

University of
Lethbridge



Program Planning Guide

Program: Bachelor of Science/Bachelor of Education (B.Sc./B.Ed.)

Major (Arts and Science): Physics

Major (Education): Science Education

Calendar Year: 2014/2015

Name: _____

ID: _____

Bachelor of Science/Bachelor of Education
Physics/Science Education

Major in Physics:

www.uleth.ca/artsci/physics-astronomy

Academic Calendar:

www.uleth.ca/ross/academic-calendar

High School Prerequisites by Course:

www.uleth.ca/ross/hs_prereqs/course

Faculty of Education Admission Requirements:

www.uleth.ca/education/programs-degrees/undergraduate-studies/admission

Current and Past Program Planning Guides:

www.uleth.ca/ross/ppgs

Faculty of Arts and Science Student Program Services:

www.uleth.ca/artsci/advising
artsci.advising@uleth.ca
(403) 329-5106
SU060

Faculty of Education Student Program Services:

www.uleth.ca/education/student-advising
edu.sps@uleth.ca
(403) 329-2254
TH421

This is a planning guide and not a graduation check or guarantee of course offerings. You should have a program check done in your final year of studies. Students are responsible for the accuracy of their own programs. The guide should be used in conjunction with the University of Lethbridge Calendar, which is the final authority on all questions regarding program requirements and academic regulations. Contact an Academic Advisor in the Faculty of Arts and Science or Faculty of Education for advising information.

Name : _____

ID : _____

B.Sc./B.Ed. (Physics/Science Education)

Completion of at least 30 courses (90.0 credit hours) from disciplines offered by the Faculty of Arts and Science or Faculty of Fine Arts with a grade point average of at least 2.00.

Completion of the equivalent of 20 courses (60.0 credit hours) in Education with a program grade point average of at least 2.50 in Education courses and the appropriate major.

Major Requirements (16 courses)

___ 1. **One of:**

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

- ___ 2. Physics 2000 - Introduction to Physics II
- ___ 3. Physics 2020 - The Physics of Everyday Life
- ___ 4. Physics 2120 - Introduction to Physics III
- ___ 5. Physics 2130 - Waves, Optics and Sound
- ___ 6. Physics 2150 - Quantum Mechanics I
- ___ 7. Physics 2925 - Introduction to Experimental Physics
- ___ 8. Physics 3750 - Contemporary Physics
- ___ 9. **One of:**

- ___ Astronomy 2020 - Modern Astronomy
- ___ Astronomy 2070 - The Solar System

One other course (3.0 credit hours) offered by the Department of Physics and Astronomy, including courses in Astronomy or Engineering

10. _____

Required cognates:

___ 11. **One of:**

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

___ 12. **One of:**

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

- ___ 13. Mathematics 1410 - Elementary Linear Algebra
- ___ 14. Mathematics 1560 - Calculus I
- ___ 15. Mathematics 2560 - Calculus II
- ___ 16. Mathematics 2570 - Calculus III

Other Courses (minimum 14 courses)

Arts and Science or Fine Arts courses only

- | | |
|----------|-----------|
| 1. _____ | 8. _____ |
| 2. _____ | 9. _____ |
| 3. _____ | 10. _____ |
| 4. _____ | 11. _____ |
| 5. _____ | 12. _____ |
| 6. _____ | 13. _____ |
| 7. _____ | 14. _____ |

Education Requirements (20-course equivalent)

- ___ Education 2500 - Practicum I - Orientation to Teaching
- ___ Professional Semester I (15.0 credit hours)
- ___ Professional Semester II (15.0 credit hours)
- ___ Professional Semester III (15.0 credit hours)

Education Foundation: _____

Three Education Electives:

- | | |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | |

Notes

**Engineering 2000 and Mathematics 1560 are prerequisites for Engineering 2060.*

Students wishing to include 3000-level Physics courses in their program must take Mathematics 2580 (Calculus IV) which is a prerequisite for such courses except Physics 3750 and some offerings of the Physics 3900 Series.

It is recommended that Physics majors in Combined Degrees include courses in Biology, Chemistry, Computer Science, and Mathematics.

Since a number of senior-level Physics courses are offered only in alternate years, students are advised to plan carefully to include the desired courses. Consequently, students who intend to pursue a degree program with a major in Physics are strongly advised to seek help in planning their program from the Department of Physics and Astronomy.

The major in Physics for the Combined Degrees program provides a strong foundation in Physics, but it is not normally sufficient, in the absence of further study in the field, for pursuing graduate studies in Physics at a Canadian university.

Completion of the General Liberal Education Requirement (GLER).

Only four courses (12.0 credit hours) in total may be counted from all courses offered by a single department. See the 2014/2015 Calendar, p. 88, for more information.

LIST I: Fine Arts and Humanities Courses

- | | |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |

LIST II: Social Science Courses

- | | |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |

LIST III: Science Courses

- | | |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |

Not more than 10 courses (30.0 credit hours) may be completed at the 1000 level (or lower) [0500 - 1999] for credit towards the degree, excluding Activity courses (labelled PHAC and MUSE).

- | | |
|----------|------------------|
| 1. _____ | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ (max.) |

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).

- | | |
|----------|------------------|
| 1. _____ | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ (min.) |

____ Not more than three Independent Study courses (9.0 credit hours) may be completed for credit towards the degree.

____ 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.

____ Not more than 17 courses (51.0 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).

____ 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).

____ Residence requirement:

Degree:

Art and Science: at least 15 courses (45.0 credit hours) offered by the Faculty of Arts and Science or the Faculty of Fine Arts must be completed at the University of Lethbridge.

Education: at least 15 courses (45.0 credit hours) offered by the Faculty of Education must be completed at the University of Lethbridge.

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

Education Minor (If Applicable): _____

See the 2014/2015 Calendar, p. 166, for eligible minors.

- | | |
|----------|---------------------------------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | 6. _____ |
| | Education (methods requirement) |

Specialization (If Applicable): _____

See the 2014/2015 Calendar, p. 170, for details.

- | | |
|----------|--------------------------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. <u>Education 4573</u> |
| 3. _____ | |

Sample Sequencing Plan

Shown below is a sample sequence of courses for your degree. If you follow this plan, you should be able to graduate in years, provided you complete five courses per semester. This is just one example of how you could complete your major and degree requirements; you may find that a different sequence works as well as this one.

<p>Year 1, Fall Chemistry 1000 or Chemistry 1110 Mathematics 1410 Mathematics 1560 Physics 1000 or Physics 1050 GLER course</p> <p>Year 2, Fall Physics 2020 Education 2500¹ Mathematics 2570 Physics 2120 GLER course</p> <p>Year 3, Fall Professional Semester I</p> <p>Year 4, Fall GLER course 3000/4000 level GLER course 3000/4000 level Elective 3000/4000 level Elective 3000/4000 level Elective 3000/4000 level</p> <p>Year 5, Fall Professional Semester III</p>	<p>Year 1, Spring Biology 1010 or Biology 1020 Mathematics 2560 Physics 2000 Physics 2130 GLER course</p> <p>Year 2, Spring Astronomy 2020 or Astronomy 2070 Physics 2150 Physics 2925 GLER course GLER course</p> <p>Year 3, Spring Physics 3750 GLER course Elective 3000/4000 level Elective 3000/4000 level Elective 3000/4000 level</p> <p>Year 4, Spring Professional Semester II</p> <p>Year 5, Spring Education Foundation course Education elective Education elective Education elective Physics elective 3000/4000 level²</p>
<p>Elementary Education and Special/Inclusive Education students will reverse the Fall and Spring semesters in Year 5 and complete PS III in the Spring.</p>	

¹ Education 2500 may also be taken in Spring or Summer semester.

² Physics electives may be chosen from Physics, Astronomy, or Engineering.

Note: Students wishing to include 3000-level Physics courses in their program must take Mathematics 2580 (Calculus IV) which is a prerequisite for most Physics courses at the 3000/4000 level.

Terms Used

GLER course: A course that could count toward the General Liberal Education Requirement. You may use courses in your major towards this 12-course requirement. See the 2014/2015 University of Lethbridge Calendar, Part 4 - Academic Regulations (p. 88) for complete information.

The Faculty of Arts and Science offers Liberal Education 1000 and 2000, specifically designed to introduce first-year students to the wide scope of human knowledge and teach essential university success skills, critical thinking, and integrative thinking (see the 2014/2015 University of Lethbridge Calendar, Part 14 - Courses, p. 315). LBED 1000 and 2000 may be used toward satisfying the GLER.

Elective: A course that you may choose freely from all those available and applicable to your program. Use courses inside or outside your major, bearing in mind any restrictions that may apply (e.g., a maximum of 17 courses from any one discipline).

Faculty of Education Admission

Admission to the Faculty of Education requires successful completion of the following:

- ___ 20 semester courses (60.0 credit hours).
- ___ Minimum cumulative grade point average of 2.50 on all UofL and transferable courses taken within the semesters containing the last 20 courses (60.0 credit hours).
- ___ Minimum of eight courses (24.0 credit hours) in the major.
- ___ Minimum cumulative grade point average of 2.50 on all graded courses comprising the major, including all transferable courses.
- ___ Credit in Education 2500 - Practicum I - Orientation to Teaching (or equivalent) including a favourable recommendation from the instructor.
- ___ Writing Proficiency Requirement:
See Part 13 (Combined Degrees) in the Academic Calendar: www.uleth.ca/ross/academic-calendar
- ___ Additional admission requirements in the following majors:
Dramatic Arts, Music, Native Education and Physical Education

For specific information on admission requirements, please refer to the Combined Degrees section of the Academic Calendar: www.uleth.ca/ross/academic-calendar/part13.pdf

Students are advised to contact Student Program Services in the Faculty of Education (TH421; tel. 403-329-2254) for guidelines regarding the requirements stated above.

For application and document deadlines please refer to: www.uleth.ca/ross/admission-information/deadlines

Combined Degrees Program:

Students begin this program in the Faculty of Arts and Science where they progress toward completion of Arts and Science degree requirements, and prepare to meet the admission requirements for the Faculty of Education. Please note that completion of the required prerequisites does not guarantee admission to the Faculty of Education. For students of Aboriginal descent, and students with a significant shift in academic performance, please see the current Calendar for the Faculty of Education's admission policy.

