in Geology)
- Kinesiology - all courses designated Science (Physical Activity courses may not be included)
- Mathematics - all courses (including courses in Statistics)
- Neuroscience - all courses
- Physics - all courses (including courses in Astronomy and Engineering)
- Psychology - all courses designated Science

Four additional courses (12.0 credit hours) chosen from any of the Science disciplinary streams listed above

One of (Science in Human Affairs):

- Biochemistry 2300 - Elements of Human Nutrition
- Environmental Science 2000 - Fundamentals of Environmental Science
- Philosophy 2233 - Philosophy and the World View of Science: Earth and Life Sciences
- Philosophy 2234 - Philosophy and the World View of Science: Space, Time and Matter
- Philosophy 3402 - Biomedical Ethics
- Physics 2020 - The Physics of Everyday Life

Of the 20 courses (60.0 credit hours) required in the major, seven courses (21.0 credit hours) must be at the 3000/4000 level.

Notes

To determine if a given course in a disciplinary stream has a Science designation, see List III: Science Courses (**Part 4, p. 83**).

Some of the Science in Human Affairs courses have prerequisites which may or may not be included in the major.

See also:

- Bachelor of Science/Bachelor of Education - General Major in the Sciences/Science Education
- Bachelor of Science/Bachelor of Management - General Major in the Sciences

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

General Major in the Sciences (B.Sc.)

Number of courses required for the major 20

(Independent Study - Optional; may be counted in required courses for major)

w. **General Major in the Social Sciences**

The General Major in the Social Sciences is a broad major that supports an ideal of liberal education.

Please refer to the program website (www.uleth.ca/artsci/general-majors) for more information.

Required courses:

Five courses (15.0 credit hours) in each of three disciplinary streams chosen from the following list:

- Anthropology - all courses
- Archaeology - all courses designated Social Science
- Economics - all courses designated Social Science
- Geography - all courses designated Social Science (courses in Geology may not be included)
- History - all courses
- Kinesiology - all courses designated Social Science (Physical Activity courses may not be included)
- Native American Studies - all courses (courses in Blackfoot and Cree may not be included)
- Political Science - all courses designated Social Science
- Psychology - all courses designated Social Science (Psychology 1000 may be included)
- Sociology - all courses
- Women and Gender Studies - all courses

Four additional courses (12.0 credit hours) chosen from any of the Social Sciences disciplinary streams listed above

One of (Quantitative Methods):

- Economics 2900 - Economics and Business Statistics
- Geography 2700 - Geographical Data and Analysis
- Psychology 2030 - Methods and Statistics
- Sociology 2130 - Social Statistics I
- Statistics 2780 - Statistical Inference

Of the 20 courses (60.0 credit hours) required in the major, seven courses (21.0 credit hours) must be at the 3000/4000 level.

Notes

To determine if a given course in a disciplinary stream has a Social Science designation, see List II: Social Science Courses (**Part 4, p. 82**).

The Quantitative Methods courses have prerequisites which may or may not be included in the major.

See also:

- Bachelor of Arts/Bachelor of Education - General Major in the Social Sciences/Native Education
- Bachelor of Arts/Bachelor of Education - General Major in the Social Sciences/Physical Education
- Bachelor of Arts/Bachelor of Education - General Major in the Social Sciences/Social Studies Education
- Bachelor of Arts/Bachelor of Management - General Major in the Social Sciences

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

General Major in the Social Sciences (B.A.)

Number of courses required for the major 20

(Independent Study - optional; may be counted in required courses for major)

x. Geography (B.A.)

Department: Geography

Geography involves the study of human activities and natural systems with a focus on spatial relationships and the nature of places. The discipline stresses integration and synthesis, so students graduating with a major in Geography possess a firm understanding of environmental stewardship in the context of complex interrelationships between nature and humankind. Geography students also learn many practical skills and techniques essential to a diverse range of employment opportunities.

After completing a set of core foundational courses, students will select additional upper-level courses which focus on human-related systems and phenomena. Students with an interest in geographical techniques such as cartography, geographical information systems (GIS), or remote sensing can pursue those interests either by choosing such courses as options or by completing a specified set of courses to satisfy the Concentration in Geographical Information Science.

Please refer to the program website (www.uleth.ca/artsci/geography) for more information.

Required courses:

- Archaeology 1000 - Introduction to Archaeology
- Environmental Science 2000 - Fundamentals of Environmental Science
- Geography 1000 - Introduction to Physical Geography
- Geography 1200 - Introduction to Human Geography
- Geography 2030 - Geomorphology
- Geography 2210 - Spatial Organization of Economic Activity
- Geography 2300 - Weather and Climate
- Geography 2700 - Geographical Data and Analysis
- Geography 2735 - Introduction to Geographical Information Science

Three of (Geographical Techniques):

- Archaeology 3300 - Archaeological Field Work (Series)
- Geography 3235 - Quantitative Models for Geographic Analysis
- Geography 3700 - Cartography
- Geography 3710 - Field Techniques in the Earth Sciences
- Geography 3720 - Remote Sensing
- Geography 3740 - Geographical Information Systems
- Geography 3750 - GIS Applications in Human Geography
- Geography 3780 - Field Research in Geography
- Geography 4730 - Spatial Statistics

¹ One of:

- Computer Science 1000 - Introduction to Computer Science
- Computer Science 1620 - Fundamentals of Programming I

Two additional courses (6.0 credit hours) in Geography, Geology or Archaeology at the 3000/4000 level

One course (3.0 credit hours) in Geography, Geology or Archaeology at the 4000 level

Two non-science courses (6.0 credit hours) at the 1000 level or higher from the offerings in Anthropology, Economics, Native American Studies (excluding Blackfoot and Cree), Political Science, and Sociology

One non-science course (3.0 credit hours) at the 2000 level or higher from the offerings in Anthropology, Economics, Native American Studies (excluding Blackfoot and Cree), Political Science, and Sociology

Notes

¹ Students choosing the Concentration in Geographical Information Science must complete Computer Science 1620.

Additional 3000/4000-level Geography courses may be selected from the Geographical Techniques list above.

See also:

- Bachelor of Science - Geography
- Bachelor of Arts or Bachelor of Science - Archaeology and Geography
- Bachelor of Arts/Bachelor of Education - Geography/Social Studies Education
- Bachelor of Arts/Bachelor of Management - Geography

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Concentration: Geographical Information Science (optional)

Geography majors in the B.A. degree program may declare a Concentration in Geographical Information Science.

Required courses:

- Geography 3720 - Remote Sensing
- Geography 3740 - Geographical Information Systems
- Geography 4725 - Advanced Remote Sensing
- Geography 4740 - Advanced Geographical Information Systems

One of:

- Geography 4400 - Hydrology II
- Geography 4415 - Integrated Watershed Management
- Geography 4700 - Advanced Computer Mapping
- Geography 4710 - Remote Sensing Field Techniques
- Geography 4730 - Spatial Statistics
- Geography 4750 - Glacial Processes, Measurements, and Models
- Geography 4751 - Project in Spatial Modelling
- Geography 4753 - Seminar in Remote Sensing

Notes

An alternate Geography course may be counted toward the concentration requirements provided (1) it is clearly related to Geographical Information Science and (2) it is approved by the Chair of the Department of Geography.

Students choosing the Concentration in Geographical Information Science must complete Computer Science 1620 as part of the requirements for the Geography major.

Students may not double count courses required for the Concentration in Geographical Information Science in fulfilling requirements for the major in Geography.

For students who complete all requirements, the Concentration in Geographical Information Science will be acknowledged on the official transcript.

Please note that the Concentration in Geographical Information Science is specifically excluded from combined degrees programs.

Geography (B.A.)	
Number of courses required for the major	19
<i>(Independent Study - optional; may be counted in required courses for major)</i>	
Concentration: Geographical Information Science (optional)	
Number of courses required for concentration	5
Total number of courses required for major and concentration	24

y. Geography (B.Sc.)

Department: Geography

Geography involves the study of human activities and natural systems with a focus on spatial relationships and the nature of places. The discipline stresses integration and synthesis, so students graduating with a major in Geography possess a firm understanding of environmental stewardship in the context of complex interrelationships between nature and humankind. Geography students also learn many practical skills and techniques essential to a diverse range of employment opportunities.

After completing a set of core foundational courses, students will select additional upper-level courses dealing with physical dimensions of natural systems. Students with an interest in geographical techniques such as cartography, geographical information systems (GIS), or remote sensing can pursue those interests either by choosing such courses as options or by completing a specified set of courses to satisfy the Concentration in Geographical Information Science.

Please refer to the program website (www.uleth.ca/artsci/geography) for more information.

Required courses:

- Archaeology 1000 - Introduction to Archaeology
- Environmental Science 2000 - Fundamentals of Environmental Science
- Geography 1000 - Introduction to Physical Geography
- Geography 1200 - Introduction to Human Geography
- Geography 2030 - Geomorphology
- Geography 2210 - Spatial Organization of Economic Activity
- Geography 2300 - Weather and Climate
- Geography 2700 - Geographical Data and Analysis
- Geography 2735 - Introduction to Geographical Information Science

One of (Field Course):

- Archaeology 3300 - Archaeological Field Work (Series)
- Archaeology 3700 - Geoarchaeology and Landscape Analysis
- Geography 3710 - Field Techniques in the Earth Sciences

- Geography 3780 - Field Research in Geography
- Geography 4710 - Remote Sensing Field Techniques

Two of (Geographical Techniques):

- Geography 3235 - Quantitative Models for Geographic Analysis
- Geography 3700 - Cartography
- Geography 3720 - Remote Sensing
- Geography 3740 - Geographical Information Systems
- Geography 4700 - Advanced Computer Mapping
- Geography 4725 - Advanced Remote Sensing
- Geography 4730 - Spatial Statistics
- Geography 4740 - Advanced Geographical Information Systems

Three of (Physical Geography):

- Geography 2090 - Biogeography
- Geography 3035 - Fluvial Geomorphology
- Geography 3060 - Glaciology and Glacial Geomorphology
- Geography 3075 - Environmental Resources Management
- Geography 3080 - Soils
- Geography 3300 - Microclimatology
- Geography 3400 - Hydrology I
- Geology 2060 - Physical Geology

Two of:

- Biology 1020 - Diversity of Life
- Chemistry 1000 - General Chemistry I
- Physics 1000 - Introduction to Physics I or
- Physics 1050 - Introduction to Biophysics

One of:

- Mathematics 1410 - Elementary Linear Algebra
- Mathematics 1560 - Calculus I
- Mathematics 1565 - Accelerated Calculus I
- Statistics 1770 - Introduction to Probability and Statistics

Four additional courses (12.0 credit hours) in Geography at the 3000/4000 level with a Science designation.

One additional course (3.0 credit hours) at the 2000 level or higher from the offerings in Astronomy, Biochemistry, Biology, Chemistry, Computer Science, Engineering, Mathematics, Statistics, or Physics

Notes

To determine if a given course in Geography has a Science designation, see List III: Science Courses (**Part 4, p. 83**).

See also:

- Bachelor of Arts - Geography
- Bachelor of Arts or Bachelor of Science - Archaeology and Geography
- Bachelor of Science/Bachelor of Education - Geography/Science Education
- Bachelor of Science/Bachelor of Management - Geography

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Concentration: Geographical Information Science (optional)

Geography majors in the B.Sc. degree program may declare a Concentration in Geographical Information Science.

Required courses:

- Computer Science 1620 - Fundamentals of Programming I
- Geography 3720 - Remote Sensing
- Geography 3740 - Geographical Information Systems
- Geography 4725 - Advanced Remote Sensing
- Geography 4740 - Advanced Geographical Information Systems

Notes

An alternate Geography course may be counted toward the concentration requirements provided (1) it is clearly related to Geographical Information Science and (2) it is approved by the Chair of the Department of Geography. Students may not double count Geography courses required for the Concentration in Geographical Information Science in fulfilling requirements for the major in Geography.

For students who complete all requirements, the Concentration in Geographical Information Science will be acknowledged on the official transcript.

Please note that the Concentration in Geographical Information Science is specifically excluded from combined degrees programs.

Geography (B.Sc.)	
Number of courses required for the major	23
<i>(Independent Study - optional; may be counted in required courses for major)</i>	
Concentration: Geographical Information Science (optional)	
Number of courses required for concentration	5
Total number of courses required for major and concentration	28

z. German

Note: Admission to the Major in German for the B.A. and B.A.Sc. has been suspended, beginning May 1, 2013 (i.e. for the 2013/2014 academic year and thereafter, until further notice).

Department: Modern Languages

German is the study - *in German* - of the language, literature and culture of the German-speaking world. Students majoring in German must spend one or more terms at a German-speaking university of their choosing.

Please refer to the program website (www.uleth.ca/artsci/modern-languages) for more information.

Required courses:

- German 2250 - German Immersion
- Five courses (15.0 credit hours) in German at the 3000/4000 level
- Two courses (6.0 credit hours) in German at the 4000 level
- Five additional courses (15.0 credit hours) in German

Notes

All students registering in 1000-, 1100-, and 1500-level language courses must write the Department of Modern Languages Placement Test to determine whether they are registered in the appropriate course. Advanced placement may be granted to students who have acquired German language skills outside of a formal academic environment. Please refer to www.uleth.ca/artsci/modern-languages/departement-modern-languages-placement-policy for more information.

Linguistics 2300 may replace one of the required five additional courses in German.

Participation in the German Visiting Student Program is compulsory for students majoring in German. Please refer to www.uleth.ca/artsci/modern-languages/visiting-student-programs-vsp for information on the Visiting Student Program.

It is strongly recommended that a student attain a grade of 'C' or higher in any course used to satisfy prerequisites for courses in German. For more information see an academic advisor in the Student Program Services Office.

See also:

- Bachelor of Arts - French/German
- Bachelor of Arts/Bachelor of Education - Modern Languages Education
- Bachelor of Arts/Bachelor of Management - Modern Languages majors

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

German (B.A.)	
Number of courses required for the major	13
<i>(Independent Study - optional; may be counted in required courses for major)</i>	

aa. History

Department: History

History is a discipline that examines evidence to reconstruct and understand the past. It is our collective memory and our possible future. Encompassing a wide range of human events and historical conditions, History necessarily complements other disciplines in the University. The program offers instruction in aspects of the social, economic, political and cultural histories of societies ranging from ancient Greece to modern-day Japan. Students pursuing a major in History will develop strong skills in critical reading, writing and analysis.

Please refer to the program website (www.uleth.ca/artsci/history) for more information.

Required courses:

History 2222 - History in Practice

One of:

- History 1000 - Western Civilization
- History 1200 - World History

One of:

- History 2001 - Main Themes in Ancient History
- History 2100 - Main Themes in Medieval European History

One of:

- History 2102 - Early Modern Europe - 1500-1750
- History 2150 - The Politics of Europe - 1750-1914

One of:

- History 2710 - Canada to 1867
- History 2720 - Canada Since 1867

Two of:

- History 2250 - China in the 19th and 20th Centuries
- History 2290 - Main Themes in East Asian History
- History 2300 - Latin America
- History 2500 - Themes in British Social and Political History
- History 2600 - Main Themes in the History of the United States
- History 2800 - History of Women
- Religious Studies 2500 - Christianity

Four courses (12.0 credit hours) in History at the 3000/4000 level

Two courses (6.0 credit hours) in History at the 4000 level, excluding History 4980 (Applied Studies), History 4990 (Independent Study), and History 4995 (Undergraduate Thesis)

Notes

The Department strongly advises students intending to pursue graduate studies to take History 4990 (Independent Study) or History 4995 (Undergraduate Thesis). History majors should meet with the Department Advisor once a term in order to ensure that an appropriate program is being planned.

See also:

- Bachelor of Arts/Bachelor of Education - History/Social Studies Education
- Bachelor of Arts/Bachelor of Management - History

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

History (B.A.)

Number of courses required for the major 13

(Independent Study - optional; may be counted in required courses for major)

bb. Kinesiology (B.A.)

Department: Kinesiology and Physical Education

Kinesiology is the study of human movement from a multidisciplinary perspective. Students who enrol in the Kinesiology major for the B.A. will take a broad range of theoretical courses in the social science and humanities dimensions of the discipline. Students are also required to complete physical activity courses as part of their program. The Kinesiology major for the B.A. offers students the opportunity to investigate those psychological, social, cultural, economic and political influences that shape and limit opportunities for activity across the lifespan as well as to study the tremendous potential of sport and leisure activities to bring pleasure and meaning to individuals and community.

Please refer to the program website (www.uleth.ca/artsci/kinesiology) for more information.

Required courses:

- Kinesiology 1000 - Wellness and Physical Activity
- Kinesiology 2110 - Biophysical Perspectives
- Kinesiology 2130 - Humanities Perspectives
- Kinesiology 2140 - Psychological Perspectives
- Kinesiology 2150 - Sociological Perspectives
- Kinesiology 2160 - Management Perspectives
- Kinesiology 2200 - Research Methodologies
- Kinesiology 2600 - Functional Human Anatomy

Five courses (15.0 credit hours) in Kinesiology at the 3000/4000 level with a Humanities or Social Science designation, excluding Kinesiology 3980 and 4980 (Applied Studies)

Three courses (9.0 credit hours) in Kinesiology at the 4000 level with a Humanities or Social Science designation, excluding Kinesiology 4980 (Applied Studies)

Three courses (9.0 credit hours) in Physical Activity at the 3000 level

Notes

To determine if a given course in Kinesiology has a Humanities or Social Science designation, see List I: Fine Arts and Humanities Courses and List II: Social Science Courses (**Part 4, p. 82**).

No more than two Independent Study courses (Kinesiology 3990 or 4990; 6.0 credit hours) may be counted towards the major.

See also:

- Bachelor of Science - Kinesiology
- Bachelor of Arts/Bachelor of Education - Kinesiology/Physical Education
- Bachelor of Arts/Bachelor of Management - Kinesiology

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Kinesiology (B.A.)

Number of courses required for the major 19

(Independent Study - optional; may be counted in required courses for major)

cc. Kinesiology (B.Sc.)

Department: Kinesiology and Physical Education

Kinesiology is the study of human movement from a multidisciplinary perspective. Students who enrol in the Kinesiology major for the B.Sc. will take a broad range of theoretical courses in the science dimensions of the discipline. Students are also required to complete physical activity courses as part of their program. The Kinesiology major for the B.Sc. offers students the opportunity to investigate the anatomical, biomechanical, neurological and physiological characteristics that underlie human movement across the spectrum from basic tasks such as reaching and walking to elite sport performance.

Please refer to the program website (www.uleth.ca/artsci/kinesiology) for more information.

Required courses:

- Biology 1010 - Cellular Basis of Life
- Kinesiology 1000 - Wellness and Physical Activity
- Kinesiology 2200 - Research Methodologies
- Kinesiology 2600 - Functional Human Anatomy
- Kinesiology 2610 - Human Physiology
- Kinesiology 2650 - Functional Biomechanics
- Kinesiology 3500 - Nutrition and Physical Activity
- Kinesiology 3610 - Exercise Physiology
- Kinesiology 3630 - Growth, Development and Aging
- Kinesiology 3650 - Biomechanics
- Neuroscience 2600 - Brain and Behaviour
- Physics 1050 - Introduction to Biophysics

One of:

- Chemistry 1000 - General Chemistry I
- Chemistry 1110 - Chemistry for Life Sciences I

Two of:

- Kinesiology 2130 - Humanities Perspectives
- Kinesiology 2140 - Psychological Perspectives
- Kinesiology 2150 - Sociological Perspectives
- Kinesiology 2160 - Management Perspectives

Three additional courses (9.0 credit hours) in Kinesiology at the 3000/4000 level with a Science designation, excluding Kinesiology 3980 and 4980 (Applied Studies)

¹ Two courses (6.0 credit hours) in Kinesiology at the 4000 level with a Science designation, excluding Kinesiology 4980 (Applied Studies)

One course (3.0 credit hours) in Mathematics at the 1000 level or higher

One course (3.0 credit hours) in Statistics at the 1000 level or higher

Two courses (6.0 credit hours) in Physical Activity at the 3000 level

Notes

¹ Kinesiology 4900 (*Interdisciplinary Research Dialogues*) may be used in place of one Kinesiology course at the 4000 level with a Science designation.

To determine if a given course in Kinesiology has a Science designation, see List III: Science Courses (**Part 4, p. 83**).

No more than two Independent Study courses (Kinesiology 3990 or 4990; 6.0 credit hours) may be counted towards the major.

See also:

- Bachelor of Arts - Kinesiology

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

<p>Kinesiology (B.Sc.)</p> <p>Number of courses required for the major 24</p> <p><i>(Independent Study - optional; may be counted in required courses for major)</i></p>
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dd. Mathematics

Department: Mathematics and Computer Science
Mathematics is the study of structure and patterns in numbers and shapes. It is an active research area, providing a language, theories and models to solve

complex problems across a wide variety of scientific, industrial and economic sectors. The program offers courses in four main areas: algebra, analysis, number theory and geometry, as well as statistics. Many students opt to combine mathematics with courses in physics, computer science, chemistry, economics, management or other areas of interest.

Please refer to the program website (www.uleth.ca/artsci/math-computer-science) for more information.

Required 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 2570 - Calculus III
- Mathematics 2580 - Calculus IV
- 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

One of:

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

One of:

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

¹ Three additional courses (9.0 credit hours) in Mathematics or Statistics at the 3000/4000 level

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)

Notes

¹ 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.

See also:

- Bachelor of Science/Bachelor of Education - Mathematics/Mathematics Education
- Bachelor of Science/Bachelor of Management - Mathematics
- Bachelor of Science - Computer Science

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Mathematics (B.Sc.)

Number of courses required for the major 18

(Independent Study - optional; may be counted in required courses for major)

ee. Music

Department: Music (Faculty of Fine Arts)

The major in Music is a broad, general program of study. Students complete a core of required courses and choose electives based on their areas of interest. Students may focus on scholarly and written work without requiring a high level of musical performance skills, although a degree of facility on an instrument is recommended. Students may also choose a performance focus supported by theory and history courses.

The program includes initial study in music history and theory courses and may include applied music instruction (Studio courses, Ensemble Activity courses and conducting). Entrance to Studio courses is dependent upon the results of an audition. Students will tailor their program depending on their interests in one or more areas such as history, theory, classical and/or contemporary music.

Please refer to the program website (www.uleth.ca/artsci/music) for more information.

Required courses:

Music 2080 - Western Art Music

Music 2090 - The Eighteenth Century

Music 2160 - Theory I

¹ Music 2161 - Musicianship Skills I

Music 2260 - Theory II

¹ Music 2261 - Musicianship Skills II

Music 2500 - Introduction to Music Technology

Three of:

Music 3030 - Film Music

² Music 3200 - Popular Music (Series)

Music 3261 - Music in Recital

Music 3721 - World Music

Music 3734 - Portfolio and Music Industry

Music 3850 - Topics in Music

³ Seven additional courses in Music (21.0 credit hours) including a minimum of five courses at the 3000/4000 level, excluding Music 1000 and Music 1011, and including no more than four Music Ensemble Activity courses.

Notes

¹ 1.5 credit hours.

² Only one offering of Music 3200 may count toward the "Three of" list. Additional offerings of Music 3200 may be taken as Music electives.

³ Music Ensemble Activity courses cannot be used to meet the 3000/4000-level course requirement in the Music major.

Each Music Ensemble Activity course counts as one-half course (1.5 credit hours). Students with a major in Music may earn credit for a maximum of eight Music Ensemble Activity courses (12.0 credit hours).

See also:

- Bachelor of Music
- Bachelor of Arts/Bachelor of Education - Music/Music Education
- Bachelor of Music/Bachelor of Education - Music/Music Education

- Bachelor of Arts/Bachelor of Management - Music

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Music (B.A.)

Number of courses required for the major 16 (including a maximum of four MUSE courses)

(Independent Study - optional; may not be counted in required courses for major)

ff. Native American Studies

Department: Native American Studies

The Native American Studies program was developed and formalized by representatives of Southern Alberta's Native communities and the University of Lethbridge. The major in Native American Studies is multidisciplinary and comprehensive in nature and consists of courses in First Nations' history, art, law, politics, language, literature and contemporary issues, all taught from a First Nations' perspective. It aims to foster the study of these various dynamics of North American Native culture and to further a deeper awareness of First Nations' issues.

Please refer to the program website (www.uleth.ca/artsci/native-american-studies) for more information.

Required courses:

Native American Studies 1000 - Introduction to Native American Studies

One course (3.0 credit hours) in Blackfoot or Cree

One of (Art and Literature):

Native American Studies 2300 - North American Indian Art History and Theory

Native American Studies 2350/Art 2350 - North American Indian Art Studio

Native American Studies 2600 - Native American Literature

One of (Culture and History)

Native American Studies 2000 - Native American Philosophy

Native American Studies 2500 - Canadian Indian History

Native American Studies 2550 - U.S. Indian History

One of (Law and Politics)

Native American Studies 2100 - Aboriginal Peoples and Law

Native American Studies 2150 - Native Rights in the United States

Native American Studies 2800 - Native American Politics

One of (Contemporary Issues)

Native American Studies 2400 - Traditional Aboriginal Political Economy

Native American Studies 2700 - Native American Women

Native American Studies 3700 - Native American Health

Three courses (9.0 credit hours) in Native American Studies at the 3000/4000 level

One course (3.0 credit hours) in Native American Studies at the 4000 level

Three additional courses (9.0 credit hours) in Native American Studies, Blackfoot, or Cree

Notes

See also:

- Bachelor of Arts/Bachelor of Education - Native American Studies/Native Education
- Bachelor of Arts/Bachelor of Management - Native American Studies

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Native American Studies (B.A.)

Number of courses required for the major 13

(Independent Study - optional; may be counted in required courses for major)

gg. Neuroscience

Department: Neuroscience

The Neuroscience major explores how nervous systems work and requires courses from a range of departments. These courses investigate the processes by which information is transmitted within cells and between cells, and how particular neural systems produce perceptions, learning, memory and behaviour. Brain and behavioural change during evolution, individual development and pathology are all used to gain insight into how the nervous system functions.

Please refer to the program website (www.uleth.ca/artsci/neuroscience) for more information.

Required courses:

Biology 1010 - Cellular Basis of Life
Biology 1020 - Diversity of Life
Biology 2000 - Principles of Genetics
Neuroscience 2600 - Brain and Behaviour
Neuroscience 3600 - Fundamental Neurobiology
Psychology 2330 - Learning and Cognition
Psychology 2700 - Behaviour and Evolution

Two of:

Biochemistry 2000 - Introductory Biochemistry
Biology 3000 - Gene Expression and Regulation
Biology 3105 - Signal Transduction
Biology 3310 - Developmental Biology
Biology 3400 - Principles of Microbiology
Neuroscience 3625 - Cellular and Molecular Neurobiology

One of:

Philosophy 2220 - Philosophy of Mind
Philosophy 2233 - Philosophy and the World View of Science: Earth and Life Sciences

¹Philosophy 3270 - Theory of Knowledge

¹Philosophy 3402 - Biomedical Ethics

One of:

Physics 1000 - Introduction to Physics I
Physics 1050 - Introduction to Biophysics

One of:

Neuroscience 4630 - Neuroscience (Series)
Neuroscience 4980 - Applied Studies

Neuroscience 4990 - Independent Study

²Neuroscience 4995 - Undergraduate Thesis

One of:

One course (3.0 credit hours) in English at the 1000 level or higher

Writing 1000 - Introduction to Academic Writing

One of:

Neuroscience 3690 - Introduction to Programming and Statistics in MATLAB

Psychology 2030 - Methods and Statistics

Statistics 1770 - Introduction to Probability and Statistics

Three courses (9.0 credit hours) in Neuroscience or Psychology at the 3000/4000 level with a Science designation (see **List III: Science Courses, p. 83**).

One of the following groups:

Biochemistry 2000 - Introductory Biochemistry
Chemistry 1110 - Chemistry for Life Sciences I
Chemistry 2120 - Chemistry for Life Sciences II
Two additional courses (6.0 credit hours) in Biology, Chemistry, Neuroscience, or Psychology at the 3000/4000 level with a Science Designation (See **List III: Science Courses, p. 83**)

Note: Students who choose this grouping may not choose Biochemistry 2000 as part of the "Two of" list above.

OR

Chemistry 1000 - General Chemistry I
Chemistry 2000 - General Chemistry II
Chemistry 2500 - Organic Chemistry I
Chemistry 2600 - Organic Chemistry II

One of:

Mathematics 1410 - Elementary Linear Algebra

Mathematics 1560 - Calculus I

Mathematics 1565 - Accelerated Calculus I

Recommended courses:

Biology 3005 - Genome Maintenance
Biology 3115 - Principles of Cell Growth
Biology 3210 - Experimental Methods in Molecular and Cellular Biology
Computer Science 1000 - Introduction to Computer Science
Logic 1000 - Critical Thinking
Management 2020 - Marketing
Neuroscience 3705 - Evolution of Brain and Behaviour

Notes

¹Prerequisite required: One of Philosophy 1000 or a 2000-level course (3.0 credit hours) in Philosophy.

²If Neuroscience 4995 is chosen, the requirement for three additional courses at the 3000/4000 level in Neuroscience or Psychology with a Science designation is reduced to two additional such courses.

It is strongly recommended that students who are planning to pursue graduate studies in the Neurosciences consider the Undergraduate Thesis option and include the following courses in their program:

Neuroscience 3605 - Research Methods in Neuroscience

Psychology 3400 - Advanced Research Design and Data Analysis

See also:

- Bachelor of Science - Psychology

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Neuroscience (B.Sc.)

Number of courses required for the major 22

(Independent Study - optional; may be counted in required courses for major)

hh. Philosophy

Department: Philosophy

Philosophy means “love of wisdom.” Philosophers study the deep intellectual problems that underlie or unify other disciplines in the sciences and humanities. Courses in the reality stream inquire into the nature of knowledge, mind and matter, space and time, language and mathematics, religious beliefs, and the basis of science. Courses in the values stream probe the distinction between right and wrong, the nature of beauty, the assumptions behind political theories and current ethical dilemmas. Logic studies the art and science of reasoning. All philosophy and logic courses place strong emphasis on developing the skills of clear writing and sound argumentation, and the ability to see beneath the surface of the apparently obvious.

Please refer to the program website (www.uleth.ca/artsci/philosophy) for more information.

Required courses:

Two of (Logic):

Logic 1000 - Critical Thinking
Logic 2003 - Symbolic Logic I
Logic 3003 - Symbolic Logic II

Two of (History of Philosophy):

Philosophy 2010 - Ancient Philosophy
Philosophy 2030 - 17th-Century Philosophy:
Descartes to Leibniz
Philosophy 3350 - Analytic Philosophy
Philosophy 3409 - 18th-Century Philosophy: Leibniz
to Kant
Philosophy 3420 - Wittgenstein

One of (Philosophy of Values):

Philosophy 2001 - Introduction to Ethics
Philosophy 3401 - Social and Political Philosophy
Philosophy 3410 - Advanced Ethics

One of (Philosophy of Values):

Philosophy 2150 - Philosophy of Art
Philosophy 2236 - Environmental Philosophy
Philosophy 3402 - Biomedical Ethics
Philosophy 3404 - Philosophy of Law
Philosophy 3411 - Game Theory in Philosophy
Philosophy 3413 - Feminist Philosophy
Philosophy 3450 - Philosophy of War

Two of (Philosophy of Reality):

Philosophy 2002 - Belief, Truth, and Paradox
Philosophy 2210 - Philosophy of Religion
Philosophy 2220 - Philosophy of Mind
Philosophy 2233 - Philosophy and the World View of
Science: Earth and Life Sciences
Philosophy 2234 - Philosophy and the World View of
Science: Space, Time and Matter
Philosophy 3260 - Metaphysics

Philosophy 3270 - Theory of Knowledge
Philosophy 3280 - Philosophy of Language

One course (3.0 credit hours) in Philosophy or Logic at the 4000 level

Four additional courses (12.0 credit hours) in Philosophy or Logic

Notes

Students should take courses from as many instructors as possible, since the views of instructors on any given topic may vary significantly. Those intending to go on to graduate or professional schools should get more specific advice, particularly about Independent Study.

See also:

- Bachelor of Arts/Bachelor of Management - Philosophy

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Concentration: Legal Reasoning (optional)

Philosophy majors in the B.A. and B.A.Sc. degree programs may declare a Concentration in Legal Reasoning.

Required courses:

Philosophy 3401 - Social and Political Philosophy
Philosophy 3404 - Philosophy of Law

Two of:

Philosophy 2001 - Introduction to Ethics
Philosophy 2236 - Environmental Philosophy
Philosophy 3402 - Biomedical Ethics
Philosophy 3410 - Advanced Ethics
Philosophy 3411 - Game Theory in Philosophy
Philosophy 3413 - Feminist Philosophy
Philosophy 3450 - Philosophy of War

One of:

Management 3010 - Management Law
¹ Native American Studies 2100 - Aboriginal Peoples and Law
² Political Science 3241 - Canadian Constitutional Law I: Federalism and First Nations
² Political Science 3242 - Canadian Constitutional Law II: The Charter
³ Political Science 3245/Women and Gender Studies 3245 - The Charter, Gender, and Social Change

Notes

¹ Prerequisite Required: Native American Studies 1000.

² Prerequisite Required: Political Science 2210.

³ Prerequisite Required: One of Political Science 1000, Political Science 2210, or Women and Gender Studies 1000.

Students may not double count courses required for the Concentration in Legal Reasoning in fulfilling requirements for the Major in Philosophy.

For students who complete all requirements, the Concentration in Legal Reasoning will be acknowledged on the official transcript.

Philosophy (B.A.)

Number of courses required for the major 13

(Independent Study - optional; may be counted in required courses for major)

Concentration: Legal Reasoning (optional)

Number of courses required for concentration 5

Total number of courses required for major and concentration 18

ii. Physics

Department: Physics and Astronomy

Physics is the study of matter and energy at all scales, from the sub-nuclear to the dimensions of the universe. It is the fundamental science—all other sciences and technologies rely on the principles of physics. Physics involves observing and understanding natural phenomena evident in the world around us: the seasons, the motion of objects, the flight of birds, the night sky and the weather. The curriculum provides a comprehensive Physics major, built on a foundation of courses in the first two years which lead to more advanced and specialized areas in the senior years, preparing students for postgraduate studies, or for careers in academia, industry and the public sector.

Please refer to the program website (www.uleth.ca/artsci/physics-astronomy) for more information.

Required courses:

- Chemistry 1000 - General Chemistry I
- Computer Science 1620 - Fundamentals of Programming I
- Mathematics 1410 - Elementary Linear Algebra
- Mathematics 2565 - Accelerated Calculus II
- Mathematics 2570 - Calculus III
- Mathematics 2580 - Calculus IV
- Physics 2000 - Introduction to Physics II
- Physics 2120 - Introduction to Physics III
- Physics 2130 - Waves, Optics and Sound
- Physics 2150 - Quantum Mechanics I
- Physics 2800 - Methods in Mathematical Physics
- Physics 2925 - Introduction to Experimental Physics
- Physics 3150 - Quantum Mechanics II
- Physics 3175 - Electricity and Magnetism
- Physics 3200 - Mechanics
- Physics 3400 - Thermal and Statistical Physics
- Physics 3750 - Contemporary Physics
- Physics 3800 - Methods of Theoretical Physics
- Physics 3925 - Experimental Physics
- Physics 4175 - The Electromagnetic Interaction

One of:

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

One of:

- Biology 1010 - Cellular Basis of Life
- Biology 1020 - Diversity of Life

One of:

- Physics 1000 - Introduction to Physics I
- Physics 1050 - Introduction to Biophysics
- ¹ Engineering 2060 - Engineering Mechanics

One of:

- Physics 4150 - Quantum Mechanics III
- Physics 4200 - Advanced Mechanics

² Two of:

- Physics 3650 - Optics
- Physics 3840 - Introduction to Computational Physics
- Physics 3900 - Intermediate Experimental Physics (Series)
- Physics 4000 - Advanced Studies in Physics (Series)
- Physics 4100 - Nuclear and Particle Physics
- Physics 4250 - Solid State Physics

Notes

¹ *Engineering 2000 and Mathematics 1565 are prerequisites for Engineering 2060.*

² *Offerings in Physics 3850 (Topics) and Physics 4850 (Topics) and either Physics 4150 or Physics 4200 (if not used above) may be used to satisfy this requirement.*

Since a number of courses are offered only on alternate years, students are advised to plan carefully to include the desired courses. In all cases, students (especially those planning for advanced studies in Physics) are encouraged to seek advice on their programs from any member of the Department of Physics and Astronomy.

It is recommended that students majoring in Physics include in their program courses in Biology, Chemistry, Computer Science, and Mathematics.

It is strongly recommended that a student attain a grade of 'C' or higher in any course used to satisfy prerequisites for courses in Physics and Mathematics.

See also:

- Bachelor of Science - Remote Sensing
- Bachelor of Science/Bachelor of Education - Physics/Science Education
- Bachelor of Science/Bachelor of Management - Physics

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Physics (B.Sc.)

Number of courses required for the major 26

(Independent Study - optional; may not be counted in required courses for major)

jj. Political Science

Department: Political Science

Political Science is the study of government institutions, political behaviour and political theory. You need no political ambitions to take it. Political Science is both empirical (qualitative and quantitative) and theoretical. Empirically the focus is on Canadian politics (from national to local), comparative politics (of differing regimes in selected regions of the world), and international relations. Theoretically the focus is on the ideas and visions of justice and the good life that political leaders and citizens aspire to and even stake their lives on. Emphasis is placed throughout on critical reading, writing and analytical skills, encompassing the study of a wide

array of materials, including legal, philosophical, literary and historical documents, as well as statistical analysis. Please refer to the program website (www.uleth.ca/artsci/political-science) for more information.

Required courses:

- Political Science 1000 - Introduction to Political Science
- Political Science 2110 - International Relations
- Political Science 2210 - Canadian Politics and Government
- Political Science 2310 - Comparative Politics and Government
- Political Science 2511 - Introduction to Political Theory
- Political Science 2610 - Introductory Research Methods
- Five courses (15.0 credit hours) in Political Science at the 3000/4000 level
- Two courses (6.0 credit hours) in Political Science at the 4000 level

Notes

Political Science 4980 (Applied Studies), Political Science 4990 (Independent Study) and Political Science 4995 (Undergraduate Thesis) may not be included as part of the 13-course minimum for the major; they are strongly encouraged for students taking courses beyond this minimum, however.

See also:

- Bachelor of Arts/Bachelor of Education - Political Science/Social Studies Education
- Bachelor of Arts/Bachelor of Management - Political Science

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Political Science (B.A.)
Number of courses required for the major 13
(Independent Study - optional; may be counted in required courses for major)

kk. Psychology (B.A. or B.Sc.)

Department: Psychology

Psychology seeks to understand the causes of behaviour in humans and other animals. Such behaviour can range from the automatic, unconscious and reflexive sucking and grasping behaviours of infants through largely unconscious behaviours such as finding food and choosing a mate, to sophisticated, conscious behaviours such as medical decision making. Students will investigate the nature of human and animal thought processes as well as the evolutionary, social and cultural factors that frame the development of human capacities. We consider the best preparation, at the undergraduate level, for graduate study in all areas of psychology, whether research or applied, to be a strong and broad background in experimental psychology.

Please refer to the program website (www.uleth.ca/artsci/psychology) for more information.

Required courses:

- Psychology 1000 - Basic Concepts of Psychology
- Psychology 2030 - Methods and Statistics

Four courses (12.0 credit hours) in Psychology or Neuroscience at the 2000 level

Six courses (18.0 credit hours) in Psychology or Neuroscience at the 3000/4000 level

One course (3.0 credit hours) in Psychology at the 4000 level

Notes

Students who wish to pursue graduate studies in Psychology should consider the Undergraduate Thesis option and should take Psychology 3400. Students who wish to pursue graduate studies in Neuroscience should, in addition, take Neuroscience 3605, and may wish to consider a major in Neuroscience (see the Neuroscience major earlier in this section).

See also:

- Bachelor of Science - Neuroscience
- Bachelor of Arts/Bachelor of Management - Psychology
- Bachelor of Science/Bachelor of Management - Psychology

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Psychology (B.A. or B.Sc.)
Number of courses required for the major 13
(Independent Study - optional; may be counted in required courses for major)

ll. Religious Studies

Department: Religious Studies

Religious Studies aims to enhance critical understanding of the phenomenon of religion and the diversity of religious experience and expression from antiquity to the present in both Eastern and Western traditions. This field of study uses a wide range of tools and methods to describe, analyze and understand religion in human experience. Fundamental issues such as belief, texts, worship, ritual, concepts of the divine, the human condition and the historical development of particular religions are examined. The academic study of religion requires a measure of neutrality, whereby no particular religious tradition is privileged. A major in Religious Studies provides a broad-based understanding of the diverse religious world and requires students to study general themes and issues as well as specific traditions from both Eastern and Western religions.

Please refer to the program website (www.uleth.ca/artsci/religious-studies) for more information.

Required courses:

- Religious Studies 1000 - Introduction to World Religions
- Religious Studies 2001 - Studying Religion Critically
- Religious Studies 4001 - Concepts and Methods in the Study of Religion

One of (Eastern Religions):

- Religious Studies 2100 - The Hindu Tradition
- Religious Studies 2200 - The Buddhist Tradition
- Religious Studies 2300 - East Asian Religions

One of (Western Religions):

Religious Studies 2400 - Judaism
 Religious Studies 2450 - Bible Survey
 Religious Studies 2500 - Christianity
 Religious Studies 2600 - Islam

One of:

Religious Studies 4000 - Seminars in Religious Studies (Series)
 Religious Studies 4110 - Seminars in Eastern Religions (Series)
 Religious Studies 4400 - Seminars in Western Religions (Series)

¹ One of:

Anthropology 2550 - Anthropology of Religion
 Anthropology 3500 - Ritual, Practice, and Performance
 Archaeology 3171 - Ancient Israel
 Greek 1200 - Elementary Biblical Greek I
 Greek 1300 - Elementary Biblical Greek II
 Hebrew 1000 - Elementary Hebrew I
 Hebrew 1100 - Elementary Hebrew II
 History 3007 - Greek and Roman Mythology
 History 3103 - The Crusades
 History 3402 - The Reformation
 Latin 1000 - Elementary Latin I
 Latin 1100 - Elementary Latin II
 Native American Studies 2000 - Native American Philosophy
 Native American Studies 3000 - Native American Philosophy - Advanced
 Philosophy 2010 - Ancient Philosophy
 Philosophy 2210 - Philosophy of Religion
 Philosophy 3260 - Metaphysics
 Political Science 3510 - Political Thought Before 1500
 Political Science 3525 - Politics and Religion
 Sociology 3330 - Sociology of Religion

Two additional courses (6.0 credit hours) in Religious Studies at the 2000 level selected from Eastern Religions or Western Religions

² Five additional courses (15.0 credit hours) in Religious Studies at the 3000/4000 level, excluding Religious Studies 3980 and 4980 (Applied Studies), and Religious Studies 4995 (Undergraduate Thesis)

Notes

¹ Most courses in this list have prerequisites that are not part of the major.

² A maximum of one Independent Study course (3.0 credit hours) may be used to fulfill the 3000/4000-level requirement.

From time to time, Topics courses in other disciplines will address the subject of religion. These will be considered for credit toward a Religious Studies major on an individual basis and must be approved by the Department Chair.

See also:

- Bachelor of Arts/Bachelor of Management - Religious Studies

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Religious Studies (B.A.)

Number of courses required for the major 14

(Independent Study - optional; may be counted in required courses for major)

mm.Remote Sensing

Departments: Geography, and Physics and Astronomy

Remote Sensing involves the acquisition and analysis of photographs and images from airplanes, satellites and other platforms for obtaining important information about the Earth's land, oceans and atmosphere, as well as other planets and bodies. The Remote Sensing major provides applied training in laboratory and field settings coupled with a solid theoretical and experimental foundation. This is the only remote sensing program of its kind in Canada, therefore graduates have unique qualifications for direct employment in private industry, government, and universities, as well as for entry to advanced graduate-level studies.

Please refer to the program website (www.uleth.ca/artsci/remote-sensing) for more information.

Required courses:

Computer Science 1620 - Fundamentals of Programming I
 Geography 1000 - Introduction to Physical Geography
 Geography 2030 - Geomorphology
 Geography 2300 - Weather and Climate
 Geography 2700 - Geographical Data and Analysis
 Geography 2735 - Introduction to Geographical Information Science
 Geography 3720 - Remote Sensing
 Geography 4725 - Advanced Remote Sensing
 Mathematics 1410 - Elementary Linear Algebra
 Mathematics 2570 - Calculus III
 Mathematics 2580 - Calculus IV
 Physics 2000 - Introduction to Physics II
 Physics 2120 - Introduction to Physics III
 Physics 2130 - Waves, Optics and Sound
 Physics 2925 - Introduction to Experimental Physics
 Physics 3650 - Optics
 Remote Sensing 4650 - Physics of Remote Sensing

One of:

Geography 4710 - Remote Sensing Field Techniques
 Geography 4751 - Project in Spatial Modelling
 Geography 4753 - Seminar in Remote Sensing

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:

Physics 1000 - Introduction to Physics I
 Physics 1050 - Introduction to Biophysics
 Engineering 2060 - Engineering Mechanics

Recommended courses:

Geography 3710 - Field Techniques in the Earth Sciences
Geography 3740 - Geographical Information Systems
Any of Geography 4710, Geography 4751, and
Geography 4753 not selected in the major
Physics 3175 - Electricity and Magnetism
Physics 3840 - Introduction to Computational Physics

¹ Computer Science 3620 - Data Structures and Algorithms

² Computer Science 3710 - Computer Graphics

³ Statistics 2780 - Statistical Inference

Notes

¹ Prerequisites required: Computer Science 1820 and Computer Science 2620.

² Prerequisite required: Computer Science 2620.

³ Prerequisite required: Statistics 1770.

See also:

- Bachelor of Science - Geography
- Bachelor of Science - Physics

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Remote Sensing (B.Sc.)

Number of courses required for the major 21

(Independent Study - optional; may not be counted in required courses for major)

nn. Sociology

Department: Sociology

Sociology provides the conceptual and methodological tools with which to understand society. Its primary goal is to stimulate sociological thinking, which involves the application of imagination and critical analysis to the many facets of social life. Ideally, this encourages not only the development of analytical insight, but also the application of Sociology to social problems and issues.

The program provides instruction for both the liberal arts student and the student planning advanced studies or a career related to Sociology. A wide range of courses is offered in sociological theory, methods and topics reflecting a variety of contemporary social issues.

Please refer to the program website (www.uleth.ca/artsci/sociology) for more information.

Required courses:

- Sociology 1000 - Introduction to Sociology
- Sociology 2050 - Social Inequality
- Sociology 2100 - Research Methodology
- Sociology 2130 - Social Statistics I
- Sociology 2300 - Committing Sociology
- Sociology 3110 - Survey Research
- Sociology 3120 - Qualitative Research Methods
- Sociology 3130 - Social Statistics II
- Sociology 3210 - Classical Sociological Theory
- Sociology 3220 - Contemporary Sociological Theory

Three additional courses (9.0 credit hours) in Sociology at the 3000/4000 level

Three courses (9.0 credit hours) in Sociology at the 4000 level

Notes

See also:

- Bachelor of Arts/Bachelor of Education - Sociology/Social Studies Education
- Bachelor of Arts/Bachelor of Management - Sociology

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Sociology (B.A.)

Number of courses required for the major 16

(Independent Study - optional; may be counted in required courses for major)

oo. Urban and Regional Studies

The major in Urban and Regional Studies includes courses in disciplines that have traditionally focused on cities, such as Anthropology, Economics, Geography, Political Science, Sociology and Statistics. It provides a broad range of conceptual and practical tools for students to understand and play a role in the planning, administration, and governance of human settlements from towns to metropolitan regions. Courses delve into the physical, social, spatial, economic, political and planning factors that shape urban areas. Topics such as architecture and the city, urban and regional planning, urban systems, globalization, and issues such as immigration, aging, homelessness and environmental sustainability may be included.

Please refer to the program website (www.uleth.ca/artsci/urban-regional-studies) for more information.

Required core (10 courses):

- Geography 2535 - Introduction to Planning
- Geography 4500 - Contemporary Issues and Problems in Planning (Series)

Three of (Introductory Courses):

- Anthropology 1000 - The Anthropological Perspective
- Economics 1010 - Introduction to Microeconomics
- Economics 1012 - Introduction to Macroeconomics
- Geography 1000 - Introduction to Physical Geography
- Geography 1200 - Introduction to Human Geography
- History 1000 - Western Civilization or History 1200 - World History
- Political Science 1000 - Introduction to Political Science
- Sociology 1000 - Introduction to Sociology

Two of (Urban Studies):

- Anthropology 3280 - Urban Anthropology
- Geography 3230 - Urban Social Geography
- Geography 3245 - Urbanization in Developing Countries

One of (Statistical Methods):

- Geography 2700 - Geographical Data and Analysis
- Sociology 2130 - Social Statistics I
- Statistics 1770 - Introduction to Probability and Statistics

One of (Research Techniques):

Economics 2900 - Economics and Business Statistics
Geography 2735 - Introduction to Geographical Information Science
Political Science 2610 - Introductory Research Methods
Sociology 2100 - Research Methodology
Sociology 3110 - Survey Research
Sociology 3120 - Qualitative Research Methods
Statistics 2780 - Statistical Inference

One of:

One course (3.0 credit hours) in English at the 1000 level or higher
Writing 1000 - Introduction to Academic Writing

Independent Study or Applied Studies (one course)

One Independent Study or Applied Studies course at the 3000/4000 level. This course must be (1) clearly related to Urban and Regional Studies, (2) multidisciplinary, and (3) approved by the Urban and Regional Studies Coordinator.

¹ Options (10 courses):

The ten options courses (30.0 credit hours) must draw from **at least two and no more than three** of the following disciplines. At least six of these courses (18.0 credit hours) must be at the 3000/4000 level.

Anthropology

Anthropology 2210 - Cultures of the World (Series)
Anthropology 3280 - Urban Anthropology

Economics

Economics 2750 - Quantitative Methods in Economics
Economics 2900 - Economics and Business Statistics
Economics 3010 - Intermediate Microeconomic Theory
Economics 3012 - Intermediate Macroeconomic Theory
Economics 3750 - Economics of Public Spending
Economics 3950 - Econometrics I

Geography

Geography 1200 - Introduction to Human Geography
Geography 2210 - Spatial Organization of Economic Activity
Geography 3075 - Environmental Resources Management
Geography 3225/Management 3660 - Industrial Location and Globalization of Enterprise
Geography 3230 - Urban Social Geography
Geography 3235 - Quantitative Models for Geographic Analysis
Geography 3245 - Urbanization in Developing Countries
Geography 3750 - GIS Applications in Human Geography
Geography 4220 - Advanced Economic Geography (Series)
Geography 4240 - Advanced Urban Geography (Series)
Additional offerings of Geography 4500 - Contemporary Issues and Problems in Planning (Series)

History

History 2001 - Main Themes in Ancient History

Political Science

Political Science 2210 - Canadian Politics and Government
Political Science 2511 - Introduction to Political Theory
Political Science 3210 - Local Government and Politics
Political Science 3250 - Alberta Politics and Government
Political Science 3260 - Canadian Public Policy
Political Science 3400 - Public Administration
Political Science 3511 - Political Thought Since 1500 (Series)

Sociology

Sociology 2010 - Canadian Society
Sociology 2600 - The Individual and Society
Sociology 3020 - Social Problems
Sociology 3050 - Sociology of Race and Ethnicity
Sociology 3210 - Classical Sociological Theory
Sociology 3220 - Contemporary Sociological Theory

Notes

¹ Many of the Options courses require prerequisites, thus students should choose courses with this in mind.

A maximum of two courses (6.0 credit hours) chosen from Applied Studies, Independent Study, Series and Topics courses in any of the above disciplines may be counted toward the Option courses in the major provided (1) they are clearly related to Urban and Regional Studies and (2) they are approved by the Urban and Regional Studies Coordinator.

See also:

- Bachelor of Arts/Bachelor of Management - Urban and Regional Studies

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Urban and Regional Studies (B.A.)

Number of courses required for the major 21

(Independent Study - required in major)

pp. Women and Gender Studies

Department: Women and Gender Studies

Women and Gender Studies examines the historical and contemporary conditions of women and men in society. By using feminist theories and research methodologies, students will broaden their knowledge of various power relations shaping women's lives, bodies, experiences, labour and scholarship. Students will explore feminism as an important influence in political and societal change. The program draws on a vibrant community of women scholars, contemporary research and activism inside and outside the University to explore a breadth of social issues. In Women and Gender Studies classes, students will develop an in-depth understanding of how current and historical events, ideas and institutions have been

structured by gender, ethnicity, race, age, ability, class and sexuality.

Please refer to the program website (www.uleth.ca/artsci/women-gender-studies) for more information.

Required courses:

Women and Gender Studies 1000 - Knowing Bodies: An Introduction to Women and Gender Studies

Women and Gender Studies 2300 - Theorizing Women's Lives: Feminist Frameworks

Women and Gender Studies 2600 - Activism and Advocacy

Women and Gender Studies 2700 - Feminist Approaches to Research

Six courses (18.0 credit hours) in Women and Gender Studies at the 3000/4000 level

Three additional courses (9.0 credit hours) in Women and Gender Studies

Notes

With the permission of the Department Chair, students may take a maximum of two courses (6.0 credit hours) from other disciplines which offer related or complementary course materials.

Students may take more than one offering of a Series course or more than one Independent Study for credit if the offerings (as indicated by the specific titles) are distinct.

See also:

- Bachelor of Arts/Bachelor of Management - Women and Gender Studies

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

<p>Women and Gender Studies (B.A.)</p> <p>Number of courses required for the major 13</p> <p><i>(Independent Study - optional; may be counted in required courses for major)</i></p>
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qq. Double Majors

Although the Faculty of Arts and Science does not recognize double majors as official student programs leading toward the B.A. or B.Sc. degree, it will authorize the designation of the double major for all students who, upon graduation, have completed all of the minimum requirements for two majors.

Double majors are formed by completing the requirements of two established majors for the B.A. or two established majors for the B.Sc. Individual Multidisciplinary majors and General majors are ineligible for double major designation. Double counting of courses is not allowed. Students choosing to complete two majors may need to complete more than the minimum 40 courses for the degree depending on the choice of majors.

The Faculty cannot guarantee that course sequencing and timetables will accommodate all double major combinations within eight consecutive regular terms of work. While students may intend to pursue two majors, only one major will be recognized on their official

program forms and for establishing priority in access to courses. Double major status will only be designated upon application for graduation.

Interested students are encouraged to consult with academic advisors regarding double majors.

rr. Individual Multidisciplinary Majors

Students may establish Individual Multidisciplinary majors.

An Individual Multidisciplinary major must represent an identifiable and significant body of knowledge and entail in-depth study rather than a superficial survey of a broad topic. For the most part, the program is expected to be derived from the existing curriculum in Arts and Science.

An Individual Multidisciplinary major program consists of 20-28 courses with the following structure:

a. Required Core

The core of the major must contain a minimum of eight and a maximum of 20 required courses providing a broad-based familiarity with the major. These core courses must be taken from at least two disciplines.

b. An Independent Study at the 3000 or 4000 level.

c. Options

The remaining courses in the Individual Multidisciplinary major must be chosen from a list of optional courses. The chosen courses must be from at least two disciplines.

d. At least six of the courses must be at the 3000 or 4000 level, one of which must be at the 4000 level.

Students are encouraged to apply early to establish an Individual Multidisciplinary major and also to explore potential programs with faculty members prior to making an application.

An application to establish an Individual Multidisciplinary major must be submitted to the Dean or Dean's Designate. Approval of an Individual Multidisciplinary major by Arts and Science Council must be obtained prior to registration in the final 10 courses in the degree. Students are advised that formulation and approval of a program normally takes up to six months after the initial application and thus applications should be submitted in sufficient time to allow processing.

The Individual Multidisciplinary major shall be formulated by a committee, chaired by the Dean or Dean's Designate and composed of the student and faculty representatives, appointed by their departments, from at least two appropriate departments chosen by the Dean or Dean's Designate.

During its deliberations the committee shall consult all departments represented in the major. Before being submitted to the Arts and Science Curriculum Committee, the proposed program shall be approved by the Chairs of the departments represented on the committee.

Students interested in an Individual Multidisciplinary major should contact the Dean or Dean's Designate.

17. MINORS

Students in the 40-course (120.0 credit hours) Bachelor of Arts (B.A.), Bachelor of Science (B.Sc.), or Bachelor of Arts and Science (BASc.) program may declare a minor, to be completed in addition to their major.

Note: Arts and Science minors are not available to students in the combined degrees programs (i.e., B.A./B.Ed., B.A./B.Mgt., B.Sc./B.Ed., B.Sc./B.Mgt.), post-diploma programs, or the B.A., B.Sc., or BASc. as second degree.

Students choosing to complete a minor may need to complete more than the minimum 40 courses for the degree depending on the program and choice of major(s).

General Requirements

Students must complete at least six courses (18.0 credit hours), including at least one course (3.0 credit hours) at the 3000/4000 level. Required courses for each minor are listed below.

Students may not double count courses required for the minor in fulfilling requirements for their major. The six courses comprising the minor must be distinct from any such major requirements.

For students who complete the required courses, the minor will be acknowledged on the official transcript.

Arts and Science Minors

The Faculty of Arts and Science offers minors as detailed below:

a. Asian Studies

The minor in Asian Studies is available as an adjunct to all majors in the B.A., B.Sc., and BASc.

Required courses:

Six courses (18.0 credit hours) in Asian Studies and related subjects, including at least one course (3.0 credit hours) at the 3000/4000 level, as follows:

Asian Studies 1000 - Introduction to Asia

Five of:

- Any additional courses in Asian Studies
- Geography 3605 - The Changing Geography of China
- History 2250 - China in the 19th and 20th Centuries
- History 2290 - Main Themes in East Asian History
- History 4040 - Seminars in East Asian History (Series)
- Interdisciplinary Studies 2008 - Japan and the Japanese (Series)
- Interdisciplinary Studies 2600 - Study Tour of Japan
- Japanese 1000 - Beginners' Japanese I
- Japanese 1100 - Beginners' Japanese II
- Japanese 1500 - Intermediate Language I
- Japanese 2000 - Intermediate Language II
- Japanese 3001 - Advanced Language
- Religious Studies 2100 - The Hindu Tradition
- Religious Studies 2200 - The Buddhist Tradition
- Religious Studies 2300 - East Asian Religions
- Religious Studies 3100 - Studies in Indian Religion (Series)
- Religious Studies 3300 - Studies in East Asian Religions (Series)
- Religious Studies 4110 - Seminars in Eastern Religions (Series)

Alternative courses (including from other Faculties and other universities) may be counted toward the minor provided (1) they are clearly related to Asian Studies and (2) they are approved by the Dean of Arts and Science.

Note: Many of the courses require prerequisites, thus students should choose courses with this in mind.

No more than one Independent Study (2990, 3990, 4990) or Applied Studies (2980, 3980, 4980) course may be counted toward the minor.

No more than three courses from any one related discipline may be counted among the six courses required for the Asian Studies minor. There is no limit to the number of Asian Studies courses that may be counted toward the minor, however.

b. Computer Science

The minor in Computer Science is available as an adjunct to all majors in the B.A., B.Sc., and BASc. except majors in Computer Science, Computer Science and Geographical Information Science, and the General Major in the Sciences if Computer Science is chosen as one of the disciplinary streams.

Required courses:

Six courses (18.0 credit hours) in Computer Science, including at least two Computer Science courses (6.0 credit hours) at the 3000/4000 level.

Note: Students may not include Computer Science 1000 - Introduction to Computer Science among the six courses required for the minor.

No more than one Independent Study (Computer Science 2990, 3990, 4990) or Applied Studies (Computer Science 2980, 3980, 4980) course may be counted towards the minor.

c. Economics

The minor in Economics is available as an adjunct to all majors in the B.A., B.Sc. and BASc. except the major in Economics, the General Major in the Social Sciences if Economics is chosen as one of the disciplinary streams, the major in Applied Statistics if Economics is chosen as the required concentration, and the major in Agricultural Studies for the B.A. if the Agricultural Economics subfield is chosen as the primary subfield.

Required courses:

Economics 1010 - Introduction to Microeconomics
Economics 1012 - Introduction to Macroeconomics

One course (3.0 credit hours) in Economics at the 3000/4000 level

Three additional courses (9.0 credit hours) in Economics

No more than one Independent Study (Economics 2990, 3990, 4990) or Applied Studies (Economics 2980, 3980, 4980) course may be counted towards the minor.

d. English

The minor in English is available as an adjunct to all majors in the B.A., B.Sc., and BASc. except the major in English and the General Major in the Humanities if English is chosen as one of the disciplinary streams.

Required courses:

Six courses (18.0 credit hours) in English, including at least two courses (6.0 credit hours) in English at the 3000/4000 level.

No more than one Independent Study (English 2990, 3990, 4990) course may be counted towards the minor.

Applied Studies courses (English 2980, 3980, 4980) may **not** be counted towards the minor in English.

e. French

The minor in French is available as an adjunct to all majors in the B.A., B.Sc., and B.A.Sc. except the majors in French, French/German, and French/Spanish, and the General Major in the Humanities if French is chosen as one of the disciplinary streams.

Courses taken through the French Visiting Student program may be counted towards the minor.

Required courses:

French 2300 - Introduction to Modern Literature and Literary Analysis

Five additional courses (15.0 credit hours) in French, including at least one French course (3.0 credit hours) at the 3000/4000 level.

Students may **not** count French 1000 (Beginners' French I) among the six courses required for the minor. No more than one Independent Study (French 2990, 3990, 4990) or Applied Studies (French 2980, 3980, 4980) course may be counted towards the minor.

f. German

Note: Effective May 1, 2013, the Minor in German has been suspended. Students may not declare this minor in the 2013/2014 academic year and thereafter, until further notice.

The minor in German is available as an adjunct to all majors in the B.A., B.Sc., and B.A.Sc. except the majors in German and French/German, and the General Major in the Humanities if German is chosen as one of the disciplinary streams.

Courses taken through the German Visiting Student program may be counted towards the minor.

Required courses:

Six courses (18.0 credit hours) in German, including at least one German course (3.0 credit hours) at the 3000/4000 level.

No more than one Independent Study (German 2990, 3990, 4990) or Applied Studies (German 2980, 3980, 4980) course may be counted towards the minor.

g. History

The minor in History is available as an adjunct to all majors in the B.A., B.Sc., and B.A.Sc. except the major in History and the General Majors in the Humanities and Social Sciences if History is chosen as one of the disciplinary streams.

Required courses:

Six courses (18.0 credit hours) in History, including at least one History course (3.0 credit hours) at the 3000/4000 level.

No more than one Independent Study (History 2990, 3990, 4990) or Applied Studies (History 2980, 3980, 4980) course may be counted towards the minor.

h. Japanese

The minor in Japanese is available as an adjunct to all majors in the B.A., B.Sc., and B.A.Sc. except the General Major in the Humanities if Japanese is chosen as one of the disciplinary streams.

Required courses:

Six courses (18.0 credit hours) in Japanese and related subjects as follows:

A minimum of four Japanese (JPNS) courses (12.0 credit hours) for which the language of

instruction is Japanese, including a minimum of one Japanese course (3.0 credit hours) at the 3000/4000 level.

Note: *Japanese 2850, Japanese 3850, or Japanese 4850 may be included with permission of the Department of Modern Languages.*

Up to two courses from the following list, for which the language of instruction is English, may be counted among the six courses required for the minor in Japanese:

Interdisciplinary Studies 2008 - Japan and the Japanese (Series)

Interdisciplinary Studies 2600 - Study Tour of Japan

Note: *Offerings in Modern Languages 2850, Modern Languages 3850, or Modern Languages 4850 with a focus on Japanese language or culture may be included, with permission of the Department of Modern Languages.*

No more than one Independent Study (Japanese 2990, 3990, 4990) or Applied Studies (Japanese 2980, 3980, 4980) course may be counted towards the minor.

i. Liberal Education

The minor in Liberal Education is available as an adjunct to all majors in the B.A., B.Sc., and B.A.Sc.

Required courses:

Six courses (18.0 credit hours) in Liberal Education and/or Interdisciplinary Studies, including at least one Liberal Education or Interdisciplinary Studies course (3.0 credit hours) at the 3000/4000 level.

No more than one Independent Study (Liberal Education or Interdisciplinary Studies 2990, 3990, 4990) or Applied Studies (Liberal Education or Interdisciplinary Studies 2980, 3980, 4980) course may be counted towards the minor.

j. Linguistics

The minor in Linguistics is available as an adjunct to all majors in the B.A., B.Sc., and B.A.Sc. except the General Major in the Humanities if Linguistics is chosen as one of the disciplinary streams.

Required courses:

Six courses (18.0 credit hours) in Linguistics, including at least one Linguistics course (3.0 credit hours) at the 3000/4000 level.

One of the following courses may be counted as one of the six courses required for the Linguistics minor:

Anthropology 2510 - Language, Culture, and Communication

Blackfoot 2210 - Structure of the Blackfoot Language

Blackfoot 3210 - Blackfoot Morphology and Syntax

Cree 2210 - Structure of the Plains Cree Language

English 2810 - Grammar

English 3450 - Old English

English 3901 - History of the English Language

French 3450 - Phonetics and Diction

French 4001 - Advanced Language II

German 3000 - Advanced Language

Greek 1300 - Elementary Biblical Greek II

Hebrew 1100 - Elementary Hebrew II

Japanese 3001 - Advanced Language

Latin 1100 - Elementary Latin II

Philosophy 3280 - Philosophy of Language
Psychology 3240/Linguistics 3240 - Psychology of Language

Spanish 3001 - Advanced Language

Instead of a course from the above list, students may, with the permission of the Department of Modern Languages, include one Topics or Series course with an emphasis on Linguistics offered by another discipline.

No more than one Independent Study (Linguistics 2990, 3990, 4990) or Applied Studies (Linguistics 2980, 3980, 4980) course may be counted towards the minor.

k. Mathematics

The minor in Mathematics is available as an adjunct to all majors in the B.A., B.Sc., and B.A.Sc. except the major in Mathematics and the General Major in the Sciences if Mathematics is chosen as one of the disciplinary streams.

Required courses:

Four courses (12.0 credit hours) in Mathematics

Two courses (6.0 credit hours) in Mathematics or Statistics at the 3000/4000 level

Students may **not** include Mathematics 0500 (Essential Mathematics), Mathematics 2090 (Number Systems), Independent Study courses (Mathematics or Statistics 2990, 3990, 4990) or Applied Studies courses (Mathematics or Statistics 2980, 3980, 4980) among the six courses required for the minor.

l. Philosophy

The minor in Philosophy is available as an adjunct to all majors in the B.A., B.Sc., and B.A.Sc. except the major in Philosophy and the General Major in the Humanities if Philosophy is chosen as one of the disciplinary streams.

Required courses:

Six courses (18.0 credit hours) in Philosophy and/or Logic, including at least one Philosophy or Logic course (3.0 credit hours) at the 3000/4000 level.

No more than one Independent Study (Philosophy or Logic 2990, 3990, 4990) or Applied Studies (Philosophy or Logic 2980, 3980, 4980) course may be counted towards the minor.

m. Physics

The minor in Physics is available as an adjunct to all majors in the B.A., B.Sc., and B.A.Sc. except the major in Physics, the major in Remote Sensing, and the General Major in the Sciences if Physics is chosen as one of the disciplinary streams.

Required courses:

¹ Physics 2000 - Introduction to Physics II

¹ Physics 2120 - Introduction to Physics III

² Physics 2130 - Waves, Optics and Sound

Physics 3750 - Contemporary Physics

One of:

Physics 1000 - Introduction to Physics I

Physics 1050 - Introduction to Biophysics

One of:

Astronomy 2020 - Modern Astronomy

Astronomy 2070 - The Solar System

Astronomy 3020 - Introduction to Cosmology

¹ Prerequisite required: Mathematics 1560 or Mathematics 1565;
Corequisite required: Mathematics 2560 or Mathematics 2565.

² Corequisite required: Mathematics 1560 or Mathematics 1565.

Students who have completed Physics courses as required for their major must choose one substitution course (in place of Physics 1000 or 1050) or two substitution courses (in place of Physics 1000 or 1050 and Physics 2000) from the following list:

Physics 2150 - Quantum Mechanics I

Physics 2800 - Methods in Mathematical Physics

Physics 2925 - Introduction to Experimental Physics

Any Physics course at the 3000 level

n. Political Science

The minor in Political Science is available as an adjunct to all majors in the B.A., B.Sc., and B.A.Sc. except the major in Political Science and the General Major in the Social Sciences if Political Science is chosen as one of the disciplinary streams.

Required courses:

Six courses (18.0 credit hours) in Political Science, including at least one Political Science course (3.0 credit hours) at the 3000/4000 level.

No more than one Independent Study (Political Science 2990, 3990, 4990) or Applied Studies (Political Science 2980, 3980, 4980) course may be counted towards the minor.

o. Religious Studies

The minor in Religious Studies is available as an adjunct to all majors in the B.A., B.Sc., and B.A.Sc. except the major in Religious Studies and the General Major in the Humanities if Religious Studies is chosen as one of the disciplinary streams.

Required courses:

One of:

Religious Studies 1000 - Introduction to World Religions

Religious Studies 2001 - Studying Religion Critically

One course in Religious Studies (3.0 credit hours) at the 3000/4000 level

Four additional courses (12.0 credit hours) in Religious Studies

Independent Study (Religious Studies 2990, 3990, 4990) or Applied Studies (Religious Studies 2980, 3980, 4980) courses may **not** be counted towards the minor in Religious Studies.

p. Spanish

The minor in Spanish is available as an adjunct to all majors in the B.A., B.Sc., and B.A.Sc. except the major in French/Spanish and the General Major in the Humanities if Spanish is chosen as one of the disciplinary streams.

Courses taken through the Spanish Visiting Student program may be counted towards the minor.

Required courses:

Six courses (18.0 credit hours) in Spanish, including at least one Spanish course (3.0 credit hours) at the 3000/4000 level.

Students may **not** count Spanish 1000 (Beginners' Spanish I) among the six courses required for the minor. No more than one Independent Study (Spanish 2990, 3990, 4990) or Applied Studies (Spanish 2980, 3980, 4980) course may be counted towards the minor.

q. **Women and Gender Studies**

The minor in Women and Gender Studies is available as an adjunct to all majors in the B.A., B.Sc., and BASc. except the major in Women and Gender Studies and the General Major in the Social Sciences if Women and Gender Studies is chosen as one of the disciplinary streams.

Required courses:

Women and Gender Studies 1000 - Knowing Bodies: An Introduction to Women and Gender Studies

Women and Gender Studies 2300 - Theorizing Women's Lives: Feminist Frameworks

Women and Gender Studies 2600 - Activism and Advocacy

Women and Gender Studies 2700 - Feminist Approaches to Research

Two Women and Gender Studies courses (6.0 credit hours) at the 3000/4000 level

No more than one Independent Study (Women and Gender Studies 2990, 3990, 4990) or Applied Studies (Women and Gender Studies 2980, 3980, 4980) course may be counted towards the minor.

18. **CONCENTRATIONS**

A concentration is a defined set of courses related to a major and may be required (completed within the minimum requirements for a major or program) or optional (completed in addition to the minimum requirements for a major).

For students who complete all requirements, the concentration will be acknowledged on the official transcript.

Available concentrations are listed below:

a. Optional Concentration: Agricultural Business

- Major in Agricultural Studies (B.A. or B.Sc.)
- Major in Agricultural Biotechnology (B.Sc.)
- Post-Diploma B.A. in Agricultural Studies
- Post-Diploma B.Sc. in Agricultural Studies

b. Optional Concentration: Geographical Information Science

- Major in Agricultural Studies (B.Sc.)
- Major in Archaeology and Geography (B.A. or B.Sc.)
- Major in Environmental Science (B.Sc.)
- Major in Geography (B.A., B.Sc., or BASc.)
- Post-Diploma B.Sc. in Agricultural Studies
- Post-Diploma B.Sc. in Environmental Science

c. Optional Concentration: Legal Reasoning

- Major in Philosophy (B.A. or BASc.)

d. Optional Concentration: Research Internship

- Major in Biological Sciences (B.Sc. or BASc.)

e. Required Concentration: Economics, Geography, or Psychology

- Major in Applied Statistics (B.Sc.)

f. Required Concentration: Geographical Information Science

- Post-Diploma B.Sc. in Geography

Required courses for the concentrations can be found in **Section 16 (Majors)** along with the requirements for the given major or in **Section 22** where requirements for each post-diploma program are outlined.

19. **COMBINED DEGREES**

There are combined 50-course programs leading to the degrees B.A./B.Ed. and B.Sc./B.Ed., and the degrees B.A./B.Mgt. and B.Sc./B.Mgt. Upon successful completion of the program, the student receives the degree B.A. or B.Sc. from the Faculty of Arts and Science and the degree B.Ed. from the Faculty of Education or the degree B.Mgt. from the Faculty of Management. Neither degree is granted until the entire combined degrees program is completed. See **Part 13 - Combined Degrees**, for complete information.

20. **B.A., B.Sc. or BASc. AFTER AN APPROVED DEGREE**

a. General Requirements

1. Completion of at least 20 courses (60.0 credit hours) with a GPA of at least 2.00.

The program must be approved on an individual basis in advance by the Dean, and in some cases more than 20 courses (60.0 credit hours) may be required to satisfy all second degree and major requirements.

2. Completion of the Liberal Education List Requirement: six courses, two from each of List I, List II, and List III (see **Part 4 - Academic Regulations, Liberal Education List Requirement, p. 80**).
3. No courses may be completed for credit towards the degree below the 2000 level, unless required for the major.
4. Completion of at least 10 courses (30.0 credit hours) from disciplines offered by the Faculty of Arts and Science or the Faculty of Fine Arts at the 3000/4000 level, excluding activity courses (labelled PHAC and MUSE).
5. Not more than three Independent Study courses (9.0 credit hours) may be completed for credit towards the degree.
6. Not more than three Disciplinary Credit Applied Studies courses (9.0 credit hours) may be completed for credit towards the degree. Students may, in addition, complete Applied Studies 2000, 2001, 2010, and 2011.
7. No courses from disciplines outside the Faculty of Arts and Science or the Faculty of Fine Arts may be completed towards the degree.
8. Residence requirement: 20 courses (60.0 credit hours) taken at the University of Lethbridge after admission to the second degree program, including all 3000/4000-level courses required for the major and degree.
9. Academic standards: A cumulative GPA of at least 2.00 must be maintained at all times.
10. Credit earned towards a previous degree may not be used towards the second bachelor's degree. However, recognition may be given for the content of such previous work in the major(s). In such cases, students will be required to complete appropriate 3000/4000-level courses in lieu of those for which exemption has been granted. Substitutions must be approved by the Dean, Faculty of Arts and Science, on recommendation from the department Chair or Program Coordinator.

b. Major Requirements

1. The majors(s) must be declared at the time of program approval. Please see **pp. 102-103** for a listing of majors available for B.A., B.Sc., and B.A.Sc. degrees. All requirements for the major(s) must be completed.
2. Students seeking a General Major for a B.A. or B.Sc. after an approved degree must complete a modified 16-course General Major which includes at least four courses in each of three disciplinary streams, three additional courses from any of the available disciplinary streams, and one additional course. Please see **pp. 121-123** for more information on the General Majors.

21. B.A. or B.Sc. AFTER COMPLETION OF A PROFESSIONAL DEGREE

Students who initially complete an approved 30-course program in the Faculty of Arts and Science may attain the University of Lethbridge degree B.A. or B.Sc. after completing degree requirements in Dentistry, Law, Medicine, Social Work, and Veterinary Medicine in professional Faculties elsewhere.

Students completing other professional degrees in combination with the initial 30-course Arts and Science programs may be awarded the B.A. or B.Sc. degree upon approval of the Faculty of Arts and Science.

Students intending to complete the B.A. or B.Sc. requirements in the above manner must have their programs approved by the Dean or Dean's Designate. It is recommended that interested students consult with an academic advisor early in their programs.

22. POST-DIPLOMA DEGREE PROGRAMS

a. Post-Diploma Bachelor of Arts (B.A.) in Agricultural Studies

This program is directed toward graduates of approved two-year college diplomas in Agriculture. Graduates of other diploma programs in Agriculture will also be considered. See **Part 20 - Collaborating and Partnering Institutions** for a list of colleges with approved diplomas; website: www.uleth.ca/postdiploma.

Students must complete at least 20 courses (60.0 credit hours) from disciplines offered by the Faculty of Arts and Science or the Faculty of Fine Arts, as follows, with a minimum GPA of 2.00.

Required core (12 courses):

Agricultural Studies 1000 - The Evolution of Agriculture
Agricultural Studies 3300 - Modelling of Agricultural Systems
Agricultural Studies 4000 - Seminar in Agricultural Issues
Economics 1010 - Introduction to Microeconomics
Economics 2750 - Quantitative Methods in Economics
Economics 3300 - Agricultural Policy I
Statistics 1770 - Introduction to Probability and Statistics

One of:

Economics 2150 - Economics of Agricultural Issues
Economics 2350 - Economics of Agricultural Markets I

One of:

Philosophy 2001 - Introduction to Ethics
Philosophy 2236 - Environmental Philosophy
Philosophy 3402 - Biomedical Ethics

One of:

Economics 2900 - Economics and Business Statistics
Statistics 2780 - Statistical Inference

One of:

English 1900 - Introduction to Language and Literature
History 1000 - Western Civilization
History 1200 - World History
Philosophy 1000 - Introduction to Philosophy
Religious Studies 1000 - Introduction to World Religions

One additional course (3.0 credit hours) from List I: Fine Arts and Humanities Courses

Required stream (Choose one of the following streams; eight courses):

General Stream

Three courses (9.0 credit hours) at the 3000/4000 level from List I: Fine Arts and Humanities Courses and List II: Social Science Courses

One additional course (3.0 credit hours) from List I: Fine Arts and Humanities Courses and List II: Social Science Courses

Four additional courses (12.0 credit hours) from disciplines offered by the Faculty of Arts and Science

Agricultural Economics Stream

Economics 1012 - Introduction to Macroeconomics
Economics 3010 - Intermediate Microeconomic Theory
Economics 3012 - Intermediate Macroeconomic Theory
Economics 4300 - Agricultural Policy II

Two additional courses (6.0 credit hours) at the 3000/4000 level from List I: Fine Arts and Humanities Courses and List II: Social Science Courses

Two additional courses (6.0 credit hours) from disciplines offered by the Faculty of Arts and Science

Notes

To determine if a given course has a Fine Arts and Humanities designation or Social Science designation, see List I: Fine Arts and Humanities Courses and List II: Social Science Courses (see **Part 4 - Academic Regulations, Liberal Education List Requirement, p. 80**).

No more than two Independent Study courses (3990 or 4990; 6.0 credit hours) may be counted towards the program.

Students with an interest in graduate study in Agriculture or recognition in professional societies should select their additional courses from Economics (3000/4000 level).

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 Studies early in the program for further information.

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Concentration: Agricultural Business (optional)

Students in the Post-Diploma B.A. in Agricultural Studies degree program may declare a Concentration in Agricultural Business.

Required courses:

Management 2020 - Marketing
 Management 2100 - Introductory Accounting

Three of:

Economics 3030 - Managerial Economics
 Economics 3080/Management 3780 - Principles of Industrial Organization I
 Management 3010 - Management Law
 Political Science 2210 - Canadian Politics and Government

¹ Management 3050 - Human Resource Management

Notes

¹ Has prerequisites: Management 2030 and one of Writing 1000 or a university English course (3.0 credit hours).

Students may not double count courses required for the Concentration in Agricultural Business in fulfilling requirements for the post-diploma program.

For students who complete all requirements, the Concentration in Agricultural Business will be acknowledged on the official transcript.

Post-Diploma B.A. in Agricultural Studies

Number of courses required for program 20

(Independent Study - optional; may be counted in required courses for program)

Concentration: Agricultural Business (optional)

Number of courses required for concentration 5

b. Post-Diploma Bachelor of Science (B.Sc.) in Agricultural Studies

This program is directed toward graduates of approved two-year college diplomas in Agriculture. Graduates of other diploma programs in Agriculture will also be considered. See **Part 20 - Collaborating and Partnering Institutions** for a list of colleges with approved diplomas; website: www.uleth.ca/postdiploma.

Students must complete at least 20 courses (60.0 credit hours) from disciplines offered by the Faculty of Arts and Science or the Faculty of Fine Arts, as follows, with a minimum GPA of 2.00.

Required core (12 courses):

Agricultural Studies 1000 - The Evolution of Agriculture
 Agricultural Studies 3300 - Modelling of Agricultural Systems
 Agricultural Studies 4000 - Seminar in Agricultural Issues
 Biology 1010 - Cellular Basis of Life
 Economics 1010 - Introduction to Microeconomics
 Economics 3220 - Environmental Economics
 Economics 3300 - Agricultural Policy I
 Geography 3210 - Agricultural Geography
 Statistics 1770 - Introduction to Probability and Statistics

One of:

Philosophy 2001 - Introduction to Ethics
 Philosophy 2236 - Environmental Philosophy
 Philosophy 3402 - Biomedical Ethics

One of:

English 1900 - Introduction to Language and Literature
 History 1000 - Western Civilization
 History 1200 - World History
 Philosophy 1000 - Introduction to Philosophy
 Religious Studies 1000 - Introduction to World Religions

One additional course from List I: Fine Arts and Humanities Courses

Required stream (Choose one of the following streams; eight courses):**Biological Sciences Stream**

Biology 2000 - Principles of Genetics
 Biology 2200 - Principles of Ecology
 Chemistry 1110 - Chemistry for Life Sciences I
 Chemistry 2120 - Chemistry for Life Sciences II

Four of:

Biology 3000 - Gene Expression and Regulation
 Biology 3105 - Signal Transduction
¹ Biology 3310 - Developmental Biology
 Biology 3400 - Principles of Microbiology
 Biology 3420 - Animal Physiology
 Biology 3460 - Plant Physiology
 Biology 3520 - Invertebrate Zoology
 Biology 3530 - Vertebrate Zoology
 Biology 3560 - Integrative Plant Biology
² Biology 3610 - Prairie Conservation
 Biology 3700 - Ecosystem and Community Ecology
 Biology 4100 - Advances in Agricultural Biotechnology
³ Biology 4170 - Plant Biotechnology
 Biology 4560 - Plant Development

Geography Stream**Eight of:**

Environmental Science 2000 - Fundamentals of Environmental Science
 Geography 2300 - Weather and Climate
 Geography 2700 - Geographical Data and Analysis
 Geography 2735 - Introduction to Geographical Information Science
 Geography 3075 - Environmental Resources Management
 Geography 3080 - Soils
 Geography 3400 - Hydrology I
 Geography 3700 - Cartography
 Geography 3720 - Remote Sensing
 Geography 3740 - Geographical Information Systems
 Geography 4060 - Agricultural Soil Management
 Geography 4065 - Irrigation Science
 Geography 4200 - Project in Agricultural Geography
 Geography 4400 - Hydrology II
 Geography 4415 - Integrated Watershed Management
 Geography 4725 - Advanced Remote Sensing
 Geography 4740 - Advanced Geographical Information Systems

Notes

¹ Prerequisite required: Biochemistry 2000.

² Prerequisite required: Environmental Science 2000.

³ Prerequisite required: Biology 3210.

To determine if a given course has a Fine Arts and Humanities designation, see List I: Fine Arts and

Humanities Courses (see **Part 4 - Academic Regulations, Program Requirements, p. 79**).

No more than two Independent Study courses (3990 or 4990; 6.0 credit hours) may be counted towards the program.

Students may count a maximum of two Special Topics courses (i.e., Biology or Geography 3850 or 4850) towards the required stream provided:

1. They are clearly related to the stream; and,
2. They are approved by the Coordinator of Agricultural Studies.

Students wishing to pursue the Concentration in Geographical Information Science must complete Geography 2735 among the eight courses required in the Geography Stream.

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 Studies early in the program for further information.

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Concentration: Agricultural Business (optional)

Students in the Post-Diploma B.Sc. in Agricultural Studies degree program may declare a Concentration in Agricultural Business.

Required courses:

Management 2020 - Marketing
Management 2100 - Introductory Accounting

Three of:

Economics 3030 - Managerial Economics
Economics 3080/Management 3780 - Principles of Industrial Organization I
Management 3010 - Management Law
Political Science 2210 - Canadian Politics and Government

¹ Management 3050 - Human Resource Management

Notes

¹ Has prerequisites: Management 2030 and one of Writing 1000 or a university English course (3.0 credit hours).

For students who complete all the requirements, the Concentration in Agricultural Business will be acknowledged on the official transcript.

Concentration: Geographical Information Science (optional)

Students in the Post-Diploma B.Sc. in Agricultural Studies degree program may declare a Concentration in Geographical Information Science.

Required courses:

Computer Science 1620 - Fundamentals of Programming I
Geography 3720 - Remote Sensing
Geography 3740 - Geographical Information Systems
Geography 4725 - Advanced Remote Sensing
Geography 4740 - Advanced Geographical Information Systems

Notes

An alternate Geography course may be counted toward the concentration requirements provided (1) it is clearly related to Geographical Information Science and (2) it is approved by the Chair of the Department of Geography. Students may not double count courses required for the Concentration in Geographical Information Science in fulfilling requirements for the Geography stream.

For students who complete all the requirements, the Concentration in Geographical Information Science will be acknowledged on the official transcript.

Post-Diploma B.Sc. in Agricultural Studies

Number of courses required for program 20

(Independent Study - optional; may be counted in required courses for program)

Concentration: Agricultural Business (optional)

Number of courses required for concentration 5

Concentration: Geographical Information Science (optional)

Number of courses required for concentration 5

c. Post-Diploma Bachelor of Science (B.Sc.) in Computer Science

This program is directed toward graduates of approved two-year college diploma programs in Computer System Technology or Computer Information Technology. Graduates of other diploma programs in these areas will also be considered. See **Part 20 - Collaborating and Partnering Institutions** for a list of colleges with approved diplomas; website: www.uleth.ca/postdiploma.

Students must complete at least 20 courses (60.0 credit hours) from disciplines offered by the Faculty of Arts and Science or the Faculty of Fine Arts, as follows, with a minimum GPA of 2.00.

Required courses:

Computer Science 1820 - Discrete Structures
Computer Science 2720 - Practical Software Development
Computer Science 3615 - Computer Architecture
Computer Science 3620 - Data Structures and Algorithms
Computer Science 3740 - Programming Languages
Mathematics 2000 - Mathematical Concepts

¹ Four additional courses (12.0 credit hours) in Computer Science at the 3000/4000 level

Two courses (6.0 credit hours) in Computer Science at the 4000 level, excluding Computer Science 4850 (Topics), Computer Science 4980 (Applied Studies), and Computer Science 4990 (Independent Study).

Four courses (12.0 credit hours) from List I: Fine Arts and Humanities

Four courses (12.0 credit hours) from List II: Social Sciences

Notes

¹ One of the additional 3000-level Computer Science courses may be replaced by a course from the following list:

Physics 3900 - Intermediate Experimental Physics (Series)
(Digital Electronics)

Any 3000/4000-level Mathematics course

To determine if a given course has a Fine Arts and Humanities designation or a Social Science designation, see List I: Fine Arts and Humanities Courses and List II: Social Science Courses (see **Part 4 - Academic Regulations, Liberal Education List Requirement, p. 80**).

No more than two Independent Study courses (3990 or 4990; 6.0 credit hours) may be counted towards the program.

Students may find that their diploma courses may overlap in content with some course offerings in the Computer Science program. However, the Department's offerings will often differ in focus and emphasis from diploma course offerings that bear superficially similar course descriptions. Students who have reservations about apparent duplication of offerings of Computer Science Electives studied in their diploma programs are encouraged to pursue other Elective offerings from the Department.

Students will be expected to have a working knowledge of the programming languages used by the Department in the delivery of Computer Science 1620 and Computer Science 2620. A student without this background will be expected to remedy any programming language deficiencies.

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

<p>Post-Diploma B.Sc. in Computer Science</p> <p>Number of courses required for program 20</p> <p><i>(Independent Study - Optional; may be counted in required courses for program)</i></p>

d. Post-Diploma Bachelor of Science (B.Sc.) in Environmental Science

This program is directed toward graduates of approved two-year college diploma programs in Environmental Science or related areas. Graduates of other diploma programs in Environmental Science will also be considered. See **Part 20 - Collaborating and Partnering Institutions** for a list of colleges with approved diplomas; website: www.uleth.ca/postdiploma.

Students must complete at least 20 courses (60.0 credit hours) from disciplines offered by the Faculty of Arts and Science or the Faculty of Fine Arts, as follows, with a minimum GPA of 2.00.

Required courses:

Biology 1010 - Cellular Basis of Life
Biology 2000 - Principles of Genetics
Environmental Science 4000 - Selected Studies in Environmental Science II (Series)
Geography 2300 - Weather and Climate
Geography 2700 - Geographical Data and Analysis
Geography 3740 - Geographical Information Systems

One of:

Physics 1050 - Introduction to Biophysics
Statistics 1770 - Introduction to Probability and Statistics

One of:

Biology 3300 - Evolution
One course (3.0 credit hours) in Biology at the 3000/4000 level chosen from the Biological Sciences Department's List 3 (Ecology and Evolutionary Biology), see **Biological Sciences (p. 111)**

Two courses (6.0 credit hours) in Biology at the 3000/4000 level chosen from among the Biological Sciences Department's List 1 (Cellular and Molecular Biology), List 2 (Organismal Biology), and List 3 (Ecology and Evolutionary Biology) courses, see **Biological Sciences (p. 111)**

Two courses (6.0 credit hours) in Geography or Geology at the 3000/4000 level, with a Science designation

Two lab-based courses (6.0 credit hours) in Chemistry at the 1000 level or above (preferably Chemistry 1110 - Chemistry for Life Sciences I and Chemistry 2120 - Chemistry for Life Sciences II)

Three courses (9.0 credit hours) from List I: Fine Arts and Humanities

One course (3.0 credit hours) from List II: Social Sciences

One course (3.0 credit hours) from List I: Fine Arts and Humanities or List II: Social Sciences

One additional course (3.0 credit hours) at the 3000/4000 level, excluding Activity courses (labeled PHAC and MUSE)

Notes

To determine if a given course has a Fine Arts and Humanities, Social Science, or Science designation, see List I: Fine Arts and Humanities Courses, List II: Social Science Courses, and List III: Science Courses (see **Part 4 - Academic Regulations, Program Requirements, p. 79**).

No more than two Independent Study courses (3990 or 4990; 6.0 credit hours) may be counted towards the program.

Students may not take for credit those courses offered by Biological Sciences or Geography that have close equivalents in the college diploma program. These excluded courses include the following: Biology 1020, Biology 2200, Geography 1000, Geography 2735, Geography 3080, and Geology 2060.

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Concentration: Geographical Information Science (optional)

Students in the Post-Diploma B.Sc. in Environmental Science degree program may declare a Concentration in Geographical Information Science.

Required courses:

Computer Science 1620 - Fundamentals of Programming I
Geography 3720 - Remote Sensing
Geography 4725 - Advanced Remote Sensing

Geography 4740 - Advanced Geographical Information Systems

One of:

- Geography 4400 - Hydrology II
- Geography 4415 - Integrated Watershed Management
- Geography 4700 - Advanced Computer Mapping
- Geography 4710 - Remote Sensing Field Techniques
- Geography 4730 - Spatial Statistics
- ¹Geography 4750 - Glacial Processes, Measurements, and Models
- Geography 4751 - Project in Spatial Modelling
- Geography 4753 - Seminar in Remote Sensing

¹Additional prerequisite required: Geography 2030

Notes:

An alternate Geography course may be counted toward the concentration requirements provided (1) it is clearly related to Geographical Information Science and (2) it is approved by the Chair of the Department of Geography. Students may not double count courses required for the Concentration in Geographical Information Science in fulfilling requirements for the major.

For students who complete, in addition to the minimum 20 courses for this B.Sc. degree program, all five courses, the Concentration in Geographical Information Science will be acknowledged on the official transcript.

Post-Diploma B.Sc. in Environmental Science	
Number of courses required for program	20
<i>(Independent Study - optional; may be counted in required courses for program)</i>	
Concentration: Geographical Information Science (optional)	
Number of courses required for concentration	5

e. Post-Diploma Bachelor of Science (B.Sc.) in Geography, With a Concentration in Geographical Information Science

This program is directed toward graduates of approved two-year college diploma programs in geography, geomatics and land resource information systems. Graduates of other diploma programs in these areas will also be considered. See **Part 20 - Collaborating and Partnering Institutions** for a list of colleges with approved diplomas; website: www.uleth.ca/postdiploma. Students must complete at least 20 courses (60.0 credit hours) from disciplines offered by the Faculty of Arts and Science or the Faculty of Fine Arts, as follows, with a minimum GPA of 2.00.

Required courses:

- Computer Science 1620 - Fundamentals of Programming I
- Geography 1200 - Introduction to Human Geography
- Geography 2210 - Spatial Organization of Economic Activity
- Geography 2700 - Geographical Data and Analysis
- Geography 3720 - Remote Sensing
- Geography 3740 - Geographical Information Systems
- Geography 4725 - Advanced Remote Sensing

Geography 4740 - Advanced Geographical Information Systems

Two of:

- Environmental Science 2000 - Fundamentals of Environmental Science
- Geography 2030 - Geomorphology
- Geography 2300 - Weather and Climate

One of:

- Geography 3235 - Quantitative Models for Geographic Analysis
- Geography 3700 - Cartography
- Geography 3710 - Field Techniques in the Earth Sciences
- Geography 3750 - GIS Applications in Human Geography

One of:

- Geography 4400 - Hydrology II
- Geography 4415 - Integrated Watershed Management
- Geography 4700 - Advanced Computer Mapping
- Geography 4710 - Remote Sensing Field Techniques
- Geography 4730 - Spatial Statistics
- Geography 4750 - Glacial Processes, Measurements, and Models
- Geography 4751 - Project in Spatial Modelling
- Geography 4753 - Seminar in Remote Sensing

One additional course (3.0 credit hours) in Geography, Geology or Archaeology at the 3000/4000 level, with a Science designation

One additional course (3.0 credit hours) in Geography, Geology or Archaeology at the 4000 level, with a Science designation

Three courses (9.0 credit hours) from List I: Fine Arts and Humanities

One course (3.0 credit hours) from List II: Social Sciences

One course (3.0 credit hours) from List I: Fine Arts and Humanities or List II: Social Sciences

One additional course (3.0 credit hours) at the 3000/4000 level, excluding Activity courses (labeled PHAC and MUSE)

Notes

To determine if a given course has a Fine Arts and Humanities, Social Science, or Science designation, see List I: Fine Arts and Humanities Courses, List II: Social Science Courses, and List III: Science Courses (see **Part 4 - Academic Regulations, Liberal Education List Requirement, p. 80**).

Students may not take for credit courses that have close equivalents in their diploma program. Students should consult the Program Coordinator for Geography (Geographical Information Science Concentration) concerning possible adjustments to the above program requirements. Excluded courses include the following: Geography 1000 and Geography 2735.

Suggested Sequencing Plan

Sample sequencing plans are created to provide students with an example of how to plan courses for the duration of a program. For suggested sequencing plans see www.uleth.ca/ross/sequencing-plans.

Post-Diploma B.Sc. in Geography, with a Concentration in Geographical Information Science

Number of courses required for program 20

(Independent Study - optional; may be counted in required courses for program)

23. FIRST NATIONS' TRANSITION PROGRAM

The First Nations' Transition Program (FNTP) is a first year credit program that provides First Nations, Métis, and Inuit (FNMI) students who are not fully admissible to the University of Lethbridge an opportunity to enter into, and succeed at, the university level by providing a solid foundation of core skills in a supportive cohort environment that attends to Aboriginal ways of knowing and learning. In addition to access to university courses, the program provides cultural and peer support, advising, and academic skills development to create a positive first year experience that positions students for success in further undergraduate studies of their choice. When space permits, those who qualify for general admission may also access the FNTP. This is a full-time university program that may qualify for loans and other sources of funding.

Please refer to the program website (www.uleth.ca/artsci/first-nations-transition-program) for more information.

Required core:

First Nations' Transition 0524 - Quest for Success I (1.5 credit hours)

First Nations' Transition 0525 - Quest for Success II (1.5 credit hours)

Interdisciplinary Studies 0520 - Bridging Cultures: Two-Eyed Seeing

Library Science 0520 - Information Literacy

Writing 0520 - Preparation for Academic Reading and Writing

One of:

First Nations' Transition 0520 - Mathematical Reasoning and Application

Mathematics 0100 - Preparation for Essential Mathematics (0.0 credit hours)

Options:

Students must complete a minimum of two (6.0 credit hours) and a maximum of four (12.0 credit hours) of the option courses.

Anthropology 0520 - The Anthropological Imagination

Biology 0520 - Foundations of Biology

Chemistry 0520 - Introductory Chemistry

Environmental Science 0520 - Introduction to Environmental Science

Health Sciences 0520 - Introduction to Health Sciences

Mathematics 0520 - Essential Mathematics

Native American Studies 1000 - Introduction to Native American Studies

Notes

Students should choose Option courses based on the admission requirements of the undergraduate program (B.A., B.H.Sc., B.Mgt., B.N., B.Sc., etc.) they intend to enter at the completion of the FNTP. FNTP learning facilitators and advisors will provide guidance on appropriate course selection based on desired goals.

Students who complete the minimum course requirements of the FNTP and meet the Faculty of Arts and Science academic standards required for continuation

(see Academic Standards, p. 98), will be admitted to any Arts and Science undergraduate program for which they have the required prerequisite courses (see Admission, p. 96). Those completing the FNTP with a minimum GPA of 2.00 (on the University of Lethbridge 4.00 scale) will be considered to have met general admission requirements for programs in the Faculties of Fine Arts, Health Sciences, or Management (see **Part I - Admissions, Continuing Students Changing Programs, p. 31**). Some programs have additional admission requirements or higher standards for entry that must be met before admission will be considered.

24. PRE-NURSING PATHWAY

The Faculty of Health Sciences and the Faculty of Arts and Science collaborate to offer a Pre-Nursing Pathway. Aimed at B.N. applicants who did not make the cut-off for admission, the program is designed to provide students with an opportunity to increase their grades for possible admission to the Bachelor of Nursing program the following year at the same time as completing requirements for that program.

The admission policies and procedures set out in Part I - Admissions of this Calendar apply. See **Part I - Admission, General Admission Routes and Academic Qualifications, (p. 22)** for general admission requirements.

Courses offered as part of the Pre-Nursing Pathway may include:

Chemistry 0500 - Introduction to Modern Chemistry

Health Sciences 1010 - Personal Health and Wellness

Health Sciences 1160/Kinesiology 1160 - Human

Anatomy and Physiology I

Health Sciences 1161/Kinesiology 1161 - Human

Anatomy and Physiology II

Health Sciences 1170 - Human Development Across the Lifespan

Health Sciences 2400 - Medical Microbiology

Mathematics 0500 - Essential Mathematics

Philosophy 1000 - Introduction to Philosophy

Psychology 1000 - Basic Concepts of Psychology

Sociology 1000 - Introduction to Sociology

Writing 1000 - Introduction to Academic Writing

Liberal Education List Requirements

Refer to www.uleth.ca/healthsciences/substitutions for the list of courses which may be substituted in the Bachelor of Nursing program.

Note: *Students should see an academic advisor in the Faculty of Health Sciences for program planning prior to course registration.*

25. PRE-PROFESSIONAL TRANSFER PROGRAMS

Students at the University of Lethbridge may prepare themselves to apply for admission to a number of professional programs offered at other institutions. Admission to these programs is by quota and is competitive.

Through arrangements between the University of Lethbridge and professional Faculties at other universities, transfer programs have been established for the professional programs listed below. Students should be aware that programs offered by other institutions are subject to change or cancellation without notice. The University of Lethbridge endeavours to provide students with complete, timely and accurate information but cannot guarantee the offerings of other institutions. At the time of Calendar publication, the information listed below is correct.

Some professional schools make specific course recommendations for students preparing to apply for admission. However, they reserve the right to admit students

who have not followed these recommendations, but have chosen to study other disciplines. The programs suggested here are intended to give students priority access to courses satisfying the programs recommended by the professional schools. Students may choose alternative routes but do so at their own risk. Please refer to the Program Planning Guide Enclosures for Pre-Professional Transfer programs for more specific information.

Students are advised that 'D' grades are not transferable. As well, students may experience difficulties in transferring courses for which grades are not assigned: for example, courses for which Credit/Non-Credit or Pass/Fail appear on the transcript generally do not transfer.

Students who plan to apply to professional programs at other universities not listed below must have courses approved by the professional Faculty at the institution to which they intend to transfer. The University of Lethbridge cannot guarantee program requirements for such programs.

Students with an academic objective of Engineering select the Engineering Transfer Program. Students with an academic objective of Dentistry, Journalism, Law, Medicine, Social Work and Veterinary Medicine select a University of Lethbridge degree program (either B.A. or B.Sc.) with an appropriate major. Note that Agricultural Biotechnology, Biochemistry, Biological Sciences, Chemistry, and Neuroscience are fields of study in their own right but may also prepare students for application to professional programs of Dentistry, Medicine and Veterinary Medicine.

	University of Transfer	University of Lethbridge Program of Admission	Year of Program	First Major
Dentistry	Alberta	B.Sc.	1, 2, 3, 4	Agricultural Biotechnology/ Biochemistry/ Biological Sciences/ Chemistry/ Neuroscience
Engineering	Alberta	Engineering Transfer Program	1	n/a
	Saskatchewan	Engineering Transfer Program	1	n/a
Journalism	Regina	B.A.	1, 2, 3, 4	B.A. majors
Law	Alberta	B.A.	1, 2, 3, 4	B.A. majors
Law	Calgary	B.A.	1, 2, 3, 4	B.A. majors
Medicine	Alberta	B.Sc.	1, 2, 3, 4	B.Sc. majors
Medicine	Calgary	B.Sc.	1, 2, 3, 4	B.Sc. majors
Social Work ¹	Calgary	B.A.	1, 2, 3, 4	B.A. majors
Veterinary Medicine	Saskatchewan	B.Sc.	1, 2, 3, 4	Agricultural Biotechnology/ Biochemistry/ Biological Sciences/ Chemistry/ Neuroscience

¹ The final two years of the Bachelor of Social Work program are offered at the University of Lethbridge by the University of Calgary Faculty of Social Work, Lethbridge Division. See **Part 12 - Social Work** in this Calendar.

For information about the B.A. or B.Sc. After Completion of a Professional Degree, see **p. 141**.

a. Dentistry (Alberta)

Students with an academic objective of Dentistry are admitted to the B.Sc. program with a major in Agricultural Biotechnology, Biochemistry, Biological Sciences, Chemistry, or Neuroscience. Students are referred to **Sections 14** and **16** for information on the University of Lethbridge general degree and major requirements.

Minimum of 20 courses at the University of Lethbridge
University of Transfer: Alberta

The basic requirement for admission to the Dentistry program is 20 courses (60.0 credit hours), including 6.0 credit hours in each of the following:

Biology
English
General Chemistry
Organic Chemistry
Physics

In addition, 3.0 credit hours in each of the following is required:

Biochemistry
Statistics

*For detailed information about the Dentistry program at the University of Alberta, and planning the University of Lethbridge degree in order to meet those requirements, students are directed to the Program Planning Guide for the B.Sc. with the appropriate major, with the **Dentistry Enclosure**.*

b. Pre-Professional Transfer Program in Engineering Engineering (Alberta)

12 courses (33.0 credit hours) at the University of Lethbridge

University of Transfer: Alberta

Required courses:

Chemistry 1000 - General Chemistry I
Chemistry 2000 - General Chemistry II
Computer Science 1620 - Fundamentals of Programming I
Engineering 1100 - The Engineering Profession I (1.5 credit hours)
Engineering 2000 - Engineering Statics
Engineering 2060 - Engineering Mechanics
Engineering 2100 - The Engineering Profession II (1.5 credit hours)
Mathematics 1410 - Elementary Linear Algebra
Mathematics 1565 - Accelerated Calculus I
Mathematics 2565 - Accelerated Calculus II
Physics 2130 - Waves, Optics and Sound

One of:

Anthropology 1000 - The Anthropological Perspective
Economics 1010 - Introduction to Microeconomics
Economics 1012 - Introduction to Macroeconomics
English 1900 - Introduction to Language and Literature
History 1000 - Western Civilization
Linguistics 2300 - Introduction to Linguistics I: Phonetics and Phonology
Philosophy 1000 - Introduction to Philosophy
Political Science 1000 - Introduction to Political Science
Psychology 1000 - Basic Concepts of Psychology
Sociology 1000 - Introduction to Sociology

A minimum GPA of 2.50 is required for admission into the second year of Engineering at the University of Alberta. Students presenting a GPA lower than 2.50 may be offered admission based on available seats. Students are expected to complete the required 12 courses in two successive terms.

*For detailed information about the Engineering program at the University of Alberta, and planning the University of Lethbridge program in order to meet those requirements, students are directed to the Program Planning Enclosure for **Engineering (Alberta)**.*

Engineering (Saskatchewan)

12 courses (34.5 credit hours) at the University of Lethbridge

University of Transfer: Saskatchewan

Required courses:

Chemistry 1000 - General Chemistry I

Computer Science 1620 - Fundamentals of Programming I

Engineering 1100 - The Engineering Profession I (1.5 credit hours)

Engineering 2000 - Engineering Statics

Engineering 2060 - Engineering Mechanics

Engineering 2300 - Engineering Design

Mathematics 1410 - Elementary Linear Algebra

Mathematics 1565 - Accelerated Calculus I

Mathematics 2565 - Accelerated Calculus II

Physics 2000 - Introduction to Physics II

One of:

Chemistry 2000 - General Chemistry II

Geology 2060 - Physical Geology

One of:

Archaeology 1000 - Introduction to Archaeology

Economics 1012 - Introduction to Macroeconomics

Geography 1200 - Introduction to Human Geography

Logic 1000 - Critical Thinking

Native American Studies 1000 - Introduction to Native American Studies

Philosophy 1000 - Introduction to Philosophy

Philosophy 2001 - Introduction to Ethics

Psychology 1000 - Basic Concepts of Psychology

Sociology 1000 - Introduction to Sociology

Women and Gender Studies 1000 - Knowing Bodies: An Introduction to Women and Gender Studies

A minimum GPA of 3.00 is required for admission into the second year of Engineering at the University of Saskatchewan.

*For detailed information about the Engineering program at the University of Saskatchewan, and planning the University of Lethbridge program in order to meet those requirements, students are directed to the Program Planning Enclosure for **Engineering (Saskatchewan)**.*

c. Journalism (Regina)

Students with an academic objective of Journalism are generally admitted to a B.A. program at the University of Lethbridge with a major of the student's choice. Majors in Economics, English, History, Political Science or Sociology may be of particular interest. Students are referred to **Sections 13** and **16** respectively for information on the University of Lethbridge general degree and major requirements.

Minimum of 20 courses at the University of Lethbridge
University of Transfer: Regina

Required courses:

English 1900 - Introduction to Language and Literature

English 2450 - Survey of English Literature II

History 1000 - Western Civilization

Native American Studies 1000 - Introduction to Native American Studies

Political Science 2210 - Canadian Politics and Government

One of:

Computer Science 1620 - Fundamentals of Programming I

Logic 1000 - Critical Thinking

Mathematics 1410 - Elementary Linear Algebra

Mathematics 1510 - Calculus for Management and Social Sciences

Mathematics 1560 - Calculus I

Sociology 2130 - Social Statistics I

Statistics 1770 - Introduction to Probability and Statistics

One of:

Art History 1000 - Introduction to Art

Art 2031 - Foundation Studio (Drawing and Image)

Cinema 1000 - Introduction to Cinema Studies

Drama 1000 - Introduction to Dramatic Arts

Music 1000 - Introduction to Music

Music 1011 - Materials of Music

One of:

Biology 1010 - Cellular Basis of Life

Chemistry 1000 - General Chemistry I

Geology 2060 - Physical Geology

Physics 1000 - Introduction to Physics I

Physics 1050 - Introduction to Biophysics

One of:

Anthropology 1000 - The Anthropological Perspective

Geography 1200 - Introduction to Human Geography

Religious Studies 1000 - Introduction to World Religions

One of:

Economics 1010 - Introduction to Microeconomics

Economics 1012 - Introduction to Macroeconomics

Political Science 1000 - Introduction to Political Science

Psychology 1000 - Basic Concepts of Psychology

Sociology 1000 - Introduction to Sociology

Women and Gender Studies 1000 - Knowing Bodies: An Introduction to Women and Gender Studies

One of:

Economics 1010 - Introduction to Microeconomics

Economics 1012 - Introduction to Macroeconomics

One of:

History 2710 - Canada to 1867

History 2720 - Canada Since 1867

Two courses (6.0 credit hours) in a single language other than English (French preferred)

Six courses (18.0 credit hours) of electives

A maximum of 16 courses (48.0 credit hours) at the introductory level are allowed for the Bachelor of Arts in Journalism at the University of Regina.

*For detailed information about the Journalism program at the University of Regina, and planning the University of Lethbridge degree in order to meet those requirements, students are directed to the Program Planning Guide for the B.A. with an appropriate major, and the **Journalism Enclosure**.*

d. Law (Alberta)

Students with an academic objective of Law are generally admitted to a B.A. program at the University of Lethbridge with a major of the student's choice. Students are referred to **Sections 13** and **16** respectively for information on the University of Lethbridge general degree and major requirements.

30 courses at the University of Lethbridge
University of Transfer: Alberta

To be considered for admission, prospective applicants must have an undergraduate degree or have completed at least 30 term courses. In exceptional circumstances, students may apply to the Faculty of Law after completion of 20 courses.

The Faculty of Law, University of Alberta, does not require any specific courses or identify any particular discipline as a required area of study in preparation for Law School.

The University of Lethbridge recommends that a student should possess knowledge from such disciplines as Economics, History, Philosophy, and Political Science. While a pre-Law background in the pure sciences should not be seen as a disadvantage, the oral, literary and analytical skills developed in the humanities and social sciences provide an excellent foundation for the study of law.

*Students are directed to the Program Planning Guide for the B.A. with the appropriate major, with the **Law Enclosure (Alberta)**.*

e. Law (Calgary)

Students with an academic objective of Law are generally admitted to a B.A. program at the University of Lethbridge with a major of the student's choice. Students are referred to **Sections 13** and **16** respectively for information on the University of Lethbridge general degree and major requirements.

30 courses at the University of Lethbridge
University of Transfer: Calgary

Although students may apply after completion of 20 courses, most students are admitted after completion of 30 courses or an undergraduate degree.

There are no formal pre-Law requirements. The Faculty of Law at the University of Calgary recognizes that students may benefit from a diverse educational background and seeks, therefore, to attract applicants from business, humanities, pure science and social science undergraduate courses which develop analytical and reasoning skills. Courses which stress the use of the English language are advantageous in the preparation for a career in Law. The courses which best fit this description are found in the humanities and social sciences.

*Students are directed to the Program Planning Guide for the B.A. with the appropriate major, with the **Law Enclosure (Calgary)**.*

f. Medicine (Alberta or Calgary)

Students with an academic objective of Medicine (Alberta or Calgary) are generally admitted to a B.Sc. program at the University of Lethbridge with a major of the student's choice. Majors in Agricultural Biotechnology, Biochemistry, Biological Sciences, Chemistry, and Neuroscience are of particular interest, although students from a wide variety of majors are admitted to this program. Admission is not restricted to students who

have completed a B.Sc. Students are referred to **Sections 14** and **16** respectively for information on the University of Lethbridge general degree and major requirements.

Minimum of 20 courses at the University of Lethbridge
University of Transfer: Alberta or Calgary

Most successful applicants to the University of Alberta and University of Calgary programs will have completed a baccalaureate degree before admission. However, to be considered for admission, prospective applicants must have completed a minimum of two full years of university courses at the time of application.

No degree is preferred and no specific courses are required for application or acceptance to these MD programs. The admissions committees recommend that applicants consider taking as many of the courses listed below as their schedules allow, as the content of these courses will be helpful when writing the MCAT and during the MD program. Whether or not an applicant has taken these courses at the time of application will not be taken into consideration in scoring the academic record.

Suggested courses:

Biology
Organic and Inorganic Chemistry
Physics
English
Biochemistry
Physiology
Statistics or Calculus
Psychology, Sociology, or Anthropology

Completion of the recommended courses does not guarantee admission.

*For detailed information about the Medicine program at the University of Alberta and planning the University of Lethbridge degree in order to meet those requirements, students are directed to the Program Planning Guide for the B.Sc. with the appropriate major, with the **Medicine (Alberta) Enclosure**.*

*For detailed information about the Medicine program at the University of Calgary and planning the University of Lethbridge degree in order to meet those requirements, students are directed to a Program Planning Guide with the major of their choice, with the **Medicine (Calgary) Enclosure**.*

g. Social Work (Calgary)

Students with an academic objective of Social Work are generally admitted to a B.A. program at the University of Lethbridge with a major of the student's choice. Majors in Economics, Political Science, Psychology or Sociology may be of particular interest. Students are referred to **Sections 13** and **16** respectively for information on the University of Lethbridge general degree and major requirements.

Minimum of 19 courses at the University of Lethbridge,
plus one specific prerequisite University of Calgary
course (see below)

University of Transfer: Calgary

The Bachelor of Social Work is offered through the University of Calgary and may be taken at one of the three divisions: University of Calgary campus, University of Lethbridge campus or University of Alberta campus.

The nature of the Social Work profession is such that a student should possess a strong background in the Social Sciences before application to the Faculty. The University of Lethbridge offers courses which prepare a student for application to the University of Calgary, Faculty of Social Work.

Prospective applicants must enrol in Social Work 201 (Introduction to Social Welfare), which is offered on the University of Lethbridge campus. Students must first obtain a letter of permission granting Visiting Student Authorization to the University of Calgary from the Arts and Science Student Program Services Office as well as provide an official transcript of all post-secondary education.

For further details, see **Part 12 - Social Work** in this Calendar.

*Students are directed to the Program Planning Guide for the B.A. with the appropriate major, with the **Social Work Enclosure**.*

h. Veterinary Medicine (Saskatchewan)

Students with an academic objective of Veterinary Medicine are admitted to the B.Sc. program with a major in Agricultural Biotechnology, Biochemistry, Biological Sciences, Chemistry, or Neuroscience. Students are referred to **Sections 14** and **16** for information on the University of Lethbridge general degree and major requirements.

Minimum of 20 courses at the University of Lethbridge
University of Transfer: Western College of Veterinary
Medicine, University of Saskatchewan

The minimum admission requirements for Veterinary Medicine are as follows:

6.0 credit hours in each of:

Biology
Chemistry
English
Mathematics or Statistics

3.0 credit hours in each of:

Biochemistry
Genetics
Introductory Microbiology
Organic Chemistry
Physics

21.0 credit hours of electives

*For detailed information about the Veterinary Medicine program at the University of Saskatchewan (Western College of Veterinary Medicine), and planning the University of Lethbridge degree in order to meet those requirements, students are directed to the Program Planning Guide for the B.Sc. with the appropriate major, with the **Veterinary Medicine Enclosure**.*