

University of Alberta University of Alberta Calendar 2022-2023

Major Subject (42 units plus supporting or prerequisite courses) [Augustana]

Biology

- 3 units additional in Biology at the 400-level.
- 12 units in senior Biology, at least 6 units of which must be at the 300- or 400-level.

6 units in evolution and cell biology:

- [AUBIO 111 - Functional Biology](#)
- [AUBIO 212 - Evolution and Biodiversity](#)

9 units in cell biology, ecology, and genetics:

- [AUBIO 230 - Molecular Cell Biology](#)
- [AUBIO 253 - Ecological Interactions](#)
- [AUBIO 260 - Principles of Genetics](#)

3 units in botany:

- [AUBIO 323 - Plant Biology](#)

3 units in biodiversity: one of

- [AUBIO 374 - Microbiology](#)
- [AUBIO 394 - Comparative Invertebrate Zoology](#)
- [AUBIO 395 - Vertebrate Form and Function](#)

3 units in developmental biology:

- [AUBIO 338 - Developmental Biology](#)

3 units in history and theory of biology:

- [AUBIO 411 - History and Theory of Biology](#)

Prerequisite courses: 6 units in chemistry:

- [AUCHE 110 - General Chemistry I](#)
- [AUCHE 250 - Synthesis I](#)

Supporting course: 3 units in statistics:

- [AUSTA 215 - Statistical Methods for the Natural Sciences](#)

Note:

Students must take [EDSE 355](#) during the IPT, which is normally offered in both the Fall and Winter Terms. Students must take [EDSE 451](#) and [EDSE 455](#) during the APT, which are normally offered in both the Fall and Winter Terms.

Chemistry

- 21 units in additional senior Chemistry, at least 6 units of which must be at the 300- or 400-level.

6 units in general chemistry:

- [AUCHE 110 - General Chemistry I](#)
- [AUCHE 212 - General Chemistry II](#)

3 units in analytical chemistry:

- [AUCHE 220 - Analysis I](#)

3 units in inorganic chemistry:

- [AUCHE 230 - Structure and Bonding](#)

3 units in organic chemistry:

- [AUCHE 250 - Synthesis I](#)

3 units in physical chemistry:

- [AUCHE 279 - Physical Chemistry](#)

3 units in Selected Topics in Chemistry: one of

- [AUCHE 405 - Selected Topics in Chemistry](#)
- AUCHE 485

Prerequisite courses: 3 units in elementary calculus:

- [AUMAT 110 - Elementary Calculus I](#)
- [AUMAT 116 - Calculus Concepts and Modelling](#)

Note:

Students must take [EDSE 355](#) during the IPT, which is normally offered in both the Fall and Winter Terms. Students must take [EDSE 451](#) and [EDSE 455](#) during the APT, which are normally offered in both the Fall and Winter Terms.

General Sciences

- 9 units in Physics, including at least 3 units at the 200-level.

- 6 units in Biology, Chemistry, Mathematics, or Physics at the 300- or 400-level
- 3 units in senior Biology, Chemistry, Mathematics, Physics, senior science courses in Environmental Studies or Geography [see [Classification of Courses \(1\)](#)], or [AUSTA 215](#).

9 units in biology:

- 3 units in Biology at the 200-level
- [AUBIO 111 - Functional Biology](#)
- [AUBIO 212 - Evolution and Biodiversity](#)

9 units in chemistry:

- [AUCHE 110 - General Chemistry I](#)
- [AUCHE 212 - General Chemistry II](#)
- [AUCHE 250 - Synthesis I](#)

6 units in elementary calculus:

- [AUMAT 110 - Elementary Calculus I](#) OR
- [AUMAT 116 - Calculus Concepts and Modelling](#)

- [AUMAT 112 - Elementary Calculus II](#)

Note:

Students must take [EDSE 355](#) during the IPT, which is normally offered in both the Fall and Winter Terms. Students must take [EDSE 451](#) and [EDSE 455](#) during the APT, which are normally offered in both the Fall and Winter Terms.

Mathematical Sciences

- 3 units in additional senior Computing Science or Mathematics.
- 3 units in additional Mathematics at the 300- or 400-level.

3 units in computing science:

- AUCSC 211

6 units in elementary calculus:

- [AUMAT 110 - Elementary Calculus I](#) OR
- [AUMAT 116 - Calculus Concepts and Modelling](#)

- [AUMAT 112 - Elementary Calculus II](#)

6 units in linear algebra:

- [AUMAT 120 - Linear Algebra I](#)
- [AUMAT 220 - Linear Algebra II](#)

6 units in intermediate calculus:

- [AUMAT 211 - Intermediate Calculus I](#)
- [AUMAT 212 - Intermediate Calculus II](#)

3 units in group theory:

- [AUMAT 229 - Introduction to Group Theory](#)

3 units in discrete mathematics:

- [AUMAT 250 - Discrete Mathematics](#)

3 units in geometry:

- [AUMAT 260 - Foundations of Geometry](#)

3 units in history and theory of mathematics:

- [AUMAT 480 - History of Mathematics and Physics](#)

3 units in statistics:

- [AUSTA 215 - Statistical Methods for the Natural Sciences](#)

Notes

1. Because [AUCSC 113](#) is a prerequisite for AUCSC 211, Mathematical Sciences majors should select [AUCSC 113](#) to satisfy the general requirement in computing.
2. Students must take [EDSE 337](#) during the IPT, which is normally offered in both the Fall and Winter Terms. Students must take [EDSE 451](#) and [EDSE 437](#) during the APT, which are normally offered in Winter Term only.
3. [EDSE 439](#) and [EDSE 442](#) are recommended as Education electives.

Mathematics and Physics

- 3 units in additional Physics at the 300- or 400-level.
- 6 units in additional senior Mathematics or Physics, selected such that the major includes at least 24 units in Physics.

6 units in elementary calculus:

- [AUMAT 110 - Elementary Calculus I](#) OR
- [AUMAT 116 - Calculus Concepts and Modelling](#)

- [AUMAT 112 - Elementary Calculus II](#)

6 units in intermediate calculus:

- [AUMAT 211 - Intermediate Calculus I](#)
- [AUMAT 212 - Intermediate Calculus II](#)

3 units in applied mathematics:

- [AUMAT 315 - Complex Variables](#)
- [AUMAT 330 - Ordinary Differential Equations](#)
- AUMAT 340
- AUPHY 340

9 units in introductory physics:

- AUPHY 110
- [AUPHY 120 - Introductory Physics](#)
- [AUPHY 250 - Electricity and Magnetism](#)

3 units in relativity and quantum mechanics:

- [AUPHY 260 - Introduction to Relativity and Quantum Mechanics](#)

3 units in advanced physics laboratory:

- [AUPHY 391 - Advanced Laboratory I](#)

3 units in history of mathematics and physics:

- [AUMAT 480 - History of Mathematics and Physics](#)
- [AUPHY 480 - History of Physics and Mathematics](#)

Note:

Students must take [EDSE 355](#) during the IPT, which is normally offered in both the Fall and Winter Terms. Students must take [EDSE 451](#) and [EDSE 455](#) during the APT, which are normally offered in both the Fall and Winter Terms.

Physical Sciences

- 6 units in additional Biology, Chemistry, Mathematics, or Physics at the 300- or 400-level.
- 3 units in additional senior Computing Science or Mathematics.

6 units in general chemistry:

- [AUCHE 110 - General Chemistry I](#)
- [AUCHE 212 - General Chemistry II](#)

3 units in organic chemistry:

- [AUCHE 250 - Synthesis I](#)

6 units in senior chemistry from

- [AUCHE 220 - Analysis I](#)
- [AUCHE 230 - Structure and Bonding](#)
- [AUCHE 279 - Physical Chemistry](#)

9 units in introductory physics:

- [AUPHY 110](#)
- [AUPHY 120 - Introductory Physics](#)
- [AUPHY 250 - Electricity and Magnetism](#)

3 units in relativity and quantum mechanics:

- [AUPHY 260 - Introduction to Relativity and Quantum Mechanics](#)

3 units in advanced physics laboratory:

3 units in history of physics:

- [AUPHY 480 - History of Physics and Mathematics](#)

Prerequisite courses: 9 units in calculus:

- [AUMAT 110 - Elementary Calculus I](#) OR
- [AUMAT 116 - Calculus Concepts and Modelling](#)

- [AUMAT 112 - Elementary Calculus II](#)
- [AUMAT 211 - Intermediate Calculus I](#)

Notes

1. [AUMAT 212](#) is a corequisite for [AUPHY 310](#) and [AUPHY 350](#). Due to the number of Mathematics prerequisites for this major, it is suggested that the Physical Sciences major be taken in combination with a Mathematics minor.
 2. Students must take [EDSE 355](#) during the IPT, which is normally offered in both the Fall and Winter Terms. Students must take [EDSE 451](#) and [EDSE 455](#) during the APT, which are normally offered in both the Fall and Winter Terms.
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