

University of
Lethbridge



Program Planning Guide

Name: _____

ID: _____

Calendar Year: 2021/2022

Major in Physics:

www.uleth.ca/artsci/physics-astronomy

Academic Calendar:

www.uleth.ca/ross/academic-calendar

High School Admission Requirements:

www.uleth.ca/ross/admissions/undergrad/high-school

Current and Past Program Planning Guides:

www.uleth.ca/ross/ppgs

Co-operative Education:

www.uleth.ca/career-bridge/co-operative-education

Faculty of Arts and Science Advising:

www.uleth.ca/artsci/advising
artsci.advising@uleth.ca
403-329-5106
M2102

Bachelor of Science
Physics

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 (www.uleth.ca/ross/academic-advising) for advising information.

Name : _____

ID : _____

Program Requirements

Completion of at least 40 courses (120.0 credit hours) with cumulative and graduation grade point averages of at least 2.00.

Major Requirements (26 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
- _____ ¹Engineering 2060 - Engineering Mechanics

One of:

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

Two of:²

- _____ 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

Other Courses (minimum 14 courses)

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

Notes

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

²Offerings 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.

Completion of the Liberal Education List Requirement (Lib Ed Requirement)

Only four courses (12.0 credit hours) in total may be counted from any one discipline toward the Lib Ed Requirement. Disciplines are identified by separate course subject codes.

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

See the 2021/2022 Calendar, p. 79, for more information.

_____ Four Fine Arts and Humanities courses:

1. _____
2. _____
3. _____
4. _____

_____ Four Social Science courses:

1. _____
2. _____
3. _____
4. _____

_____ Four Science courses:

1. _____
2. _____
3. _____
4. _____

Not more than 12 courses (36.0 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) and courses numbered in the range of 0520 to 0530.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

_____ **Minor (Optional):** _____

See the 2021/2022 Calendar, p. 317, for more information.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Completion of at least 15 courses (45.0 credit hours) from disciplines offered by the Faculty of Arts and Science, Faculty of Fine Arts, or the School of Liberal Education at the 3000/4000 level, excluding Activity courses (labelled PHAC and MUSE). Out-of-faculty courses (i.e. labelled ABHL, ACCT, ADCS, AGEM, CDEV, CRED, EDUC, FINC, HLSC, HRLR, IGBM, IMGT, MGT, MKTG, NURS, PUBH, and TREC) will not meet this requirement.

1. _____
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11. _____
12. _____
13. _____
14. _____
15. _____

_____ Not more than five Independent Study courses (15.0 credit hours) may be completed for credit towards the degree.

_____ 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.

_____ * Not more than 24 courses (72.0 credit hours) may be completed from any one discipline for credit towards the degree.

_____ 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).

_____ Not more than six courses (18.0 credit hours) from disciplines outside the Faculty of Arts and Science, Faculty of Fine Arts, or School of Liberal Education may be completed for credit towards the degree (i.e. labelled ABHL, ACCT, ADCS, AGEM, CDEV, CRED, EDUC, FINC, HLSC, HRLR, IGBM, IMGT, MGT, MKTG, NURS, PUBH, and TREC). Courses cross-listed between the Faculty of Arts and Science and another Faculty do not count towards this limit.

_____ Residence requirement:

Degree: a minimum of 20 courses (60.0 credit hours) must be completed at the University of Lethbridge, including at least 10 courses (30.0 credit hours) from disciplines offered by the Faculty of Arts and Science, Faculty of Fine Arts, or School of Liberal Education at the 3000/4000 level.

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

**Disciplines are identified by a specific course label (e.g. KNES, ASTR, and HIST are separate disciplines).*

_____ **Concentration: Theoretical Physics (Optional)**

See the 2021/2022 Calendar, p. 126, for more information.

1. _____
2. _____
3. _____
4. _____
5. _____

Sample Sequencing Plan

Shown below is a sample sequence of courses for your degree. Consult timetables for course offerings, prerequisites, and corequisites before registering each term. 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.

Year 1, Fall

Mathematics 1410
 Mathematics 1565 or Mathematics 1560
 Physics 1000 or Physics 1050
 Lib Ed Requirement course
 Lib Ed Requirement course

Year 2, Fall

Chemistry 1000
 Mathematics 2570
 Physics 2120
 Physics 2800
 Lib Ed Requirement course

Year 3, Fall¹

Physics 3000/4000 level
 Physics 3000/4000 level
 Physics 3000/4000 level
 Physics 3000/4000 level
 Lib Ed Requirement course

Year 4, Fall¹

Physics 3000/4000 level
 Physics 3000/4000 level
 Elective 3000/4000 level
 Elective 3000/4000 level
 Elective

Year 1, Spring

Mathematics 2565
 Physics 2000
 Physics 2130
 Computer Science 1620
 Lib Ed Requirement course

Year 2, Spring

Biology 1010 or Biology 1020
 Mathematics 2580
 Physics 2150
 Physics 2925
 Lib Ed Requirement course

Year 3, Spring¹

Physics 3000/4000 level
 Physics 3000/4000 level
 Physics 3000/4000 level
 Lib Ed Requirement course
 Lib Ed Requirement course

Year 4, Spring¹

Physics 3000/4000 level
 Physics 3000/4000 level
 Elective 3000/4000 level
 Elective 3000/4000 level
 Elective

¹ The term of offering for all senior Physics courses may vary. Students are strongly advised to consult with the Department of Physics and Astronomy regarding the sequencing of courses.

Note: Courses in bold in Years 1 and 2 of the sample sequence are prerequisite(s) for required courses and should be completed early in your program. Students are advised to review the prerequisites for elective courses within the major and plan accordingly.

