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<th>Course Section</th>
<th>Course Subject</th>
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<th>Course Number</th>
<th>Section Title</th>
<th>Term</th>
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<td>ANTH_O 100-101</td>
<td>ANTH_O</td>
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<td>Introduction to Cultural Anthropology W2</td>
<td>Lecture</td>
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<td>BIOC_O 101-101</td>
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<td>Pharmacology II W2</td>
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<td>APSC_O 261-001</td>
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<td>Theory of Structures W2</td>
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<td>BIOC_O 402-001</td>
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<td>Proteins: Structure and Function W2</td>
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ANTH_O 203-101 Global Contemporary Art W2 The contemporary global art scene with an emphasis on strategies for understanding the complexity of art production from 1985 to the present. Credit will be granted for only one of ANTH 213 or ANTH 302. [3-0-0] Lecture Online Learning Thu 9:30 a.m. - 11:00 a.m.

ANTH_O 396-101 Seventeenth-Century European Art in a Global C W2 Studies of seventeenth-century European visual cultures during a period of rapid global expansion. [3-0-0] Prerequisite: Third-year standing. Lecture Online Learning Thu Tu 2:00 p.m. - 5:00 p.m.


APSC_O 178-202 Electricity, Magnetism, and Waves W2 Electric fields and forces, electric potential, capacitance, DC circuits, magnetic fields and forces, Faraday's law, inductance, waves, light, and optics. [3-0-1] Prerequisite: APSC 172. Corequisite: APSC 173.

APSC_O 183-101 Matter and Energy II W2 Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] Lecture In Person Learning Mon Wed Thu 11:00 a.m. - 12:30 p.m.

APSC_O 183-102 Matter and Energy II W2 Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] Lecture In Person Learning Mon Wed Thu 11:00 a.m. - 12:30 p.m.

APSC_O 253-202 Fluid Mechanics I W2 Fluid properties and fluid statics; principles of conservation of mass, momentum, and energy; laminar and turbulent flow; dimensional analysis; pipe flow; valves and fittings; flow measurements. [3-2*-1] Prerequisite: All of APSC 180, APSC 181, APSC 248.

ANTH_O 303-101 Introduction to World Archaeology W2 Peoples and cultures of prehistory. Examines archaeologists and their work in archaeological sites around the world, from the earliest evidence of human kinds and hunting and gathering culture, to the emergence of civilization and state-level societies. [3-0-0] Lecture In Person Learning Thu Tu 8:00 a.m. - 9:30 a.m.

ANTH_O 170-101 Introduction to Linguistic Anthropology W2 Exploration of human communication, both verbal and non-verbal. The structure, cognitive role, and social functions of the spoken languages of the world will be emphasized. [3-0-0] Prerequisite: Either (a) one of ANTH 101, ANTH 103 or (b) ANTH 170. Second-year standing. Lecture In Person Learning Thu 3:30 p.m. - 5:00 p.m.

ANTH_O 200-101 Public Anthropology: Engagement and Advocacy, W2 Examines the range of approaches to public anthropology and how its methods and insights can be used to effect social change, encourage broader public conversation and debate, and respond to inequality, injustice, and human suffering. [3-0-0] Prerequisite: Either (a) one of ANTH 101, ANTH 103 or (b) ANTH 170. Second-year standing. Lecture In Person Learning Thu 9:30 a.m. - 11:00 a.m.

ANTH_O 295-T_101 Current Topics in Anthropology W2 Contemporary issues in anthropology topics. [3-0-0] Prerequisite: Varies with the topic; contact the department. Lecture In Person Learning Thu Tu 9:30 a.m. - 11:00 a.m.

ANTH_O 311-101 Digital Methods in Archaeology and Heritage W2 Digital data, methods, practice, tools and technologies in archaeology and heritage are examined in light of conventional global archaeological practices that distance descendant communities from their heritage. Hands-on training in geospatial and digital data processing and interpretation, and experimentation with different tools and technologies used in digital heritage. [3-0-0] Prerequisite: One of ANTH 103, ANTH 170, ANTH 200. Second-year standing. Lecture In Person Learning Thu Tu 9:30 a.m. - 11:00 a.m.

ANTH_O 330-101 Psychological Distress, Mental Health, and Well- W2 An examination and critique of the social and cultural foundations of development, as both discourse and practice, and the close relationship of development aid and ideologies with contemporary forms of global capitalism. [3-0-0] Prerequisite: ANTH 100. Third-year standing. Lecture In Person Learning Wed 9:30 a.m. - 11:00 a.m.

ANTH_O 355-101 Development and the Politics of Aid W2 An examination and critique of the social and cultural foundations of development, as both discourse and practice, and the close relationship of development aid and ideologies with contemporary forms of global capitalism. [3-0-0] Prerequisite: ANTH 100. Third-year standing. Lecture In Person Learning Wed 9:30 a.m. - 11:00 a.m.


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<tr>
<th>Course Code</th>
<th>Type</th>
<th>Title</th>
<th>Prerequisite(s)</th>
<th>Credits</th>
<th>Time</th>
<th>Location</th>
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<tr>
<td>APSC_O 201-204</td>
<td>APSC_O</td>
<td>Technical Communication</td>
<td>Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities.</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>In Person Learning</td>
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<td>ANTH_O 401-101</td>
<td>ANTH_O</td>
<td>Contemporary Theory in Anthropology</td>
<td>Key theoretical orientations and debates since the 1980s with emphasis on questions of representation, globalization, and the application of anthropological theory and research to contemporary social issues. Credit will be granted for only one of ANTH 100 or ANTH 401.</td>
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<td>APSC_O 181-72B</td>
<td>APSC_O</td>
<td>Dynamics</td>
<td>Kinematics of particles, curvilinear motion, normal-tangential, polar, cylindrical coordinates, forces and acceleration, equation of motions, work and energy, conservation of energy. Introduction to rigid body dynamics.</td>
<td>3-0-2</td>
<td>Discussion</td>
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<td>APSC_O 181-72C</td>
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<td>Kinematics of particles, curvilinear motion, normal-tangential, polar, cylindrical coordinates, forces and acceleration, equation of motions, work and energy, conservation of energy. Introduction to rigid body dynamics.</td>
<td>3-0-2</td>
<td>Discussion</td>
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<td>ANTH_O 418-101</td>
<td>ANTH_O</td>
<td>Travel, Migration and the Politics of Mobility</td>
<td>A critical examination of selected topics in the field of tourism, migration and mobility studies drawing on contemporary ethnography and current issues.</td>
<td>3-0-0</td>
<td>Lecture</td>
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<td>Wednesday Fri</td>
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<td>ANTH_O 475-101</td>
<td>ANTH_O</td>
<td>Anthropology, History, and Tradition</td>
<td>Surveys contemporary anthropological thinking about how the construction of history and tradition shapes present cultural practices. Critical look at history-making by social scientists and by people themselves.</td>
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<td>Seminar</td>
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<td>Dynamics</td>
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<td>Discussion</td>
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<td>Thursday</td>
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<tr>
<td>APSC_O 278-72B</td>
<td>APSC_O</td>
<td>Electric and Magnetic Fields</td>
<td>Electric fields and forces, electric potential, capacitance, DC circuits, magnetic fields and forces, Faraday's law, induction, waves, light, and optics.</td>
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<td>Topics in Anthropology</td>
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<td>Online Learning</td>
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<td>W2</td>
<td>Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] Discussion Online Learning Arranged Arranged</td>
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<td>APSC 210-72C</td>
<td>APSC 310-72C</td>
<td>Co-operative Education Work Term II</td>
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<td>Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 110. Experiential In Person Learning Arranged Arranged</td>
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<td>W2</td>
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<td>W2</td>
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**Course Code:** BIOC_O 448_A_105
**Course Title:** Directed Studies in Biochemistry
**Credits:** A
**Schedule:** 105
**Delivery:** Directed Studies in Biochemistry
**Method:** Independent Study
**Notes:** In Person Learning, Arranged

**Course Code:** BIOC_O 448_A_106
**Course Title:** Directed Studies in Biochemistry
**Credits:** A
**Schedule:** 106
**Delivery:** Directed Studies in Biochemistry
**Method:** Independent Study
**Notes:** In Person Learning, Arranged

**Course Code:** BIOC_O 448_C_101
**Course Title:** Directed Studies in Biochemistry
**Credits:** C
**Schedule:** 101
**Delivery:** Directed Studies in Biochemistry
**Method:** Independent Study
**Notes:** In Person Learning, Arranged

**Course Code:** BIOC_O 448_C_102
**Course Title:** Directed Studies in Biochemistry
**Credits:** C
**Schedule:** 102
**Delivery:** Directed Studies in Biochemistry
**Method:** Independent Study
**Notes:** In Person Learning, Arranged

**Course Code:** BIOC_O 448_C_103
**Course Title:** Directed Studies in Biochemistry
**Credits:** C
**Schedule:** 103
**Delivery:** Directed Studies in Biochemistry
**Method:** Independent Study
**Notes:** In Person Learning, Arranged

**Course Code:** BIOC_O 448_C_104
**Course Title:** Directed Studies in Biochemistry
**Credits:** C
**Schedule:** 104
**Delivery:** Directed Studies in Biochemistry
**Method:** Independent Study
**Notes:** In Person Learning, Arranged

**Course Code:** BIOC_O 448_C_105
**Course Title:** Directed Studies in Biochemistry
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**Method:** Independent Study
**Notes:** In Person Learning, Arranged

**Course Code:** BIOC_O 448_C_106
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**Method:** Independent Study
**Notes:** In Person Learning, Arranged

**Course Code:** BIOC_O 448_C_107
**Course Title:** Directed Studies in Biochemistry
**Credits:** C
**Schedule:** 107
**Delivery:** Directed Studies in Biochemistry
**Method:** Independent Study
**Notes:** In Person Learning, Arranged

**Course Code:** BIOC_O 448_C_108
**Course Title:** Directed Studies in Biochemistry
**Credits:** C
**Schedule:** 108
**Delivery:** Directed Studies in Biochemistry
**Method:** Independent Study
**Notes:** In Person Learning, Arranged

**Course Code:** APSC_O 171-101
**Course Title:** Engineering Drawing and CAD/CAM
**Credits:** 101
**Schedule:** Engineering Drawing and CAD/CAM
**Delivery:** Independent Study
**Notes:** In Person Learning, Arranged

**Course Code:** APSC_O 173-201
**Course Title:** Engineering Analysis II
**Credits:** 201
**Schedule:** Engineering Analysis II
**Delivery:** Independent Study
**Notes:** In Person Learning, Arranged

**Course Code:** APSC_O 177-201
**Course Title:** Engineering Computation and Instrumentation
**Credits:** 201
**Schedule:** Engineering Computation and Instrumentation
**Delivery:** Independent Study
**Notes:** In Person Learning, Arranged
Computer systems, software development, operating systems, compilers, programming in a high-level language, selection and loop structures, functions, arrays, pointers, files, data acquisition, solving engineering problems with computer programs. [3-2*-0] Prerequisite: APSC 172.

Fluid properties and fluid statics; principles of conservation of mass, momentum, and energy; laminar and turbulent flow; dimensional analysis; pipe flow; valves and fittings, flow measurements. [3-2*-1] Prerequisite: All of APSC 180, APSC 181, APSC 248.

APSC_O 255-T1D APSC_O LID Engineering Computation and Instrumentation W2 Laboratory In Person Learning Thu (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC_O 255-T1E APSC_O LIE Engineering Computation and Instrumentation W2 Laboratory In Person Learning Thu (Alternate weeks) 6:00 p.m. - 8:00 p.m.

APSC_O 255-T1F APSC_O LIF Engineering Computation and Instrumentation W2 Laboratory In Person Learning Thu (Alternate weeks) 6:00 p.m. - 8:00 p.m.

Integrals and transcendental functions, techniques of integration, applications of integration, polar coordinates, infinite sequences and series, vectors and the geometry of space, and partial derivatives. [3-0-1]

APSC_O 255-T1G APSC_O LIG Engineering Computation and Instrumentation W2 Laboratory In Person Learning Mon (Alternate weeks) 8:00 a.m. - 10:00 a.m.

APSC_O 255-T1H APSC_O LIH Engineering Computation and Instrumentation W2 Laboratory In Person Learning Mon (Alternate weeks) 8:00 a.m. - 10:00 a.m.

APSC_O 255-T1I APSC_O LII Engineering Computation and Instrumentation W2 Laboratory In Person Learning Tue (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC_O 255-T1J APSC_O LIJ Engineering Computation and Instrumentation W2 Laboratory In Person Learning Tue (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC_O 255-T1K APSC_O LIK Engineering Computation and Instrumentation W2 Laboratory In Person Learning Fri (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC_O 255-T1L APSC_O LIL Engineering Computation and Instrumentation W2 Laboratory In Person Learning Fri (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC_O 177-201 APSC_O 201 Engineering Analysis I W2 Lecture In Person Learning Thu Tue 9:30 a.m. - 11:00 a.m.

Integral and transcendental functions, techniques of integration, applications of integration, polar coordinates, infinite sequences and series, vectors and the geometry of space, and partial derivatives. [3-0-1]

APSC_O 173-T2B APSC_O T2B Engineering Analysis II W2 Discussion In Person Learning Tue 1:00 p.m. - 2:00 p.m.

APSC_O 173-T2F APSC_O T2F Engineering Analysis II W2 Discussion In Person Learning Thu 1:00 p.m. - 2:00 p.m.

Fluid properties and fluid statics; principles of conservation of mass, momentum, and energy; laminar and turbulent flow; dimensional analysis; pipe flow; valves and fittings, flow measurements. [3-2*-1] Prerequisite: All of APSC 180, APSC 181, APSC 248.

APSC_O 255-T1M APSC_O T1M Fluid Mechanics I W2 Discussion In Person Learning Mon 12:00 p.m. - 1:00 p.m.

APSC_O 255-T1N APSC_O T1N Fluid Mechanics I W2 Discussion In Person Learning Fri 3:00 p.m. - 4:00 p.m.

APSC_O 255-T1O APSC_O T1O Fluid Mechanics I W2 Discussion In Person Learning Fri 3:00 p.m. - 4:00 p.m.

Computer systems, software development, operating systems, compilers, programming in a high-level language, selection and loop structures, functions, arrays, pointers, files, data acquisition, solving engineering problems with computer programs. [3-2*-0] Prerequisite: APSC 172.

APSC_O 172-201 APSC_O 201 Engineering Analysis I W2 Lecture In Person Learning Thu Tue 9:30 a.m. - 11:00 a.m.

APSC_O 173-T2B APSC_O T2B Engineering Analysis II W2 Discussion In Person Learning Tue 1:00 p.m. - 2:00 p.m.

APSC_O 173-T2F APSC_O T2F Engineering Analysis II W2 Discussion In Person Learning Thu 1:00 p.m. - 2:00 p.m.

Fluid properties and fluid statics; principles of conservation of mass, momentum, and energy; laminar and turbulent flow; dimensional analysis; pipe flow; valves and fittings, flow measurements. [3-2*-1] Prerequisite: All of APSC 180, APSC 181, APSC 248.

APSC_O 255-T1B APSC_O T1B Fluid Mechanics I W2 Discussion In Person Learning Fri 1:00 p.m. - 2:00 p.m.

APSC_O 255-T1C APSC_O T1C Fluid Mechanics I W2 Discussion In Person Learning Fri 1:00 p.m. - 2:00 p.m.

APSC_O 255-T1D APSC_O T1D Fluid Mechanics I W2 Discussion In Person Learning Fri 1:00 p.m. - 2:00 p.m.

APSC_O 255-T1E APSC_O T1E Fluid Mechanics I W2 Discussion In Person Learning Fri 1:00 p.m. - 2:00 p.m.

APSC_O 255-T1F APSC_O T1F Fluid Mechanics I W2 Discussion In Person Learning Tue 4:00 p.m. - 5:00 p.m.

APSC_O 255-T1G APSC_O T1G Fluid Mechanics I W2 Discussion In Person Learning Fri 2:00 p.m. - 3:00 p.m.

APSC_O 255-T1H APSC_O T1H Fluid Mechanics I W2 Discussion In Person Learning Mon 12:00 p.m. - 1:00 p.m.

APSC_O 255-T1I APSC_O T1I Fluid Mechanics I W2 Discussion In Person Learning Fri 3:00 p.m. - 4:00 p.m.

Fluid properties and fluid statics; principles of conservation of mass, momentum, and energy; laminar and turbulent flow; dimensional analysis; pipe flow; valves and fittings, flow measurements. [3-2*-1] Prerequisite: All of APSC 180, APSC 181, APSC 248.

APSC_O 255-T1J APSC_O T1J Fluid Mechanics I W2 Discussion In Person Learning Thu 11:00 a.m. - 12:00 p.m.

APSC_O 255-T1K APSC_O T1K Fluid Mechanics I W2 Discussion In Person Learning Thu 11:00 a.m. - 12:00 p.m.

APSC_O 255-T1L APSC_O T1L Fluid Mechanics I W2 Discussion In Person Learning Thu 11:00 a.m. - 12:00 p.m.

APSC_O 255-T1M APSC_O T1M Fluid Mechanics I W2 Discussion In Person Learning Thu 11:00 a.m. - 12:00 p.m.

APSC_O 255-T1N APSC_O T1N Fluid Mechanics I W2 Discussion In Person Learning Thu 11:00 a.m. - 12:00 p.m.

APSC_O 255-T1O APSC_O T1O Fluid Mechanics I W2 Discussion In Person Learning Thu 11:00 a.m. - 12:00 p.m.

APSC_O 255-T1P APSC_O T1P Fluid Mechanics I W2 Discussion In Person Learning Thu 11:00 a.m. - 12:00 p.m.
In Person Learning
Electric Circuits and Power
W2
10:00 a.m. - 11:00 a.m.

turbulent flow; dimensional analysis; pipe flow; valves and fittings, flow measurements. [3-2*-1] Prerequisite: APSC 178.

Fluid properties and fluid statics; principles of conservation of mass, momentum, and energy; laminar and turbulent flow; dimensional analysis; pipe flow; valves and fittings, flow measurements. [3-2*-1] Prerequisite: APSC 178.

Computer systems, software development, operating systems, compilers, programming in a high-level language, selection and loop structures, functions, arrays, pointers, files, data acquisition, solving engineering problems with computer programs. [3-2*-0] Lecture In Person Learning Thu 1:00 p.m. - 2:00 p.m.

Modern stellar, galactic, and extragalactic astrophysics, emphasizing stars and stellar evolution from protostars to black holes; galaxies, clusters of galaxies, and quasars; large-scale structure of the Universe and cosmology; special and general relativity. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 120, 121, 122. [3-3*-0] Prerequisite: One of Foundations of Mathematics 12, Precalculus 11, Principles of Mathematics 11; and Physics 11.


turbulent flow; dimensional analysis; pipe flow; valves and fittings, flow measurements. [3-2*-1] Prerequisite: APSC 178.

Emphasizes modern stellar, galactic, and extragalactic astronomy; stars and stellar evolution from protostars to black holes; galaxies, clusters of galaxies, and quasars; large-scale structure of the Universe and cosmology. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 120, ASTR 121, ASTR 122. [3-3*-0] Prerequisite: Foundations of Mathematics 11 is strongly recommended.

Integrals and transcendental functions, techniques of integration, applications of integration, polar coordinates, infinite sequences and series, vectors and the geometry of space, and partial derivatives. [3-0-1] Lecture In Person Learning Wed 2:00 p.m. - 3:00 p.m.

Fluid properties and fluid statics; principles of conservation of mass, momentum, and energy; laminar and turbulent flow; dimensional analysis; pipe flow; valves and fittings, flow measurements. [3-2*-1] Prerequisite: APSC 178.

In Person Learning
Astronomy II
W2
2:00 p.m. - 3:00 p.m.

Integrals and transcendental functions, techniques of integration, applications of integration, polar coordinates, infinite sequences and series, vectors and the geometry of space, and partial derivatives. [3-0-1] Prerequisite: APSC 172.

Computer systems, software development, operating systems, compilers, programming in a high-level language, selection and loop structures, functions, arrays, pointers, files, data acquisition, solving engineering problems with computer programs. [3-2*-0] Lecture In Person Learning Thu 1:00 p.m. - 2:00 p.m.

Integrals and transcendental functions, techniques of integration, applications of integration, polar coordinates, infinite sequences and series, vectors and the geometry of space, and partial derivatives. [3-0-1] Prerequisite: APSC 172.

Fluid properties and fluid statics; principles of conservation of mass, momentum, and energy; laminar and turbulent flow; dimensional analysis; pipe flow; valves and fittings, flow measurements. [3-2*-1] Prerequisite: All of APSC 180, APSC 181, APSC 248.

Emphasizes modern stellar, galactic, and extragalactic astrophysics, emphasizing stars and stellar evolution from protostars to black holes; galaxies, clusters of galaxies, and quasars; large-scale structure of the Universe and cosmology; special and general relativity. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 120, ASTR 121, ASTR 122. [3-3*-0] Prerequisite: One of Foundations of Mathematics 12, Precalculus 11, Principles of Mathematics 11; and Physics 11.

Lecture In Person Learning Thu 11:00 a.m. - 12:30 p.m.

Emphasizes modern stellar, galactic, and extragalactic astronomy; stars and stellar evolution from protostars to black holes; galaxies, clusters of galaxies, and quasars; large-scale structure of the Universe and cosmology. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 120, ASTR 121, ASTR 122. [3-3*-0] Prerequisite: Foundations of Mathematics 11 is strongly recommended.

Lecture In Person Learning Thu 11:00 a.m. - 12:30 p.m.

Integrals and transcendental functions, techniques of integration, applications of integration, polar coordinates, infinite sequences and series, vectors and the geometry of space, and partial derivatives. [3-0-1] Prerequisite: APSC 172.

Fluid properties and fluid statics; principles of conservation of mass, momentum, and energy; laminar and turbulent flow; dimensional analysis; pipe flow; valves and fittings, flow measurements. [3-2*-1] Prerequisite: All of APSC 180, APSC 181, APSC 248.

Lecture In Person Learning Thu 11:00 a.m. - 12:30 p.m.

Integrals and transcendental functions, techniques of integration, applications of integration, polar coordinates, infinite sequences and series, vectors and the geometry of space, and partial derivatives. [3-0-1] Prerequisite: APSC 172.

Lecture In Person Learning Thu 11:00 a.m. - 12:30 p.m.

Computer systems, software development, operating systems, compilers, programming in a high-level language, selection and loop structures, functions, arrays, pointers, files, data acquisition, solving engineering problems with computer programs. [3-2*-0] Lecture In Person Learning Thu 1:00 p.m. - 2:00 p.m.

Integrals and transcendental functions, techniques of integration, applications of integration, polar coordinates, infinite sequences and series, vectors and the geometry of space, and partial derivatives. [3-0-1] Prerequisite: APSC 172.

Lecture In Person Learning Thu 11:00 a.m. - 12:30 p.m.

Fluid properties and fluid statics; principles of conservation of mass, momentum, and energy; laminar and turbulent flow; dimensional analysis; pipe flow; valves and fittings, flow measurements. [3-2*-1] Prerequisite: All of APSC 180, APSC 181, APSC 248.

Lecture In Person Learning Fri 9:00 a.m. - 10:00 a.m.

Computer systems, software development, operating systems, compilers, programming in a high-level language, selection and loop structures, functions, arrays, pointers, files, data acquisition, solving engineering problems with computer programs. [3-2*-0] Lecture In Person Learning Thu 1:00 p.m. - 2:00 p.m.
Applications of Engineering Design

Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 179, APSC 254. Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

Biology for Science Majors II

Continuation of BOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Credit will be granted for only one of BOL 116/125 or BOL 117/122. [3-0-3] Prerequisite: BOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended. Lecture In Person Learning Tue Thu 5:00 p.m. - 6:30 p.m.

Biology for Science Majors II

Continuation of BOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Credit will be granted for only one of BOL 116/125 or BOL 117/122. [3-0-3] Prerequisite: BOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended. Lecture In Person Learning Wed Fri 2:00 p.m. - 3:30 p.m.

Technical Communication

Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176. Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.

Solar Cell Engineering

Climate change and renewable energy sources, operational principles of solar cells and review of leading technologies, deposition and characterization tools for thin film layers, environmental and economic considerations of solar energy, and latest developments in academic research. Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

Dynamics

Kinematics of particles, curvilinear motion, normal-tangential, polar, cylindrical coordinates, force and acceleration, equation of motions, work and energy, conservation of energy. Introduction to rigid body dynamics. [3-0-2] Prerequisite: All of APSC 172, APSC 180. Corequisite: APSC 173. Discussion In Person Learning Fri 12:00 p.m. - 2:00 p.m.

Dynamics

Kinematics of particles, curvilinear motion, normal-tangential, polar, cylindrical coordinates, force and acceleration, equation of motions, work and energy, conservation of energy. Introduction to rigid body dynamics. [3-0-2] Prerequisite: All of APSC 172, APSC 180. Corequisite: APSC 173. Discussion In Person Learning Fri 2:00 p.m. - 4:00 p.m.

Dynamics

Kinematics of particles, curvilinear motion, normal-tangential, polar, cylindrical coordinates, force and acceleration, equation of motions, work and energy, conservation of energy. Introduction to rigid body dynamics. [3-0-2] Prerequisite: All of APSC 172, APSC 180. Corequisite: APSC 173. Discussion In Person Learning Mon 2:00 p.m. - 4:00 p.m.

Technical Communication

Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176. Lecture In Person Learning Wed Fri 8:00 a.m. - 9:30 a.m.

Electric and Magnetic Fields

Review of vector calculus and coordinate systems; electrostatic fields; electric dipole and polarization; magnetostatics fields; magnetic dipole and magnetization; boundary conditions; electromagnetic induction; Maxwell's equations. Credit will be granted for only one of APSC 279 or ENGR 365. [3-0-1] Prerequisite: All of APSC 171, APSC 180. Corequisite: APSC 173. Discussion In Person Learning Thu 11:00 a.m. - 12:00 p.m.

Technical Communication

Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176. Lecture In Person Learning Thu 8:00 a.m. - 9:30 a.m.

Plant Chemistry

Chemical constituents of plants, their synthesis, their contribution to key metabolic processes, and the regulation of their biosynthesis. Synthesis of alkaloids, secondary metabolites, nutrients, and bioactive compounds. Discovery of new phytochemicals and human uses of plants. [3-0-0] Prerequisite: One of CHEM 204, CHEM 214 and one of BOL 201, BOL 210, BOL 319, BOLC 305. Lecture In Person Learning Wed Fri 3:30 p.m. - 5:00 p.m.

Dynamics

Kinematics of particles, curvilinear motion, normal-tangential, polar, cylindrical coordinates, force and acceleration, equation of motions, work and energy, conservation of energy. Introduction to rigid body dynamics. [3-0-2] Prerequisite: All of APSC 172, APSC 180. Corequisite: APSC 173. Discussion In Person Learning Tue 4:00 p.m. - 6:00 p.m.

Technical Communication

Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176. Lecture In Person Learning Wed Fri 9:30 a.m. - 11:00 a.m.

Technical Communication

Written and oral communication in engineering. Report preparation, business correspondence, and oral presentation of technical material. Principles of communication with Indigenous communities. [3-0-0] Prerequisite: APSC 176. Lecture In Person Learning Mon Wed 12:30 p.m. - 2:00 p.m.

Electric and Magnetic Fields

Review of vector calculus and coordinate systems; electrostatic fields; electric dipole and polarization; magnetostatics fields; magnetic dipole and magnetization; boundary conditions; electromagnetic induction; Maxwell's equations. Credit will be granted for only one of APSC 279 or ENGR 365. [3-0-1] Prerequisite: All of APSC 171, APSC 180. Corequisite: APSC 173. Discussion In Person Learning Thu 11:00 a.m. - 12:00 p.m.

System Identification

Identification of dynamical systems by considering input signals, sensor measurements, noise, and disturbance, as well as using parameter estimation, model selection and validation, and practical considerations. Credit will be only granted to one of ENGR 419 or APSC 519. Lecture In Person Learning Tue Thu 5:00 p.m. - 6:30 p.m.

Dynamics

Kinematics of particles, curvilinear motion, normal-tangential, polar, cylindrical coordinates, force and acceleration, equation of motions, work and energy, conservation of energy. Introduction to rigid body dynamics. [3-0-2] Prerequisite: All of APSC 172, APSC 180. Corequisite: APSC 173. Discussion In Person Learning Tue 8:00 a.m. - 10:00 a.m.
<p>| APSC_O 278-27D | APSC_O 270 | Electric and Magnetic Fields | W2 | Review of vector calculus and coordinate systems; electrostatic fields; electric dipole and polarization; magnetostatics fields; magnetic dipole and magnetization; boundary conditions; electromagnetic induction; Maxwell's equations. Credit will be granted for only one of APSC 278 or ENGR 365. [3-0-1] Prerequisite: All of APSC 178, APSC 248. | Discussion | In Person Learning | Thu | 8:00 a.m. - 9:00 a.m. |
| APSC_O 183-L2A | APSC_O 183-L2A | Matter and Energy II | W3 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Wed (Alternate weeks) | 9:00 a.m. - 11:00 a.m. |
| APSC_O 183-L2B | APSC_O 183-L2B | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Wed (Alternate weeks) | 9:00 a.m. - 11:00 a.m. |
| APSC_O 183-L2C | APSC_O 183-L2C | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Wed (Alternate weeks) | 5:00 p.m. - 7:00 p.m. |
| APSC_O 183-L2D | APSC_O 183-L2D | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Wed (Alternate weeks) | 5:00 p.m. - 7:00 p.m. |
| APSC_O 183-L2E | APSC_O 183-L2E | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Mon (Alternate weeks) | 1:00 p.m. - 3:00 p.m. |
| APSC_O 183-L2F | APSC_O 183-L2F | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Mon (Alternate weeks) | 1:00 p.m. - 3:00 p.m. |
| APSC_O 183-L2G | APSC_O 183-L2G | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Fri (Alternate weeks) | 9:00 a.m. - 11:00 a.m. |
| APSC_O 183-L2H | APSC_O 183-L2H | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Fri (Alternate weeks) | 9:00 a.m. - 11:00 a.m. |
| APSC_O 183-L2I | APSC_O 183-L2I | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Mon (Alternate weeks) | 9:00 a.m. - 11:00 a.m. |
| APSC_O 183-L2J | APSC_O 183-L2J | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Mon (Alternate weeks) | 9:00 a.m. - 11:00 a.m. |
| APSC_O 183-L2K | APSC_O 183-L2K | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Thu (Alternate weeks) | 9:00 a.m. - 11:00 a.m. |
| APSC_O 183-L2L | APSC_O 183-L2L | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Thu (Alternate weeks) | 9:00 a.m. - 11:00 a.m. |
| APSC_O 183-L2M | APSC_O 183-L2M | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Tue (Alternate weeks) | 3:30 p.m. - 5:30 p.m. |
| APSC_O 183-L2N | APSC_O 183-L2N | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Tue (Alternate weeks) | 3:30 p.m. - 5:30 p.m. |
| APSC_O 183-L2O | APSC_O 183-L2O | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Wed (Alternate weeks) | 1:00 p.m. - 3:00 p.m. |
| APSC_O 183-L2P | APSC_O 183-L2P | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Wed (Alternate weeks) | 1:00 p.m. - 3:00 p.m. |
| APSC_O 183-L2Q | APSC_O 183-L2Q | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Tue (Alternate weeks) | 12:00 p.m. - 2:00 p.m. |
| APSC_O 183-L2R | APSC_O 183-L2R | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Tue (Alternate weeks) | 12:00 p.m. - 2:00 p.m. |
| APSC_O 183-L2S | APSC_O 183-L2S | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Tue (Alternate weeks) | 9:00 a.m. - 11:00 a.m. |
| APSC_O 183-L2T | APSC_O 183-L2T | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Tue (Alternate weeks) | 9:00 a.m. - 11:00 a.m. |
| APSC_O 183-L2U | APSC_O 183-L2U | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Thu (Alternate weeks) | 12:00 a.m. - 2:00 p.m. |
| APSC_O 183-L2V | APSC_O 183-L2V | Matter and Energy II | W2 | Chemical equilibrium, reactions in gas phase and in aqueous solutions, acid-base and redox reactions, kinetics of chemical reactions, thermochemistry, electrochemistry, and organic chemistry. [2-2*-2*] | Laboratory | In Person Learning | Thu (Alternate weeks) | 12:00 a.m. - 2:00 p.m. |
| APSC_O 262-001 | APSC_O 001 | Digital Logic Design | W3 | Logic design methods, hardware description language (HDL), number representation and arithmetic circuits, combinational circuits, flip-flops, registers, programmable logic devices (FPGAs), counters, finite state machines, digital system designs. [3-2*-0] Prerequisite: APSC 176. | Lecture | In Person Learning | Thu | 3:30 p.m. - 5:00 p.m. |</p>
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<th>Course Code</th>
<th>Title</th>
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<th>Credits</th>
<th>Description</th>
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<td>Signals and Communication Systems</td>
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<td>Art and Visual Cultures of the World II</td>
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<td>History of 20th-Century Art</td>
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<td>ARTH_O 375-101</td>
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<td>Encountering India: The Age of the Moguls</td>
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<td>ARTH_O 385-101</td>
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<td>An examination of historical and contemporary African dress and fashion emphasizing sociocultural and political contexts, transcultural, and global identities.</td>
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<td>ARTH_O 451-101</td>
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<td>Politics of Exhibition and Representation</td>
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<td>Laboratory In Person Learning Fri (Alternate weeks)</td>
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<td>12:30 p.m. - 3:30 p.m.</td>
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<tr>
<td>BIOL 125-L10</td>
<td>BIOL_O</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>3-3-0</td>
<td>Corequisite: CHEM 123</td>
<td>Labrador</td>
<td>In Person Learning</td>
<td>Wed</td>
<td>3:30 p.m. - 6:30 p.m.</td>
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<tr>
<td>BIOL 125-L11</td>
<td>BIOL_O</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>3-3-0</td>
<td>Corequisite: CHEM 123</td>
<td>Labrador</td>
<td>In Person Learning</td>
<td>Wed</td>
<td>6:30 p.m. - 9:30 p.m.</td>
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<tr>
<td>BIOL 125-L12</td>
<td>BIOL_O</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>3-3-0</td>
<td>Corequisite: CHEM 123</td>
<td>Labrador</td>
<td>In Person Learning</td>
<td>Thu</td>
<td>9:30 a.m. - 12:30 p.m.</td>
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</table>

Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.

Corequisite: One of CHEM 113, CHEM 123 is recommended. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.

Corequisite: One of CHEM 113, CHEM 123 is recommended. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.

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Corequisite: One of CHEM 113, CHEM 123 is recommended. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.

Corequisite: One of CHEM 113, CHEM 123 is recommended. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Section</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 125-L13</td>
<td>L13</td>
<td>3</td>
<td>Biology for Science Majors II, Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Corequisite: One of CHEM 113, CHEM 123 is recommended. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. Prerequisite: BIOL 116. [3-3-0]</td>
</tr>
<tr>
<td>BIOL 125-L14</td>
<td>L14</td>
<td>3</td>
<td>Biology for Science Majors II, Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Corequisite: One of CHEM 113, CHEM 123 is recommended.</td>
</tr>
<tr>
<td>BIOL 125-L15</td>
<td>L15</td>
<td>3</td>
<td>Biology for Science Majors II, Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Corequisite: One of CHEM 113, CHEM 123 is recommended.</td>
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<tr>
<td>BIOL 125-L16</td>
<td>L16</td>
<td>3</td>
<td>Biology for Science Majors II, Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Corequisite: One of CHEM 113, CHEM 123 is recommended.</td>
</tr>
<tr>
<td>BIOL 125-L17</td>
<td>L17</td>
<td>3</td>
<td>Biology for Science Majors II, Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Corequisite: One of CHEM 113, CHEM 123 is recommended.</td>
</tr>
<tr>
<td>BIOL 125-L18</td>
<td>L18</td>
<td>3</td>
<td>Biology for Science Majors II, Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Corequisite: One of CHEM 113, CHEM 123 is recommended.</td>
</tr>
<tr>
<td>BIOL 125-L19</td>
<td>L19</td>
<td>3</td>
<td>Biology for Science Majors II, Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Corequisite: One of CHEM 113, CHEM 123 is recommended.</td>
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<tr>
<td>BIOL 125-L20</td>
<td>L20</td>
<td>3</td>
<td>Biology for Science Majors II, Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Corequisite: One of CHEM 113, CHEM 123 is recommended.</td>
</tr>
<tr>
<td>BIOL 125-L21</td>
<td>L21</td>
<td>3</td>
<td>Biology for Science Majors II, Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Corequisite: One of CHEM 113, CHEM 123 is recommended.</td>
</tr>
<tr>
<td>BIOL 125-L22</td>
<td>L22</td>
<td>3</td>
<td>Biology for Science Majors II, Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Corequisite: One of CHEM 113, CHEM 123 is recommended.</td>
</tr>
<tr>
<td>BIOL 125-L23</td>
<td>L23</td>
<td>3</td>
<td>Biology for Science Majors II, Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Corequisite: One of CHEM 113, CHEM 123 is recommended.</td>
</tr>
<tr>
<td>BIOL 125-L24</td>
<td>L24</td>
<td>3</td>
<td>Biology for Science Majors II, Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Corequisite: One of CHEM 113, CHEM 123 is recommended.</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Description</td>
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<tr>
<td>BIOL_O 125-L2S</td>
<td>BIOL_O 125-L2S</td>
<td>L2S Biology for Science Majors II</td>
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<tr>
<td>APSC_O 215-L1A</td>
<td>APSC_O 215-L1A</td>
<td>Electric Circuits and Power</td>
<td>Circuit analysis techniques for steady-state AC and DC circuits containing independent and dependent voltage and current sources, resistance, capacitance and inductance. DC maximum power transfer. AC power including real, reactive, apparent and complex power and power factor. AC power analysis using phasors. Three-phase AC power systems. Prerequisite: APSC 178.</td>
</tr>
<tr>
<td>APSC_O 215-L1B</td>
<td>APSC_O 215-L1B</td>
<td>Electric Circuits and Power</td>
<td>Circuit analysis techniques for steady-state AC and DC circuits containing independent and dependent voltage and current sources, resistance, capacitance and inductance. DC maximum power transfer. AC power including real, reactive, apparent and complex power and power factor. AC power analysis using phasors. Three-phase AC power systems. Prerequisite: APSC 178.</td>
</tr>
<tr>
<td>APSC_O 215-L1C</td>
<td>APSC_O 215-L1C</td>
<td>Electric Circuits and Power</td>
<td>Circuit analysis techniques for steady-state AC and DC circuits containing independent and dependent voltage and current sources, resistance, capacitance and inductance. DC maximum power transfer. AC power including real, reactive, apparent and complex power and power factor. AC power analysis using phasors. Three-phase AC power systems. Prerequisite: APSC 178.</td>
</tr>
<tr>
<td>APSC_O 215-L1D</td>
<td>APSC_O 215-L1D</td>
<td>Electric Circuits and Power</td>
<td>Circuit analysis techniques for steady-state AC and DC circuits containing independent and dependent voltage and current sources, resistance, capacitance and inductance. DC maximum power transfer. AC power including real, reactive, apparent and complex power and power factor. AC power analysis using phasors. Three-phase AC power systems. Prerequisite: APSC 178.</td>
</tr>
<tr>
<td>APSC_O 215-L1E</td>
<td>APSC_O 215-L1E</td>
<td>Electric Circuits and Power</td>
<td>Circuit analysis techniques for steady-state AC and DC circuits containing independent and dependent voltage and current sources, resistance, capacitance and inductance. DC maximum power transfer. AC power including real, reactive, apparent and complex power and power factor. AC power analysis using phasors. Three-phase AC power systems. Prerequisite: APSC 178.</td>
</tr>
<tr>
<td>APSC_O 215-L1F</td>
<td>APSC_O 215-L1F</td>
<td>Electric Circuits and Power</td>
<td>Circuit analysis techniques for steady-state AC and DC circuits containing independent and dependent voltage and current sources, resistance, capacitance and inductance. DC maximum power transfer. AC power including real, reactive, apparent and complex power and power factor. AC power analysis using phasors. Three-phase AC power systems. Prerequisite: APSC 178.</td>
</tr>
<tr>
<td>APSC_O 215-L1G</td>
<td>APSC_O 215-L1G</td>
<td>Electric Circuits and Power</td>
<td>Circuit analysis techniques for steady-state AC and DC circuits containing independent and dependent voltage and current sources, resistance, capacitance and inductance. DC maximum power transfer. AC power including real, reactive, apparent and complex power and power factor. AC power analysis using phasors. Three-phase AC power systems. Prerequisite: APSC 178.</td>
</tr>
<tr>
<td>APSC_O 215-L1H</td>
<td>APSC_O 215-L1H</td>
<td>Electric Circuits and Power</td>
<td>Circuit analysis techniques for steady-state AC and DC circuits containing independent and dependent voltage and current sources, resistance, capacitance and inductance. DC maximum power transfer. AC power including real, reactive, apparent and complex power and power factor. AC power analysis using phasors. Three-phase AC power systems. Prerequisite: APSC 178.</td>
</tr>
<tr>
<td>APSC_O 215-L1I</td>
<td>APSC_O 215-L1I</td>
<td>Electric Circuits and Power</td>
<td>Circuit analysis techniques for steady-state AC and DC circuits containing independent and dependent voltage and current sources, resistance, capacitance and inductance. DC maximum power transfer. AC power including real, reactive, apparent and complex power and power factor. AC power analysis using phasors. Three-phase AC power systems. Prerequisite: APSC 178.</td>
</tr>
<tr>
<td>APSC_O 215-L1K</td>
<td>APSC_O 215-L1K</td>
<td>Electric Circuits and Power</td>
<td>Circuit analysis techniques for steady-state AC and DC circuits containing independent and dependent voltage and current sources, resistance, capacitance and inductance. DC maximum power transfer. AC power including real, reactive, apparent and complex power and power factor. AC power analysis using phasors. Three-phase AC power systems. Prerequisite: APSC 178.</td>
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<tr>
<td>APSC_O 215-L1L</td>
<td>APSC_O 215-L1L</td>
<td>Electric Circuits and Power</td>
<td>Circuit analysis techniques for steady-state AC and DC circuits containing independent and dependent voltage and current sources, resistance, capacitance and inductance. DC maximum power transfer. AC power including real, reactive, apparent and complex power and power factor. AC power analysis using phasors. Three-phase AC power systems. Prerequisite: APSC 178.</td>
</tr>
<tr>
<td>APSC_O 215-L1M</td>
<td>APSC_O 215-L1M</td>
<td>Electric Circuits and Power</td>
<td>Circuit analysis techniques for steady-state AC and DC circuits containing independent and dependent voltage and current sources, resistance, capacitance and inductance. DC maximum power transfer. AC power including real, reactive, apparent and complex power and power factor. AC power analysis using phasors. Three-phase AC power systems. Prerequisite: APSC 178.</td>
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<tr>
<td>APSC_O 215-L1N</td>
<td>APSC_O 215-L1N</td>
<td>Electric Circuits and Power</td>
<td>Circuit analysis techniques for steady-state AC and DC circuits containing independent and dependent voltage and current sources, resistance, capacitance and inductance. DC maximum power transfer. AC power including real, reactive, apparent and complex power and power factor. AC power analysis using phasors. Three-phase AC power systems. Prerequisite: APSC 178.</td>
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</table>

**Course Information**

- **Course Code**: BIOL_O 125-L2S, APSC_O 215-L1A...
- **Description**: Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Credit will be granted for only one of BIOL 115/125 or BIOL 117/122. Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.
- **Laboratory**: In Person Learning
- **Meeting Days and Times**:
  - **Wed**: 12:30 p.m. - 3:30 p.m.
  - **Tue**: 8:00 a.m. - 10:00 a.m.
  - **Thu**: 8:00 a.m. - 10:00 a.m.
  - **Mon**: 10:00 a.m. - 12:00 p.m.
  - **Fri**: 12:00 p.m. - 2:00 p.m.
APSC_O 262-L2A APSC_O L2A Digital Logic Design W2 Logic design methods, hardware description language (HDL), number representation and arithmetic circuits, combinational circuits, flip-flops, registers, programmable logic devices (PLGAs), counters, finite state machines, digital system design. [3-2*-0] Prerequisite: APSC 178. Laboratory In Person Learning Mon (Alternate weeks) 2:00 p.m. - 4:00 p.m.

APSC_O 262-L2B APSC_O L2B Digital Logic Design W2 Logic design methods, hardware description language (HDL), number representation and arithmetic circuits, combinational circuits, flip-flops, registers, programmable logic devices (PLGAs), counters, finite state machines, digital system design. [3-2*-0] Prerequisite: APSC 178. Laboratory In Person Learning Fri (Alternate weeks) 2:00 p.m. - 4:00 p.m.

APSC_O 262-L2C APSC_O L2C Digital Logic Design W2 Logic design methods, hardware description language (HDL), number representation and arithmetic circuits, combinational circuits, flip-flops, registers, programmable logic devices (PLGAs), counters, finite state machines, digital system design. [3-2*-0] Prerequisite: APSC 178. Laboratory In Person Learning Mon (Alternate weeks) 6:00 p.m. - 8:00 p.m.

APSC_O 262-L2D APSC_O L2D Digital Logic Design W2 Logic design methods, hardware description language (HDL), number representation and arithmetic circuits, combinational circuits, flip-flops, registers, programmable logic devices (PLGAs), counters, finite state machines, digital system design. [3-2*-0] Prerequisite: APSC 178. Laboratory In Person Learning Mon (Alternate weeks) 6:00 p.m. - 8:00 p.m.

APSC_O 262-L2E APSC_O L2E Digital Logic Design W2 Logic design methods, hardware description language (HDL), number representation and arithmetic circuits, combinational circuits, flip-flops, registers, programmable logic devices (PLGAs), counters, finite state machines, digital system design. [3-2*-0] Prerequisite: APSC 178. Laboratory In Person Learning Thu (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC_O 262-L2F APSC_O L2F Digital Logic Design W2 Logic design methods, hardware description language (HDL), number representation and arithmetic circuits, combinational circuits, flip-flops, registers, programmable logic devices (PLGAs), counters, finite state machines, digital system design. [3-2*-0] Prerequisite: APSC 178. Laboratory In Person Learning Thu (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC_O 262-L2G APSC_O L2G Digital Logic Design W2 Logic design methods, hardware description language (HDL), number representation and arithmetic circuits, combinational circuits, flip-flops, registers, programmable logic devices (PLGAs), counters, finite state machines, digital system design. [3-2*-0] Prerequisite: APSC 178. Laboratory In Person Learning Mon (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC_O 262-L2H APSC_O L2H Digital Logic Design W2 Logic design methods, hardware description language (HDL), number representation and arithmetic circuits, combinational circuits, flip-flops, registers, programmable logic devices (PLGAs), counters, finite state machines, digital system design. [3-2*-0] Prerequisite: APSC 178. Laboratory In Person Learning Mon (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC_O 258-L2A APSC_O L2A Applications of Engineering Design W2 Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 179, APSC 254. Laboratory In Person Learning Wed 3:30 p.m. - 4:30 p.m.

APSC_O 258-L2B APSC_O L2B Applications of Engineering Design W2 Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 254. Laboratory In Person Learning Wed 11:00 a.m. - 12:00 p.m.

APSC_O 258-L2C APSC_O L2C Applications of Engineering Design W2 Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 254. Laboratory In Person Learning Wed 10:00 a.m. - 11:00 a.m.

APSC_O 258-L2D APSC_O L2D Applications of Engineering Design W2 Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 254. Laboratory In Person Learning Tue 11:00 a.m. - 12:00 p.m.

APSC_O 258-L2E APSC_O L2E Applications of Engineering Design W2 Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 254. Laboratory In Person Learning Thu 2:00 p.m. - 3:00 p.m.

APSC_O 258-L2F APSC_O L2F Applications of Engineering Design W2 Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 254. Laboratory In Person Learning Tue 12:00 p.m. - 1:00 p.m.

APSC_O 258-L2G APSC_O L2G Applications of Engineering Design W2 Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 254. Laboratory In Person Learning Tue 8:00 a.m. - 9:00 a.m.

APSC_O 258-L2H APSC_O L2H Applications of Engineering Design W2 Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 254. Laboratory In Person Learning Tue 2:00 p.m. - 3:00 p.m.

APSC_O 258-L2I APSC_O L2I Applications of Engineering Design W2 Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 254. Laboratory In Person Learning Thu 11:00 a.m. - 12:00 p.m.

APSC_O 258-L2J APSC_O L2J Applications of Engineering Design W2 Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 254. Laboratory In Person Learning Tue 1:00 p.m. - 2:00 p.m.

APSC_O 258-L2K APSC_O L2K Applications of Engineering Design W2 Principles of engineering design, applied to a team-based design project. Use of probability, programming, decision making, economic principles, systems theory, and technical communication in design projects. [3-1-0] Prerequisite: All of APSC 169, APSC 177, APSC 254. Laboratory In Person Learning Fri 11:00 a.m. - 12:00 p.m.

APSC_O 270-L1A APSC_O L1A Signals and Communication Systems W2 Fourier series and Fourier transform analysis of signals; sampling theorem; amplitude; phase; and frequency modulation; baseband digital transmission; pulse code modulation and quantization; Nyquist pulses; inter-symbol interference. Credit will be granted for only one of APSC 270 or ENGR 361. [3-2*-0] Prerequisite: APSC 246. Laboratory In Person Learning Fri (Alternate weeks) 2:30 p.m. - 4:30 p.m.

APSC_O 270-L1B APSC_O L1B Signals and Communication Systems W2 Fourier series and Fourier transform analysis of signals; sampling theorem; amplitude; phase; and frequency modulation; baseband digital transmission; pulse code modulation and quantization; Nyquist pulses; inter-symbol interference. Credit will be granted for only one of APSC 270 or ENGR 361. [3-2*-0] Prerequisite: APSC 246. Laboratory In Person Learning Fri (Alternate weeks) 2:30 p.m. - 4:30 p.m.
APSC 270-L1C  APSC_O  L1C  Signals and Communication Systems  W2
Fourier series and Fourier transform analysis of signals; sampling theorem; amplitude; phase; and frequency modulation; baseband digital transmission; pulse code modulation and quantization; Nyquist pulses; inter-symbol interference. Credit will be granted for only one of APSC 270 or ENGR 361. [3-2*-0] Prerequisite: APSC 246.
Laboratory  In Person Learning  Wed (Alternate weeks)  8:00 a.m. - 10:00 a.m.

APSC 270-L1D  APSC_O  L1D  Signals and Communication Systems  W2
Fourier series and Fourier transform analysis of signals; sampling theorem; amplitude; phase; and frequency modulation; baseband digital transmission; pulse code modulation and quantization; Nyquist pulses; inter-symbol interference. Credit will be granted for only one of APSC 270 or ENGR 361. [3-2*-0] Prerequisite: APSC 246.
Laboratory  In Person Learning  Wed (Alternate weeks)  8:00 a.m. - 10:00 a.m.

APSC 270-L1E  APSC_O  L1E  Signals and Communication Systems  W2
Fourier series and Fourier transform analysis of signals; sampling theorem; amplitude; phase; and frequency modulation; baseband digital transmission; pulse code modulation and quantization; Nyquist pulses; inter-symbol interference. Credit will be granted for only one of APSC 270 or ENGR 361. [3-2*-0] Prerequisite: APSC 246.
Laboratory  In Person Learning  Fri (Alternate weeks)  12:30 p.m. - 2:30 p.m.

APSC 270-L1F  APSC_O  L1F  Signals and Communication Systems  W2
Review of vector calculus and coordinate systems; electrostatic fields; electric dipoles and polarization; magnetostatics fields; magnetic dipoles and magnetization; boundary conditions; electromagnetic induction; Maxwell's equations. Credit will be granted for only one of APSC 278 or ENGR 365. [3-0-1] Prerequisite: All of APSC 179, APSC 248.
Laboratory  In Person Learning  Fri (Alternate weeks)  12:30 p.m. - 2:30 p.m.

BIOC 278-001  APSC_O  001  Electric and Magnetic Fields  W2
Physiological adaptations of plants and animals to their environments. Structure/function relationships of human organ systems. Recommended for Arts or Education students, in conjunction with BIOC 179. BIOC 117/122 cannot be used in place of BIOC 116/125 for those degree programs that require BIOC 116/125. Credit will be granted for either BIOC 117/122 or BIOC 116/125. Credit will be granted for only one of BIOC 112, both of HES 101 and HES 111, or both of HMMN 190 and HMMN 191. [16-0]
Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

ARTH 320-001  ARTH_O  001  Art in Canada 1900-1970  W2
Biological practice in Canada from the beginning of the twentieth century to 1970. Developments in film, video, photography, performance, painting, and sculpture are considered. Emphasis on art's relationship to the changing political, economic, and social arenas in Canada during this time. [3-0-0] Prerequisite: Third-year standing.
Lecture  In Person Learning  Wed Fri  8:00 a.m. - 9:30 a.m.

BIOC 122-101  BIOC_O  101  Physiology of Multicellular Organisms  W2
Modern stellar, galactic, and extragalactic astrophysics, emphasizing stars and stellar evolution from protostars to black holes; galaxies, clusters of galaxies, and quasars; large-scale universe and cosmology structure; special and general relativity. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 120, 121, 122. [3-0-1] Prerequisite: One of Foundations of Mathematics 12, Pre-Calculus 11, Principles of Mathematics 11; and Physics 11.
Laboratory  In Person Learning  Thu (Alternate weeks)  2:30 p.m. - 5:30 p.m.

ASTR 120-L01  ASTR_O  L01  Astrophysics II  W2
Modern stellar, galactic, and extragalactic astrophysics, emphasizing stars and stellar evolution from protostars to black holes; galaxies, clusters of galaxies, and quasars; large-scale universe and cosmology structure; special and general relativity. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 120, 121, 122. [3-3*-0] Prerequisite: Foundations of Mathematics 11 is strongly recommended.
Laboratory  In Person Learning  Thu (Alternate weeks)  6:30 p.m. - 9:30 p.m.

ASTR 120-L02  ASTR_O  L02  Astrophysics II  W2
Emphasizes modern stellar, galactic, and extragalactic astronomy; stars and stellar evolution from protostars to black holes; galaxies, clusters of galaxies, and quasars; large-scale structure of the universe and cosmology. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 120, ASTR 121, ASTR 122. [3-5*-0] Prerequisite: Foundations of Mathematics 11 is strongly recommended.
Laboratory  In Person Learning  Thu (Alternate weeks)  6:30 p.m. - 9:30 p.m.

ASTR 121-L01  ASTR_O  L01  Astronomy II  W2
Emphasizes modern stellar, galactic, and extragalactic astronomy; stars and stellar evolution from protostars to black holes; galaxies, clusters of galaxies, and quasars; large-scale structure of the universe and cosmology. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 120, ASTR 121, ASTR 122. [3-5*-0] Prerequisite: Foundations of Mathematics 11 is strongly recommended.
Laboratory  In Person Learning  Thu (Alternate weeks)  2:30 p.m. - 5:30 p.m.

ASTR 121-L02  ASTR_O  L02  Astronomy II  W2
Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOC 366. Equivalency: BIOL393
Lecture  In Person Learning  Thu (Alternate weeks)  6:30 p.m. - 9:30 p.m.

BIOL 393-101  BIOL_O  L01  Biochemistry Laboratory  W2
Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOC 366. Equivalency: BIOL393
Laboratory  In Person Learning  Mon  2:30 p.m. - 6:30 p.m.

BIOL 393-102  BIOL_O  L02  Biochemistry Laboratory  W2
Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOC 366. Equivalency: BIOL393
Laboratory  In Person Learning  Tue  2:30 p.m. - 6:30 p.m.

BIOL 393-103  BIOL_O  L03  Biochemistry Laboratory  W2
Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOC 366. Equivalency: BIOL393
Laboratory  In Person Learning  Wed  2:30 p.m. - 6:30 p.m.

BIOL 393-104  BIOL_O  L04  Biochemistry Laboratory  W2
Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOC 366. Equivalency: BIOL393
Laboratory  In Person Learning  Thu  2:30 p.m. - 6:30 p.m.

BIOL 393-105  BIOL_O  L05  Biochemistry Laboratory  W2
Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOC 366. Equivalency: BIOL393
Laboratory  In Person Learning  Fri  2:30 p.m. - 6:30 p.m.

BIOL 393-108  BIOL_O  L08  Biochemistry Laboratory  W2
Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOC 393 or BIOL 393. [0-4-0] Prerequisite: BIOC 304 and one of BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOC 366. Equivalency: BIOL393
Laboratory  In Person Learning  Tue  8:30 a.m. - 12:30 p.m.
Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOL 395. [3-3-0] Prerequisite: BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOL 236. Equivalency: BIOL 393

Laboratory In Person Learning Mon 2:30 p.m. - 6:30 p.m.

BIOL_O 393-L06

BIOL_O L06 Biochemistry Laboratory W2

Current methods in gene expression will be presented, relevant to such areas as molecular biology, microbiology, and biochemistry. Topics include extraction, handling and manipulation of RNA, analysis of gene expression (transcriptional), production of recombinant proteins, and genetic transformation of eukaryotes. [0-4-0] Prerequisite: BIOL 366 and one of BIOL 393, BIOL 394.

Laboratory In Person Learning Thu 9:30 a.m. - 1:30 p.m.

BIOL_O 495-L01

BIOL_O L01 Biotechnology Laboratory II: Gene Expression W2

Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116.

Corequisite: One of CHEM 113, CHEM 123 is recommended.

Laboratory In Person Learning Wed 3:30 p.m. - 6:30 p.m.

BIOL_O 125-L26

BIOL_O L26 Biology for Science Majors II W2

Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116.

Corequisite: One of CHEM 113, CHEM 123 is recommended.

Laboratory In Person Learning Wed 6:30 p.m. - 9:30 p.m.

BIOL_O 125-L27

BIOL_O L27 Biology for Science Majors II W2

Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116.

Corequisite: One of CHEM 113, CHEM 123 is recommended.

Laboratory In Person Learning Thu 9:30 a.m. - 12:30 p.m.

BIOL_O 125-L28

BIOL_O L28 Biology for Science Majors II W2

Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116.

Corequisite: One of CHEM 113, CHEM 123 is recommended.

Laboratory In Person Learning Thu 12:30 p.m. - 3:30 p.m.

BIOL_O 125-L29

BIOL_O L29 Biology for Science Majors II W2

Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116.

Corequisite: One of CHEM 113, CHEM 123 is recommended.

Laboratory In Person Learning Thu 3:30 p.m. - 6:30 p.m.

BIOL_O 125-L30

BIOL_O L30 Biology for Science Majors II W2

Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116.

Corequisite: One of CHEM 113, CHEM 123 is recommended.

Laboratory In Person Learning Fri 6:30 p.m. - 9:30 p.m.

BIOL_O 125-L31

BIOL_O L31 Biology for Science Majors II W2

Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Credit will be granted for only one of BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: BIOL 116.

Corequisite: One of CHEM 113, CHEM 123 is recommended.

Laboratory In Person Learning Fri 9:30 a.m. - 12:30 p.m.

BIOL_O 125-XM2

BIOL_O XM2 Biology for Science Majors II W2

Current methods in gene expression will be presented, relevant to such areas as molecular biology, microbiology, and biochemistry. Topics include extraction, handling and manipulation of RNA, analysis of gene expression (transcriptional), production of recombinant proteins, and genetic transformation of eukaryotes. [0-4-0] Prerequisite: BIOL 366 and one of BIOL 393, BIOL 394.

Laboratory In Person Learning Thu 9:30 a.m. - 1:30 p.m.

BIOL_O 495-L02

BIOL_O L02 Biotechnology Laboratory II: Gene Expression W2

Current methods in gene expression will be presented, relevant to such areas as molecular biology, microbiology, and biochemistry. Topics include extraction, handling and manipulation of RNA, analysis of gene expression (transcriptional), production of recombinant proteins, and genetic transformation of eukaryotes. [0-4-0] Prerequisite: BIOL 366 and one of BIOL 393, BIOL 394.

Laboratory In Person Learning Thu 3:30 p.m. - 7:30 p.m.

BIOL_O 495-L03

BIOL_O L03 Biotechnology Laboratory II: Gene Expression W2

Current methods in gene expression will be presented, relevant to such areas as molecular biology, microbiology, and biochemistry. Topics include extraction, handling and manipulation of RNA, analysis of gene expression (transcriptional), production of recombinant proteins, and genetic transformation of eukaryotes. [0-4-0] Prerequisite: BIOL 366 and one of BIOL 393, BIOL 394.

Laboratory In Person Learning Fri 9:30 a.m. - 1:30 p.m.

BIOL_O 407-101

BIOL_O 101 The Biochemical Basis of Disease W2

Draws on foundational knowledge of normal biochemistry. Inborn errors of metabolism, abnormal growth and metabolism, neurodegeneration and inappropriate protein folding, deficiency diseases, endocrine disorders, and cardiovascular and hematological disorders. Credit will be granted for only one of BIOL 407 or BIOL 507. [3-3-0] Prerequisite: One of BIOL 305, BIOL 319.

Lecture In Person Learning Tue Thu 8:00 a.m. - 9:30 a.m.
Continuation of BIOL 116. Introduction to biological concepts necessary for second-year biology. Physiology of reproduction, gas exchange, inter-organ transport, inter-organ coordination in plants and animals, and excretion and movement in animals. Ecosystem, population, community, and behavioral ecology are discussed. Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Lecture In Person Learning Mon 8:00 a.m. - 11:00 a.m.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Mon 2:00 p.m. - 5:00 p.m.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Mon 5:00 p.m. - 8:00 p.m.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Tue 8:00 a.m. - 11:00 a.m.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Tue 12:30 p.m. - 3:30 p.m.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Tue 5:00 p.m. - 8:00 p.m.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Wed 8:00 a.m. - 11:00 a.m.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Wed 12:30 p.m. - 3:30 p.m.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Wed 5:00 p.m. - 8:00 p.m.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Thu 8:00 a.m. - 11:00 a.m.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Thu 12:30 p.m. - 3:30 p.m.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Thu 5:00 p.m. - 8:00 p.m.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Fri 8:00 a.m. - 11:00 a.m.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Fri 12:30 p.m. - 3:30 p.m.

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Arranged Arranged

Continuation and completion of the comprehensive survey of human structures and functions started in BIOL 131. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Laboratory In Person Learning Arranged Arranged

Continuation of BIOL 133. Credit will be granted for only one of BIOL 133, HES 111, or HMKN 191. [3-3-0] Prerequisite: BIOL 131. Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

Fundamental processes underlying adaptive evolution, speciation, and extinction. Methods used to reconstruct the evolutionary histories of, and relationships among, groups of organisms. Factors determining the distribution and abundance of organisms. Competition, predation, and an exploration of processes that promote species coexistence and lead to the maintenance of species diversity. [3-0-0] Prerequisite: BIOL 125. Lecture In Person Learning Tue Thu 8:00 a.m. - 9:30 a.m.

Comparative study of bryophytes, pteridophytes, gymnosperms, and angiosperms, integrating form, function, and ecology. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122. Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

Comparative study of bryophytes, pteridophytes, gymnosperms, and angiosperms, integrating form, function, and ecology. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122. Lecture In Person Learning Mon 9:30 a.m. - 12:30 p.m.

Comparative study of bryophytes, pteridophytes, gymnosperms, and angiosperms, integrating form, function, and ecology. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122. Laboratory In Person Learning Mon 6:30 p.m. - 9:30 p.m.

Comparative study of bryophytes, pteridophytes, gymnosperms, and angiosperms, integrating form, function, and ecology. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122. Laboratory In Person Learning Tue 9:30 a.m. - 12:30 p.m.

Comparative study of bryophytes, pteridophytes, gymnosperms, and angiosperms, integrating form, function, and ecology. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122. Laboratory In Person Learning Tue 2:00 p.m. - 3:30 p.m.

Comparative study of bryophytes, pteridophytes, gymnosperms, and angiosperms, integrating form, function, and ecology. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122. Laboratory In Person Learning Thu 9:30 a.m. - 12:30 p.m.

Comparative study of bryophytes, pteridophytes, gymnosperms, and angiosperms, integrating form, function, and ecology. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122. Laboratory In Person Learning Thu 2:00 p.m. - 3:30 p.m.

Comparative study of bryophytes, pteridophytes, gymnosperms, and angiosperms, integrating form, function, and ecology. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122. Laboratory In Person Learning Fri 9:30 a.m. - 12:30 p.m.
Agents of infectious disease in humans. Physiology and structure, mechanisms of pathogenesis, immunological response, clinical disease caused, laboratory diagnosis, treatment, prevention, and control. Properties and uses of antimicrobial agents, resistance, vaccines, and bioterrorism. Credit will be granted for only one of BIOL 232 or BIOL 314. Prerequisite: Either (a) BIOL 235 or (b) MATH 231.

Lecture
In Person Learning
Mon
2:00 p.m. - 5:00 p.m.

Principles of Genetics
Mendelian genetics, gene expression, recombination, mutation, evolution, and molecular techniques. Examples will be drawn from both eukaryotic and prokaryotic systems. Credit will be granted for only one of BIOL 265 or BIOL 365. Prerequisite: BIOL 125.

Lecture
In Person Learning
Tue Thu
5:00 p.m. - 6:30 p.m.

Ecology of Animals
Integrates recent advances in the study of animal ecology. Principles of animal community, population, and individual ecology are covered. Prerequisite: BIOL 201 and BIOL 202.

Lecture
In Person Learning
Wed Fri
3:30 p.m. - 5:00 p.m.

VIROLOGY
Introduction to concepts of immunology. Immune system, innate immunity and complement, adaptive immunity, cellular and humoral immune response, cytokines, T-cell activation, the major histocompatibility complex, antibody structure and genetics, immune system and cancer, AIDS, autoimmunity, hypersensitivity.

Prerequisite: BIOL 238.

Lecture
In Person Learning
Tue Thu
12:30 p.m. - 2:00 p.m.

Biochemistry II
The structural, biochemical, and functional changes that characterize clinically-important diseases of the nervous system, including: brain and spinal cord trauma; developmental disorders, memory, and memory dysfunction; neurodegenerative diseases; mood and anxiety disorders; epilepsy; and maintenance of homeostasis. Prerequisite: One of BIOL 310 or BIOL 305. Credit will only be granted for one of BIOL 310 or BIOL 305.

Lecture
In Person Learning
Tue Thu
9:30 a.m. - 11:00 a.m.

Comparative Animal Physiology
Comparative course concerning the evolution and advantage of systems design in a variety of animals. Two underlying themes include the principles of homeostasis - the regulation of a constant internal state - and the systems involved in maintaining a constant internal environment: cardiovascular, respiratory, osmoregulatory, and endocrine.

Prerequisite: BIOL 354.

Lecture
In Person Learning
Wed Fri
11:00 a.m. - 12:30 p.m.

Developmental Biology
Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates at the morphological, genetic, and epigenetic levels. Differential gene expression and cell signaling responsible for the specification of embryonic cell fates and pattern formation will be compared in various animals. Credit will be granted for only one of BIOL 363 or BIOL 263. Prerequisite: BIOL 200.

Lecture
In Person Learning
Mon Wed
12:30 p.m. - 2:00 p.m.

Developmental Biology
Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates at the morphological, genetic, and epigenetic levels. Differential gene expression and cell signaling responsible for the specification of embryonic cell fates and pattern formation will be compared in various animals. Credit will be granted for only one of BIOL 363 or BIOL 263. Prerequisite: BIOL 200.

Laboratory
In Person Learning
Wed
2:00 p.m. - 5:00 p.m.

Developmental Biology
Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates at the morphological, genetic, and epigenetic levels. Differential gene expression and cell signaling responsible for the specification of embryonic cell fates and pattern formation will be compared in various animals. Credit will be granted for only one of BIOL 363 or BIOL 263. Prerequisite: BIOL 200.

Laboratory
In Person Learning
Wed
6:30 p.m. - 9:30 p.m.

Developmental Biology
Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates at the morphological, genetic, and epigenetic levels. Differential gene expression and cell signaling responsible for the specification of embryonic cell fates and pattern formation will be compared in various animals. Credit will be granted for only one of BIOL 363 or BIOL 263. Prerequisite: BIOL 200.

Laboratory
In Person Learning
Thu
9:30 a.m. - 12:30 p.m.

Developmental Biology
Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates at the morphological, genetic, and epigenetic levels. Differential gene expression and cell signaling responsible for the specification of embryonic cell fates and pattern formation will be compared in various animals. Credit will be granted for only one of BIOL 363 or BIOL 263. Prerequisite: BIOL 200.

Laboratory
In Person Learning
Thu
2:00 p.m. - 5:00 p.m.

Developmental Biology
Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates at the morphological, genetic, and epigenetic levels. Differential gene expression and cell signaling responsible for the specification of embryonic cell fates and pattern formation will be compared in various animals. Credit will be granted for only one of BIOL 363 or BIOL 263. Prerequisite: BIOL 200.

Laboratory
In Person Learning
Thu
6:30 p.m. - 9:30 p.m.

Developmental Biology
Analysis of the ecological, developmental, and evolutionary mechanisms responsible for the diversity of African savannah life including early hominids. Prerequisite: BIOL 201.

Laboratory
In Person Learning
Tue Thu
9:30 a.m. - 11:00 a.m.

Environmental Microbiology
Introduction to the diverse roles of microbes in natural and artificial environments. Topics range from community interactions to biogeochemical cycles to biodegradation and will introduce principles, practical applications such as waste water treatment, and implications of environmental microbiology. Prerequisite: BIOL 228 and one of CHEM 103, CHEM 213.

Lecture
In Person Learning
Tue Thu
9:30 a.m. - 11:00 a.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Type</th>
<th>Description</th>
<th>Credits</th>
<th>Instructor(s)</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 383-101</td>
<td>Prokaryotic Physiology</td>
<td>Lecture</td>
<td>Physiology and molecular biology of prokaryotic organisms. Molecular structure and functional aspects of prokaryotic cells including: bacterial and archaeal metabolism; energy production and use by aerobes and anaerobes; cellular growth and biosynthetic; and molecular genetics. Credit will be granted for only one of BIOL 382 or BIOL 402V when the subject matter is of the same nature. [3-0-0] Prerequisite: BIOL 228 and one of CHEM 204, CHEM 214.</td>
<td>3</td>
<td>Lecture</td>
<td>Tue Thu</td>
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<tr>
<td>BIOL 393-101</td>
<td>Biochemistry Laboratory</td>
<td>Lecture</td>
<td>Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOL 395. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOL 393.</td>
<td>4</td>
<td>Biocore</td>
<td>Mon</td>
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<tr>
<td>BIOL 393-102</td>
<td>Biochemistry Laboratory</td>
<td>Lecture</td>
<td>Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOL 395. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOL 393.</td>
<td>4</td>
<td>Biocore</td>
<td>Tue</td>
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<tr>
<td>BIOL 393-103</td>
<td>Biochemistry Laboratory</td>
<td>Lecture</td>
<td>Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOL 395. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOL 393.</td>
<td>4</td>
<td>Biocore</td>
<td>Wed</td>
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<tr>
<td>BIOL 393-104</td>
<td>Biochemistry Laboratory</td>
<td>Lecture</td>
<td>Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOL 395. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOL 393.</td>
<td>4</td>
<td>Biocore</td>
<td>Thu</td>
</tr>
<tr>
<td>BIOL 393-105</td>
<td>Biochemistry Laboratory</td>
<td>Lecture</td>
<td>Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOL 395. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOL 393.</td>
<td>4</td>
<td>Biocore</td>
<td>Fri</td>
</tr>
<tr>
<td>BIOL 393-106</td>
<td>Biochemistry Laboratory</td>
<td>Lecture</td>
<td>Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOL 395. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOL 393.</td>
<td>4</td>
<td>Biocore</td>
<td>Mon</td>
</tr>
<tr>
<td>BIOL 393-107</td>
<td>Biochemistry Laboratory</td>
<td>Lecture</td>
<td>Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOL 395. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOL 393.</td>
<td>4</td>
<td>Biocore</td>
<td>Tue</td>
</tr>
<tr>
<td>BIOL 393-108</td>
<td>Biochemistry Laboratory</td>
<td>Lecture</td>
<td>Topics include protein separation, enzyme kinetics, ELISA, DNA Ligation and Transformation, PCR, RFLP analysis, Agarose gel electrophoresis, STR and VNTR analysis, and gene regulation. Credit will be granted for only one of BIOL 393 or BIOL 395. [0-4-0] Prerequisite: BIOL 311. Corequisite: BIOL 366. Equivalency: BIOL 393.</td>
<td>4</td>
<td>Biocore</td>
<td>Thu</td>
</tr>
<tr>
<td>BIOL 417-101</td>
<td>Evolutionary Ecology</td>
<td>Lecture</td>
<td>Advanced survey of the field of evolutionary ecology: the study of the ecological basis for the evolution of life histories, sex, mating strategies, and foraging strategies. Credit will only be granted for one of BIOL 417 or BIOL 517. [3-0-0] Prerequisite: Bio 308 and one of Bio 202, STAT 230.</td>
<td>3</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
</tr>
<tr>
<td>BIOL 422-101</td>
<td>Conservation Biology</td>
<td>Lecture</td>
<td>Scientific basis of conservation biology. Analysis of demographic data, population models, and extinction risks. Examine complex habitat, landscape, genetic, and trophic interactions that affect populations. Conservation approaches including habitat planning, reserve design, surrogacy, and policy. Credit will be granted for only one of BIOL 422 or BIOL 513. [3-0-0] Prerequisite: Bio 308.</td>
<td>3</td>
<td>Lecture</td>
<td>Thu</td>
</tr>
<tr>
<td>BIOL 424-001</td>
<td>Global Food Systems: Society, Ecology, Sustainab</td>
<td>Lecture</td>
<td>Evaluating food system sustainability issues, including management and technology alternatives, through the lenses of (1) systems-analytic (i.e., life cycle) thinking and tools; and (2) sustainable scale (relative to ecological carrying capacity), distributive justice, and efficient allocation. Credit will be granted for only one of BIOL 424 or MGMT 471. [3-0-0] Prerequisite: Third-year standing. Equivalency: MGMT 470.</td>
<td>3</td>
<td>Lecture</td>
<td>Thu</td>
</tr>
<tr>
<td>BIOL 426-101</td>
<td>Cancer Biology</td>
<td>Lecture</td>
<td>The molecular and cellular basis of cancer. Introduction to principles of oncology including prevention, diagnosis and treatment. [3-0-0] Prerequisite: One of BIOL 311, BIOL 304 and all of BIOL 200, BIOL 265, BIOL 310.</td>
<td>3</td>
<td>Lecture</td>
<td>Thu</td>
</tr>
<tr>
<td>BIOL 430-A_001</td>
<td>Special Topics in Biology, Lecture Format</td>
<td>Lecture</td>
<td>With permission of the department head, this course may be taken more than once with a different topic. Credit will be granted for only one of BIOL 430, 431, 432, 433, 530, 531, 532, 533 when the subject matter is of the same nature.</td>
<td>3</td>
<td>Lecture</td>
<td>Thu</td>
</tr>
<tr>
<td>BIOL 430-B_001</td>
<td>Special Topics in Biology, Lecture Format</td>
<td>Lecture</td>
<td>With permission of the department head, this course may be taken more than once with a different topic. Credit will be granted for only one of BIOL 430, 431, 432, 433, 530, 531, 532, 533 when the subject matter is of the same nature.</td>
<td>3</td>
<td>Lecture</td>
<td>Thu</td>
</tr>
<tr>
<td>BIOL 430-C_001</td>
<td>Special Topics in Biology, Lecture Format</td>
<td>Lecture</td>
<td>With permission of the department head, this course may be taken more than once with a different topic. Credit will be granted for only one of BIOL 430, 431, 432, 433, 530, 531, 532, 533 when the subject matter is of the same nature.</td>
<td>3</td>
<td>Lecture</td>
<td>Thu</td>
</tr>
<tr>
<td>BIOL 430-D_001</td>
<td>Special Topics in Biology, Lecture Format</td>
<td>Lecture</td>
<td>With permission of the department head, this course may be taken more than once with a different topic. Credit will be granted for only one of BIOL 430, 431, 432, 433, 530, 531, 532, 533 when the subject matter is of the same nature.</td>
<td>3</td>
<td>Lecture</td>
<td>Thu</td>
</tr>
<tr>
<td>BIOL 430-E_001</td>
<td>Special Topics in Biology, Lecture Format</td>
<td>Lecture</td>
<td>With permission of the department head, this course may be taken more than once with a different topic. Credit will be granted for only one of BIOL 430, 431, 432, 433, 530, 531, 532, 533 when the subject matter is of the same nature.</td>
<td>3</td>
<td>Lecture</td>
<td>Thu</td>
</tr>
<tr>
<td>BIOL 461-101</td>
<td>Cell Signaling</td>
<td>Lecture</td>
<td>Signal transduction mechanisms of cells as mediators of responses to their environments. Interplay between signaling pathways, and relationships between signaling defects, disease, and therapeutic agents, with a focus on eukaryotic cells. Credit will be granted for only one of BIOL 461 or BIOL 402A when the subject matter is of the same nature. [3-0-0] Prerequisite: BIOL 200 and one of BIOL 311, BIOL 304.</td>
<td>3</td>
<td>Lecture</td>
<td>Wed</td>
</tr>
<tr>
<td>BIOL 468-001</td>
<td>Molecular Approaches in Ecology and Evolution</td>
<td>Lecture</td>
<td>Techniques for collecting molecular and population genetic data. Applications in ecology, evolution, and conservation. Characteristics of molecular markers, associated analytical approaches, emerging genomic technologies, and case studies. Credit will be granted for only one of BIOL 468 or BIOL 568. [3-0-0] Prerequisite: BIOL 201.</td>
<td>3</td>
<td>Lecture</td>
<td>Wed</td>
</tr>
<tr>
<td>BIOL 513-101</td>
<td>Conservation Biology</td>
<td>Lecture</td>
<td>Scientific basis of conservation biology. Obtain and analyze demographic data, develop population models, and project extinction risks. Complex habitat, landscape, genetic, and trophic interactions that affect population dynamics. Conservation approaches including habitat planning, reserve design, surrogacy, and policy. Credit will be granted for only one of BIOL 422 or BIOL 513. [3-0-0]</td>
<td>3</td>
<td>Lecture</td>
<td>Thu</td>
</tr>
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</table>

**Note:** Equivalencies are indicated with "[3-0-0]".
Advanced survey of the field of evolutionary ecology: the study of the ecological basis for the evolution of life histories, sex, mating strategies, and foraging strategies. Credit will only be granted for one of BOIL 417 or BOIL 517. [3-0-0]

Techniques for collecting molecular and population genetic data. Applications in ecology, evolution, and conservation. Characteristics of molecular markers, associated analytical approaches, emerging genomic technologies, and case studies. Credit will be granted for only one of BIOL 568 or BIOL 468. [3-0-0]

Introduction to Western, Indigenous, and global art practices and theoretical discourses through the discussion and examination of forms, content, and ideas that contribute to cultural and contemporary art practices. [3-0-1]

Multi-disciplinary seminar dealing with various approaches and issues in contemporary creative research methods as relating to the disciplines of Visual Arts, Media Arts, Creative Writing, Performance, and Curation. Students will be expected to develop creative work and a thesis plan. Prerequisite: CCS 506. or permission of the Department of Creative Studies.

Techniques for collecting molecular and population genetic data. Applications in ecology, evolution, and conservation. Characteristics of molecular markers, associated analytical approaches, emerging genomic technologies, and case studies. Credit will be granted for only one of BIOL 568 or BIOL 468. [3-0-0]

Advanced survey of the field of evolutionary ecology: the study of the ecological basis for the evolution of life histories, sex, mating strategies, and foraging strategies. Credit will only be granted for one of BOIL 417 or BOIL 517. [3-0-0]

Techniques for collecting molecular and population genetic data. Applications in ecology, evolution, and conservation. Characteristics of molecular markers, associated analytical approaches, emerging genomic technologies, and case studies. Credit will be granted for only one of BIOL 568 or BIOL 468. [3-0-0]

Introduction to Western, Indigenous, and global art practices and theoretical discourses through the discussion and examination of forms, content, and ideas that contribute to cultural and contemporary art practices. [3-0-1]

Multi-disciplinary seminar dealing with various approaches and issues in contemporary creative research methods as relating to the disciplines of Visual Arts, Media Arts, Creative Writing, Performance, and Curation. Students will be expected to develop creative work and a thesis plan. Prerequisite: CCS 506. or permission of the Department of Creative Studies.
Chemical kinetics, equilibrium, thermodynamics and energy changes, acid and base equilibria, introductory organic chemistry. Credit will be granted for only one of CHEM 123 or CHEM 113. [3-3-1] Prerequisite: CHEM 122.

Laboratory In Person Learning Wed 5:30 p.m. - 8:30 p.m.

Chemical kinetics, equilibrium, thermodynamics and energy changes, acid and base equilibria, introductory organic chemistry. Credit will be granted for only one of CHEM 123 or CHEM 113. [3-3-0] Prerequisite: CHEM 122.

Laboratory In Person Learning Wed 5:30 p.m. - 8:30 p.m.

Chemical kinetics, equilibrium, thermodynamics and energy changes, acid and base equilibria, introductory organic chemistry. Credit will be granted for only one of CHEM 123 or CHEM 113. [3-3-0] Prerequisite: CHEM 122.

Laboratory In Person Learning Wed 5:30 p.m. - 8:30 p.m.

Chemical kinetics, equilibrium, thermodynamics and energy changes, acid and base equilibria, introductory organic chemistry. Credit will be granted for only one of CHEM 123 or CHEM 113. [3-3-0] Prerequisite: CHEM 122.

Laboratory In Person Learning Thu 9:30 a.m. - 12:30 p.m.

Chemical kinetics, equilibrium, thermodynamics and energy changes, acid and base equilibria, introductory organic chemistry. Credit will be granted for only one of CHEM 123 or CHEM 113. [3-3-0] Prerequisite: CHEM 122.

Laboratory In Person Learning Thu 9:30 a.m. - 12:30 p.m.

Chemical kinetics, equilibrium, thermodynamics and energy changes, acid and base equilibria, introductory organic chemistry. Credit will be granted for only one of CHEM 123 or CHEM 113. [3-3-0] Prerequisite: CHEM 122.

Laboratory In Person Learning Thu 9:30 a.m. - 12:30 p.m.

Chemical kinetics, equilibrium, thermodynamics and energy changes, acid and base equilibria, introductory organic chemistry. Credit will be granted for only one of CHEM 123 or CHEM 113. [3-3-0] Prerequisite: CHEM 122.

Laboratory In Person Learning Thu 1:30 p.m. - 4:30 p.m.

Chemical kinetics, equilibrium, thermodynamics and energy changes, acid and base equilibria, introductory organic chemistry. Credit will be granted for only one of CHEM 123 or CHEM 113. [3-3-0] Prerequisite: CHEM 122.

Laboratory In Person Learning Thu 1:30 p.m. - 4:30 p.m.

Chemical kinetics, equilibrium, thermodynamics and energy changes, acid and base equilibria, introductory organic chemistry. Credit will be granted for only one of CHEM 123 or CHEM 113. [3-3-0] Prerequisite: CHEM 122.

Laboratory In Person Learning Thu 1:30 p.m. - 4:30 p.m.

Introduction to Physical Chemistry

Physical and Organic Chemistry

Laboratory

1:30 p.m. - 4:30 p.m.

1:30 p.m. - 4:30 p.m.

1:30 p.m. - 4:30 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Section</th>
<th>Type</th>
<th>Credits</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>CHEM_O 201-L07</td>
<td>Introduction to Physical Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>CHEM_O 201-L08</td>
<td>Introduction to Physical Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>CHEM_O 201-L09</td>
<td>Introduction to Physical Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>CHEM_O 201-L10</td>
<td>Introduction to Physical Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Fri</td>
</tr>
<tr>
<td>CHEM_O 201-S01</td>
<td>Introduction to Physical Chemistry</td>
<td>W2</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Mon (Alternate weeks)</td>
</tr>
<tr>
<td>CHEM_O 201-S02</td>
<td>Introduction to Physical Chemistry</td>
<td>W2</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Mon (Alternate weeks)</td>
</tr>
<tr>
<td>CHEM_O 201-XMT</td>
<td>Introduction to Physical Chemistry</td>
<td>XMT</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Arranged</td>
</tr>
<tr>
<td>CHEM_O 204-001</td>
<td>Organic Chemistry</td>
<td>W2</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed Fri</td>
</tr>
<tr>
<td>CHEM_O 204-L01</td>
<td>Organic Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Mon</td>
</tr>
<tr>
<td>CHEM_O 204-L02</td>
<td>Organic Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>CHEM_O 204-L03</td>
<td>Organic Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>CHEM_O 204-L04</td>
<td>Organic Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>CHEM_O 204-L05</td>
<td>Organic Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Wed</td>
</tr>
<tr>
<td>CHEM_O 204-L07</td>
<td>Organic Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Wed</td>
</tr>
<tr>
<td>CHEM_O 204-XMT</td>
<td>Organic Chemistry</td>
<td>XMT</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Arranged</td>
</tr>
<tr>
<td>CHEM_O 210-001</td>
<td>Physical Chemistry for Earth, Environmental, and W2</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed Fri</td>
<td>1:00 p.m. - 2:00 p.m.</td>
</tr>
</tbody>
</table>
Intended for students in earth, environmental, and life sciences. Thermodynamics and kinetics as they apply to natural systems. This course cannot be used for credit by Chemistry Majors. Credit will be granted for only one of CHEM 201 or 210. [3-3*-0] Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122 and one of CHEM 111, CHEM 123. A minimum grade of 65% in CHEM 113 is strongly recommended.

Mechanistic description of aromatic substitution, reactions of carbonyl compounds and amines, oxidation/reduction reactions. Chemistry of carbohydrates, amino acids, vitamins, lipids, nucleotides. Chemical principles of biological catalysis and metabolism. Credit will be granted for only one of CHEM 204 or CHEM 214. [3-3*-0] Prerequisite: One of CHEM 201, CHEM 213. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 204.

Mechanistic description of aromatic substitution, reactions of carbonyl compounds and amines, oxidation/reduction reactions. Chemistry of carbohydrates, amino acids, vitamins, lipids, nucleotides. Chemical principles of biological catalysis and metabolism. Credit will be granted for only one of CHEM 204 or CHEM 214. [3-3*-0] Prerequisite: One of CHEM 201, CHEM 213. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 204.

Mechanistic description of aromatic substitution, reactions of carbonyl compounds and amines, oxidation/reduction reactions. Chemistry of carbohydrates, amino acids, vitamins, lipids, nucleotides. Chemical principles of biological catalysis and metabolism. Credit will be granted for only one of CHEM 204 or CHEM 214. [3-3*-0] Prerequisite: One of CHEM 201, CHEM 213. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 204.

Mechanistic description of aromatic substitution, reactions of carbonyl compounds and amines, oxidation/reduction reactions. Chemistry of carbohydrates, amino acids, vitamins, lipids, nucleotides. Chemical principles of biological catalysis and metabolism. Credit will be granted for only one of CHEM 204 or CHEM 214. [3-3*-0] Prerequisite: One of CHEM 201, CHEM 213. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 204.

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Mechanistic description of aromatic substitution, reactions of carbonyl compounds and amines, oxidation/reduction reactions. Chemistry of carbohydrates, amino acids, vitamins, lipids, nucleotides. Chemical principles of biological catalysis and metabolism. Credit will be granted for only one of CHEM 204 or CHEM 214. [3-3*-0] Prerequisite: One of CHEM 201, CHEM 213. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 204.

Mechanistic description of aromatic substitution, reactions of carbonyl compounds and amines, oxidation/reduction reactions. Chemistry of carbohydrates, amino acids, vitamins, lipids, nucleotides. Chemical principles of biological catalysis and metabolism. Credit will be granted for only one of CHEM 204 or CHEM 214. [3-3*-0] Prerequisite: One of CHEM 201, CHEM 213. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 204.
CHEM_O 301-001 CHEM_O 001 Aqueous Environmental Chemistry W2 Properties of natural waters, including gas and solid equilibria, pH, redox, complexation analysis, corrosion treatment, ion exchange, colloids, and microbial transformations. [3-0-0] Prerequisite: One of MATH 101, MATH 103 and one of CHEM 201, CHEM 210. 
Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

CHEM_O 311-001 CHEM_O 001 Instrumental Analytical Chemistry W2 Overview of instrumental methods of chemical analysis, including spectroscopic methods, mass spectrometry, electrophoresis and chromatography. [3-4] Prerequisite: CHEM 211, One of BIOL 202, STAT 230 is strongly recommended. 
Lecture In Person Learning Mon Wed Fri 3:00 p.m. - 4:00 p.m.

CHEM_O 311-021 CHEM_O L01 Instrumental Analytical Chemistry W2 Overview of instrumental methods of chemical analysis, including spectroscopic methods, mass spectrometry, electrophoresis and chromatography. [3-4] Prerequisite: CHEM 211, One of BIOL 202, STAT 230 is strongly recommended. 
Laboratory In Person Learning Wed 4:00 p.m. - 8:00 p.m.

CHEM_O 311-022 CHEM_O L02 Instrumental Analytical Chemistry W2 Overview of instrumental methods of chemical analysis, including spectroscopic methods, mass spectrometry, electrophoresis and chromatography. [3-4] Prerequisite: CHEM 211, One of BIOL 202, STAT 230 is strongly recommended. 
Laboratory In Person Learning Thu 9:30 a.m. - 1:30 p.m.

CHEM_O 311-023 CHEM_O L03 Instrumental Analytical Chemistry W2 Overview of instrumental methods of chemical analysis, including spectroscopic methods, mass spectrometry, electrophoresis and chromatography. [3-4] Prerequisite: CHEM 211, One of BIOL 202, STAT 230 is strongly recommended. 
Laboratory In Person Learning Thu 2:30 p.m. - 6:30 p.m.

CHEM_O 311-XMT CHEM_O KMT Instrumental Analytical Chemistry W2 Overview of instrumental methods of chemical analysis, including spectroscopic methods, mass spectrometry, electrophoresis and chromatography. [3-4] Prerequisite: CHEM 211, One of BIOL 202, STAT 230 is strongly recommended. 
Laboratory In Person Learning Arranged Arranged

CHEM_O 312-001 CHEM_O 001 Introduction to Quantum Mechanics and Spectra W2 Principles of quantum mechanics, atomic wavefunctions, angular momentum, spin, atomic term symbols. [3-4*]-0 Prerequisite: CHEM 201. Corequisite: MATH 200 is strongly recommended. 
Lecture In Person Learning Mon Wed Fri 10:00 a.m. - 11:00 a.m.

CHEM_O 312-021 CHEM_O L01 Introduction to Quantum Mechanics and Spectra W2 Principles of quantum mechanics, atomic wavefunctions, angular momentum, spin, atomic term symbols. [3-4*]-0 Prerequisite: CHEM 201. Corequisite: MATH 200 is strongly recommended. 
Laboratory In Person Learning Tue (Alternate weeks) 3:30 p.m. - 7:30 p.m.

CHEM_O 312-022 CHEM_O L02 Introduction to Quantum Mechanics and Spectra W2 Principles of quantum mechanics, atomic wavefunctions, angular momentum, spin, atomic term symbols. [3-4*]-0 Prerequisite: CHEM 201. Corequisite: MATH 200 is strongly recommended. 
Laboratory In Person Learning Tue (Alternate weeks) 3:30 p.m. - 7:30 p.m.

CHEM_O 312-XMT CHEM_O KMT Introduction to Quantum Mechanics and Spectra W2 Principles of quantum mechanics, atomic wavefunctions, angular momentum, spin, atomic term symbols. [3-4*]-0 Prerequisite: CHEM 201. Corequisite: MATH 200 is strongly recommended. 
Laboratory In Person Learning Arranged Arranged

CHEM_O 317-001 CHEM_O 001 Environmental Physical Organic Chemistry W2 Basic physiochemical processes governing the fate, transport, distribution, properties, and reactions of anthropogenic organic compounds in the environment including pesticides and herbicides. Includes aspects of the photochemistry, structure-activity relationships, detection, toxicity, remediation, and social impact of such compounds. [3-0]-0 Prerequisite: One of MATH 101, MATH 103 and one of CHEM 204, CHEM 214 and one of PHYS 121, PHYS 122. 
Lecture In Person Learning Mon Wed Fri 4:00 p.m. - 5:00 p.m.

CHEM_O 317-021 CHEM_O L01 Environmental Physical Organic Chemistry W2 Basic physiochemical processes governing the fate, transport, distribution, properties, and reactions of anthropogenic organic compounds in the environment including pesticides and herbicides. Includes aspects of the photochemistry, structure-activity relationships, detection, toxicity, remediation, and social impact of such compounds. [3-0]-0 Prerequisite: One of MATH 101, MATH 103 and one of CHEM 204, CHEM 214 and one of PHYS 121, PHYS 122. 
Laboratory In Person Learning Arranged Arranged

CHEM_O 319-101 CHEM_O 01 Introduction to Computerized Instrumentation, Lecture W2 Computerized data acquisition and analysis in chemistry instrumentation, development of new instruments to collect and analyze experimental data. Digital acquisition systems, optical systems, electrical circuits, and coding. [3-3]-0 Prerequisite: All of CHEM 201, MATH 200. 
Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.

CHEM_O 319-101 CHEM_O 01 Introduction to Computerized Instrumentation, Lecture W2 Computerized data acquisition and analysis in chemistry instrumentation, development of new instruments to collect and analyze experimental data. Digital acquisition systems, optical systems, electrical circuits, and coding. [3-3]-0 Prerequisite: All of CHEM 201, MATH 200. 
Laboratory In Person Learning Fri 2:00 p.m. - 5:00 p.m.

CHEM_O 330-001 CHEM_O 001 Advanced Organic Chemistry W2 Application of carboxylic acid chemistry, cyclication reactions, conformational analysis, and rearrangement reactions in organic synthesis. [3-4*]-0 Prerequisite: One of CHEM 204, CHEM 214. 
Lecture In Person Learning Mon Wed Fri 10:00 a.m. - 11:00 a.m.

CHEM_O 330-021 CHEM_O L01 Advanced Organic Chemistry W2 Application of carboxylic acid chemistry, cyclication reactions, conformational analysis, and rearrangement reactions in organic synthesis. [3-4*]-0 Prerequisite: One of CHEM 204, CHEM 214. 
Laboratory In Person Learning Tue (Alternate weeks) 11:00 a.m. - 3:00 p.m.

CHEM_O 330-022 CHEM_O L02 Advanced Organic Chemistry W2 Application of carboxylic acid chemistry, cyclication reactions, conformational analysis, and rearrangement reactions in organic synthesis. [3-4*]-0 Prerequisite: One of CHEM 204, CHEM 214. 
Laboratory In Person Learning Mon (Alternate weeks) 11:00 a.m. - 3:00 p.m.

CHEM_O 330-031 CHEM_O L03 Advanced Organic Chemistry W2 Application of carboxylic acid chemistry, cyclication reactions, conformational analysis, and rearrangement reactions in organic synthesis. [3-4*]-0 Prerequisite: One of CHEM 204, CHEM 214. 
Laboratory In Person Learning Tue (Alternate weeks) 4:00 p.m. - 8:00 p.m.

CHEM_O 335-001 CHEM_O 001 Bioinorganic Chemistry W2 Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, bio-inspired molecular synthesis, organometallic chemistry, solar fuels. [3-4*]-0 Prerequisite: CHEM 200, CHEM 214. 
Lecture In Person Learning Mon Wed Fri 11:00 a.m. - 12:00 p.m.

CHEM_O 336-001 CHEM_O 001 Green Inorganic Chemistry W2 Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, bio-inspired molecular synthesis, organometallic chemistry, solar fuels. [3-4*]-0 Prerequisite: CHEM 220 and one of CHEM 204, CHEM 214. 
Lecture In Person Learning Mon Wed Fri 11:00 a.m. - 12:00 p.m.

CHEM_O 336-011 CHEM_O L01 Green Inorganic Chemistry W2 Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, bio-inspired molecular synthesis, organometallic chemistry, solar fuels. [3-4*]-0 Prerequisite: CHEM 220 and one of CHEM 204, CHEM 214. 
Laboratory In Person Learning Tue (Alternate weeks) 8:00 a.m. - 12:00 p.m.

CHEM_O 336-022 CHEM_O L02 Green Inorganic Chemistry W2 Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, bio-inspired molecular synthesis, organometallic chemistry, solar fuels. [3-4*]-0 Prerequisite: CHEM 220 and one of CHEM 204, CHEM 214. 
Laboratory In Person Learning Tue (Alternate weeks) 1:00 p.m. - 5:00 p.m.

CHEM_O 403-101 CHEM_O 101 Enzymology W2 Use of enzyme evolution, multifunctional enzymes, biocatalysis, protein engineering. Credit will be granted for only one of CHEM 403, BIOL 403, CHEM 413 or CHEM 569. [3-0]-0 Prerequisite: One of BIOL 304, BIOL 311. Equivalent: 
Lecture In Person Learning Mon Wed Fri 9:00 a.m. - 10:00 a.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 448-A</td>
<td>Special Topics in Chemistry, Lecture Format</td>
<td>W2</td>
<td>Original research under the direction of a faculty member for either one (1) credit(s) or two (2) credit(s) semesters. Includes a written thesis and poster presentation. It is recommended that CHEM 448 be taken until a student's final year of study. Prerequisite: Fourth-year standing in the Chemistry or Environmental Chemistry Major with a minimum overall grade average of 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.</td>
</tr>
<tr>
<td>CHEM 448-B</td>
<td>Special Topics in Chemistry, Lecture Format</td>
<td>W2</td>
<td>Original research under the direction of a faculty member for either one (1) credit(s) or two (2) credit(s) semesters. Includes a written thesis and poster presentation. It is recommended that CHEM 448 be taken until a student's final year of study. Prerequisite: Fourth-year standing in the Chemistry or Environmental Chemistry Major with a minimum overall grade average of 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.</td>
</tr>
<tr>
<td>CHEM 448-C</td>
<td>Special Topics in Chemistry, Lecture Format</td>
<td>W2</td>
<td>Original research under the direction of a faculty member for either one (1) credit(s) or two (2) credit(s) semesters. Includes a written thesis and poster presentation. It is recommended that CHEM 448 be taken until a student's final year of study. Prerequisite: Fourth-year standing in the Chemistry or Environmental Chemistry Major with a minimum overall grade average of 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.</td>
</tr>
<tr>
<td>CMPE 246</td>
<td>Computer Engineering Design Studio</td>
<td>W2</td>
<td>Embedded systems programming, App development for Internet of Things applications, Microprocessor Programming. [3-2-0] Prerequisite: One of APSC 177, COSC 111.</td>
</tr>
<tr>
<td>CMPE 246-L2</td>
<td>Computer Engineering Design Studio</td>
<td>W2</td>
<td>Embedded systems programming, App development for Internet of Things applications, Microprocessor Programming. [3-2-0] Prerequisite: One of APSC 177, COSC 111.</td>
</tr>
<tr>
<td>CMPE 246-L2B</td>
<td>Computer Engineering Design Studio</td>
<td>W2</td>
<td>Embedded systems programming, App development for Internet of Things applications, Microprocessor Programming. [3-2-0] Prerequisite: One of APSC 177, COSC 111.</td>
</tr>
<tr>
<td>CMPE 401</td>
<td>Deep Learning for Engineers</td>
<td>W2</td>
<td>Pre-requisite: Four-year standing. Credit will be granted for only one of CHEM 569, CHEM 403, CHEM 413 or ROC 403. [3-0-0]</td>
</tr>
<tr>
<td>COOP 401</td>
<td>Co-op Education Work Experience I</td>
<td>W2</td>
<td>Approved and supervised paid work experience with a public or private organization for a minimum of 455 hours full time. Pre-employment training workshops and co-op assignments are required. Course is restricted to students who have completed all third-year requirements and have secured a work-term with an appropriate employer either independently or through the 'Co-op Office'.</td>
</tr>
</tbody>
</table>
COOP_O 406-201  COOP_O 201 Co-op Education Work Experience VII W2
Approved and supervised paid work experience with a public or private organization for a minimum of 455 hours full time. Pre-employment training workshops and co-op assignments are required. Course is restricted to students who have completed all third-year requirements and have secured a work-term with an appropriate employer either independently or through the ‘Co-op Office’. Prerequisite: COOP 405.

CORM_O 208-101  CORM_O 101 Communication in the Sciences W2
Practice-based course that develops intermediate level communication skills in the sciences. Emphasis on analysis of scientific literature and communicating science to experts in the discipline and lay audiences, in written, visual, oral, and digital modes. Prerequisite: One of ENG 109, ENG 112, ENG 114, ENG 150, ENG 151, ENG 153, ENG 155, ENG 156, APSC 176. Lecture
Hybrid Learning Tue Thu 2:00 p.m. - 3:30 p.m.

CORM_O 208-105  CORM_O 102 Communication in the Sciences W2
Practice-based course that develops intermediate level communication skills in the sciences. Emphasis on analysis of scientific literature and communicating science to experts in the discipline and lay audiences, in written, visual, oral, and digital modes. Prerequisite: One of ENG 109, ENG 112, ENG 114, ENG 150, ENG 151, ENG 153, ENG 155, ENG 156, APSC 176. Lecture
Hybrid Learning Tue Thu 9:30 a.m. - 11:00 a.m.

CORM_O 208-103  CORM_O 103 Communication in the Sciences W2
Practice-based course that develops intermediate level communication skills in the sciences. Emphasis on analysis of scientific literature and communicating science to experts in the discipline and lay audiences, in written, visual, oral, and digital modes. Prerequisite: One of ENG 109, ENG 112, ENG 114, ENG 150, ENG 151, ENG 153, ENG 155, ENG 156, APSC 176. Lecture
In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

CORM_O 204-101  CORM_O 101 Communications in the Humanities W2
Practice-based course that develops intermediate level communication skills in the humanities. Emphasis on analysis of humanities literature and communicating the humanities to experts in the discipline and lay audiences, in written, visual, oral, and digital modes. Prerequisite: One of ENG 109, ENG 112, ENG 114, ENG 150, ENG 151, ENG 153, ENG 154, ENG 155, ENG 156, APSC 176. Lecture
In Person Learning Wed Fri 3:30 p.m. - 5:00 p.m.

CORM_O 205-101  CORM_O 101 Communication in the Social Sciences W2
Practice-based course that develops intermediate level communication in the social sciences. Emphasis on analysis of social science literature and communicating the social sciences to experts in the discipline and lay audiences, in written, visual, oral, and digital modes. Prerequisite: One of ENG 109, ENG 112, ENG 114, ENG 150, ENG 151, ENG 153, ENG 154, ENG 155, ENG 156, APSC 176. Lecture
In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

CORM_O 205-102  CORM_O 102 Communication in the Social Sciences W2
Practice-based course that develops intermediate level communication in the social sciences. Emphasis on analysis of social science literature and communicating the social sciences to experts in the discipline and lay audiences, in written, visual, oral, and digital modes. Prerequisite: One of ENG 109, ENG 112, ENG 114, ENG 150, ENG 151, ENG 153, ENG 154, ENG 155, ENG 156, APSC 176. Lecture
In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

CORM_O 216-101  CORM_O 101 Communication and Media W2
Theory and practice of communication about, in and for various media, including digital, textual, audio and/or visual forms. Prerequisite: One of ENG 109, ENG 112, ENG 114, ENG 150, ENG 151, ENG 153, ENG 154, ENG 155, ENG 156, APSC 176. Lecture
In Person Learning Mon Wed 8:00 a.m. - 9:30 a.m.

CORM_O 304-001  CORM_O 001 Persuasive Rhetoric, Public Speaking, and Advocacy W2
Advanced public speaking, persuasive rhetoric, and advocacy to generate social and community change. Recommended prerequisite: THTR 104. [3-0-0] Prerequisite: Third-year standing or permission of the instructor. Lecture
Hybrid Learning Mon Wed 11:00 a.m. - 12:30 p.m.

CORM_O 360-101  CORM_O 101 Public Memory, Commemoration, and Identity W2
Critical examination of commemoration practices, including museums, monuments, and heritage sites, specifically in terms of the construction of place, community, and identity. Credit will be granted for only one of CORM 360 OR CULT 360. Prerequisite: 3 credits of 200 level CULT, CORH 204, or CORH 205. Equivalency: CULT 376D Lecture
In Person Learning Mon 11:00 a.m. - 2:00 p.m.

CORM_O 496-101  CORM_O 101 Communication Capstone W2
Team-conducted project that identifies and addresses a professional, community, or academic topic, demonstrating an awareness of audience and context. Integrates knowledge and skills acquired throughout the certificate program. Prerequisite: 3 credits of CORM certificate courses and third-year standing. Lecture
Multi-access Learning Tue Thu 12:30 p.m. - 2:00 p.m.

COSC_O 101-011  COSC_O 101 Digital Citizenship W2
Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0] Lecture
In Person Learning Wed Fri 2:00 p.m. - 3:30 p.m.

COSC_O 101-101  COSC_O 101 Digital Citizenship W2
Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0] Laboratory
In Person Learning Fri 8:00 a.m. - 10:00 a.m.

COSC_O 101-102  COSC_O 102 Digital Citizenship W2
Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0] Laboratory
In Person Learning Fri 12:00 p.m. - 2:00 p.m.

COSC_O 101-103  COSC_O 103 Digital Citizenship W2
Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0] Laboratory
In Person Learning Wed 12:00 p.m. - 2:00 p.m.

COSC_O 101-104  COSC_O 104 Digital Citizenship W2
Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0] Laboratory
In Person Learning Tue 12:00 p.m. - 2:00 p.m.

COSC_O 101-105  COSC_O 105 Digital Citizenship W2
Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0] Laboratory
In Person Learning Tue 8:00 a.m. - 10:00 a.m.

COSC_O 101-106  COSC_O 106 Digital Citizenship W2
Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization. Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0] Laboratory
In Person Learning Tue 2:00 p.m. - 4:00 p.m.
Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization.

Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0]

Laboratory In Person Learning Tue 4:00 p.m. - 6:00 p.m.

Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization.

Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0]

Laboratory In Person Learning Fri 12:00 p.m. - 2:00 p.m.

Knowledge and skills to navigate the digital society. Digital participation, digital access, skills and utilization.

Digital literacy, computer applications, converging technologies, and online resources. This course does not assume students have any Computer Science background. [3-2-0]

Laboratory In Person Learning Wed 10:00 a.m. - 12:00 p.m.

Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.

Lecture In Person Learning Mon 11:00 a.m. - 2:00 p.m.

Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.

Laboratory In Person Learning Mon 8:00 a.m. - 10:00 a.m.

Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.

Laboratory In Person Learning Fri 2:00 p.m. - 4:00 p.m.

Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.

Laboratory In Person Learning Fri 10:00 a.m. - 12:00 p.m.

Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.

Laboratory In Person Learning Fri 8:00 a.m. - 10:00 a.m.

Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.

Laboratory In Person Learning Thu 4:00 p.m. - 6:00 p.m.

Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.

Laboratory In Person Learning Tue 2:00 p.m. - 4:00 p.m.

Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.

Lecture In Person Learning Thu 2:00 p.m. - 3:30 p.m.

Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.

Lecture In Person Learning Thu 6:30 p.m. - 8:00 p.m.

Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.

Laboratory In Person Learning Thu 10:00 a.m. - 12:00 p.m.

Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.

Laboratory In Person Learning Mon 2:00 p.m. - 4:00 p.m.

Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.

Laboratory In Person Learning Thu 12:00 p.m. - 2:00 p.m.

Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.

Laboratory In Person Learning Wed 12:00 p.m. - 2:00 p.m.

Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.

Laboratory In Person Learning Fri 12:00 p.m. - 2:00 p.m.

Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.

Laboratory In Person Learning Mon 2:00 p.m. - 4:00 p.m.

Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.

Laboratory In Person Learning Wed 4:00 p.m. - 6:00 p.m.

Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.

Laboratory In Person Learning Wed 10:00 a.m. - 12:00 p.m.

Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.

Laboratory In Person Learning Mon 4:00 p.m. - 6:00 p.m.

Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177.

Laboratory In Person Learning Thu 12:00 p.m. - 2:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Section</th>
<th>Description</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>COSC 111</td>
<td>L2X</td>
<td>Computer Programming</td>
<td>4:00 p.m. - 6:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 121</td>
<td>L2M</td>
<td>Computer Programming</td>
<td>4:00 p.m. - 6:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 210</td>
<td>L2N</td>
<td>Computer Programming</td>
<td>4:00 p.m. - 6:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 220</td>
<td>L2Q</td>
<td>Computer Programming</td>
<td>4:00 p.m. - 6:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 222</td>
<td>L2R</td>
<td>Computer Programming</td>
<td>4:00 p.m. - 6:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 111</td>
<td>S1A</td>
<td>Computer Programming</td>
<td>8:00 a.m. - 10:00 a.m.</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 121</td>
<td>S1B</td>
<td>Computer Programming</td>
<td>8:00 a.m. - 10:00 a.m.</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 210</td>
<td>S1C</td>
<td>Computer Programming</td>
<td>8:00 a.m. - 10:00 a.m.</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 220</td>
<td>S1D</td>
<td>Computer Programming</td>
<td>8:00 a.m. - 10:00 a.m.</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 222</td>
<td>S1E</td>
<td>Computer Programming</td>
<td>8:00 a.m. - 10:00 a.m.</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 111</td>
<td>101</td>
<td></td>
<td>2:00 p.m. - 4:00 p.m.</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 121</td>
<td>101</td>
<td></td>
<td>4:00 p.m. - 6:00 p.m.</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 210</td>
<td>101</td>
<td></td>
<td>4:00 p.m. - 6:00 p.m.</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 220</td>
<td>101</td>
<td></td>
<td>4:00 p.m. - 6:00 p.m.</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 222</td>
<td>101</td>
<td></td>
<td>4:00 p.m. - 6:00 p.m.</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 111</td>
<td>S1A</td>
<td></td>
<td>5:00 p.m. - 6:30 p.m.</td>
<td>Seminar</td>
</tr>
<tr>
<td>COSC 121</td>
<td>S1B</td>
<td></td>
<td>5:00 p.m. - 6:30 p.m.</td>
<td>Seminar</td>
</tr>
<tr>
<td>COSC 210</td>
<td>S1C</td>
<td></td>
<td>5:00 p.m. - 6:30 p.m.</td>
<td>Seminar</td>
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<tr>
<td>COSC 220</td>
<td>S1D</td>
<td></td>
<td>5:00 p.m. - 6:30 p.m.</td>
<td>Seminar</td>
</tr>
<tr>
<td>COSC 222</td>
<td>S1E</td>
<td></td>
<td>5:00 p.m. - 6:30 p.m.</td>
<td>Seminar</td>
</tr>
</tbody>
</table>

COSC 111 is a prerequisite for COSC 121, COSC 210, and COSC 220.

**Course Descriptions**

**COSC 111**: Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 121, APSC 177.

**COSC 121**: Discrete structures in computing and relevant mathematical techniques. Logic and applications in automated reasoning and programming; proof techniques and analysis of algorithms and computation models; graph theory and graph models in computing; counting principles and discrete probability. [3-0-1] Prerequisite: One of MATH 101, MATH 103, MATH 142, APSC 173. Corequisite: COSC 122.

**COSC 210**: Discrete structures in computing and relevant mathematical techniques. Logic and applications in automated reasoning and programming; proof techniques and analysis of algorithms and computation models; graph theory and graph models in computing; counting principles and discrete probability. [3-0-1] Prerequisite: One of MATH 101, MATH 103, MATH 142, APSC 173. Corequisite: COSC 122.

**COSC 220**: Discrete structures in computing and relevant mathematical techniques. Logic and applications in automated reasoning and programming; proof techniques and analysis of algorithms and computation models; graph theory and graph models in computing; counting principles and discrete probability. [3-0-1] Prerequisite: One of MATH 101, MATH 103, MATH 142, APSC 173. Corequisite: COSC 122.

**COSC 222**: Discrete structures in computing and relevant mathematical techniques. Logic and applications in automated reasoning and programming; proof techniques and analysis of algorithms and computation models; graph theory and graph models in computing; counting principles and discrete probability. [3-0-1] Prerequisite: One of MATH 101, MATH 103, MATH 142, APSC 173. Corequisite: COSC 122.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Name</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COSC 322-L2D</td>
<td>Data Structures</td>
<td>3</td>
<td>Introduction to the design, implementation and analysis of data structures. Topics will include lists, stacks, queues, trees, and graphs. Credit will be only granted for one of COSC 210 or COSC 222. [3-2-0] Prerequisite: A score of 60% or higher in COSC 121. Laboratory In Person Learning Mon 8:00 a.m. - 10:00 a.m.</td>
</tr>
<tr>
<td>COSC 303-101</td>
<td>Numerical Analysis</td>
<td>1</td>
<td>Numerical techniques for basic mathematical processes and their analysis. Taylor polynomials, root-finding, linear systems, eigenvalues, approximating derivatives, locating minimizers, approximating integrals, solving differential equations. Credit will be granted for only one of COSC 303 or MATH 303. [3-1-0] Prerequisite: All of MATH 220, MATH 222 and either (a) COSC 221 or (b) DATA 301. Equivalency: MATH 303 Lecture In Person Learning Mon Thu 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>COSC 303-U01</td>
<td>Numerical Analysis</td>
<td>1</td>
<td>Numerical techniques for basic mathematical processes and their analysis. Taylor polynomials, root-finding, linear systems, eigenvalues, approximating derivatives, locating minimizers, approximating integrals, solving differential equations. Credit will be granted for only one of COSC 303 or MATH 303. [3-1-0] Prerequisite: All of MATH 220, MATH 222 and either (a) COSC 221 or (b) DATA 301. Equivalency: MATH 303 Laboratory In Person Learning Thu 11:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>COSC 303-U02</td>
<td>Numerical Analysis</td>
<td>1</td>
<td>Numerical techniques for basic mathematical processes and their analysis. Taylor polynomials, root-finding, linear systems, eigenvalues, approximating derivatives, locating minimizers, approximating integrals, solving differential equations. Credit will be granted for only one of COSC 303 or MATH 303. [3-1-0] Prerequisite: All of MATH 220, MATH 222 and either (a) COSC 221 or (b) DATA 301. Equivalency: MATH 303 Laboratory In Person Learning Fri 11:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>COSC 305-101</td>
<td>Project Management</td>
<td>1</td>
<td>Examine tools and techniques to complete projects successfully, and within budget. Topics include Program Evaluation and Review Technique (PERT) and Critical Path Methods (CPM), and project management software. [3-2-0] Corequisite: COSC 310 Lecture In Person Learning Wed 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>COSC 305-U01</td>
<td>Project Management</td>
<td>1</td>
<td>Examine tools and techniques to complete projects successfully, and within budget. Topics include Program Evaluation and Review Technique (PERT) and Critical Path Methods (CPM), and project management software. [3-2-0] Corequisite: COSC 310 Laboratory In Person Learning Wed 2:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>COSC 305-U02</td>
<td>Project Management</td>
<td>1</td>
<td>Examine tools and techniques to complete projects successfully, and within budget. Topics include Program Evaluation and Review Technique (PERT) and Critical Path Methods (CPM), and project management software. [3-2-0] Corequisite: COSC 310 Laboratory In Person Learning Thu 8:00 a.m. - 10:00 a.m.</td>
</tr>
<tr>
<td>COSC 305-U03</td>
<td>Project Management</td>
<td>1</td>
<td>Examine tools and techniques to complete projects successfully, and within budget. Topics include Program Evaluation and Review Technique (PERT) and Critical Path Methods (CPM), and project management software. [3-2-0] Corequisite: COSC 310 Laboratory In Person Learning Tue 8:00 a.m. - 10:00 a.m.</td>
</tr>
<tr>
<td>COSC 305-U04</td>
<td>Project Management</td>
<td>1</td>
<td>Examine tools and techniques to complete projects successfully, and within budget. Topics include Program Evaluation and Review Technique (PERT) and Critical Path Methods (CPM), and project management software. [3-2-0] Corequisite: COSC 310 Laboratory In Person Learning Thu 12:00 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>COSC 310-101</td>
<td>Software Engineering</td>
<td>1</td>
<td>Techniques to construct large systems using fundamental activities of specification, design, implementation, testing, and maintenance. Various life cycle models, exposure to software development tools, modelling techniques, good development practices, and project management. [3-2-0] Prerequisite: One of COSC 210, COSC 222, COSC 223, and third-year standing. Lecture In Person Learning Tue Thrs 3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>COSC 310-U03</td>
<td>Software Engineering</td>
<td>1</td>
<td>Techniques to construct large systems using fundamental activities of specification, design, implementation, testing, and maintenance. Various life cycle models, exposure to software development tools, modelling techniques, good development practices, and project management. [3-2-0] Prerequisite: One of COSC 210, COSC 222, COSC 223, and third-year standing. Laboratory In Person Learning Fri 12:00 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>COSC 310-U04</td>
<td>Software Engineering</td>
<td>1</td>
<td>Techniques to construct large systems using fundamental activities of specification, design, implementation, testing, and maintenance. Various life cycle models, exposure to software development tools, modelling techniques, good development practices, and project management. [3-2-0] Prerequisite: One of COSC 210, COSC 222, COSC 223, and third-year standing. Laboratory In Person Learning Wed 4:00 p.m. - 6:00 p.m.</td>
</tr>
<tr>
<td>COSC 320-101</td>
<td>Analysis of Algorithms</td>
<td>1</td>
<td>Design and analysis of algorithms, illustrated from various problem areas. Models of computation, choice of data structures, space and time efficiency, computation complexity, algorithms for searching, sorting and graph-theoretic problems, NP-complete problems. [3-0-0] Prerequisite: All of COSC 221, COSC 222 and one of MATH 221, APSC 179. Lecture In Person Learning Thu 11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>COSC 322-101</td>
<td>Introduction to Artificial Intelligence</td>
<td>1</td>
<td>AI and intelligent agents; state space search; game playing agents; logic and knowledge-based agents; constraint programming; planning; reasoning and decision-making under uncertainty; machine learning; natural language understanding. Credit will be granted for only one of COSC 322 or COSC 522. [3-2-0] Prerequisite: All of COSC 221, COSC 222. Lecture In Person Learning Mon Wed Fri 2:00 p.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>COSC 322-U01</td>
<td>Introduction to Artificial Intelligence</td>
<td>1</td>
<td>AI and intelligent agents; state space search; game playing agents; logic and knowledge-based agents; constraint programming; planning; reasoning and decision-making under uncertainty; machine learning; natural language understanding. Credit will be granted for only one of COSC 322 or COSC 522. [3-2-0] Prerequisite: All of COSC 221, COSC 222. Laboratory In Person Learning Mon 8:00 a.m. - 10:00 a.m.</td>
</tr>
<tr>
<td>COSC 322-U02</td>
<td>Introduction to Artificial Intelligence</td>
<td>1</td>
<td>AI and intelligent agents; state space search; game playing agents; logic and knowledge-based agents; constraint programming; planning; reasoning and decision-making under uncertainty; machine learning; natural language understanding. Credit will be granted for only one of COSC 322 or COSC 522. [3-2-0] Prerequisite: All of COSC 221, COSC 222. Laboratory In Person Learning Thu 4:00 p.m. - 6:00 p.m.</td>
</tr>
<tr>
<td>COSC 322-U03</td>
<td>Introduction to Artificial Intelligence</td>
<td>1</td>
<td>AI and intelligent agents; state space search; game playing agents; logic and knowledge-based agents; constraint programming; planning; reasoning and decision-making under uncertainty; machine learning; natural language understanding. Credit will be granted for only one of COSC 322 or COSC 522. [3-2-0] Prerequisite: All of COSC 221, COSC 222. Laboratory In Person Learning Tue 2:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>COSC 322-U04</td>
<td>Introduction to Artificial Intelligence</td>
<td>1</td>
<td>AI and intelligent agents; state space search; game playing agents; logic and knowledge-based agents; constraint programming; planning; reasoning and decision-making under uncertainty; machine learning; natural language understanding. Credit will be granted for only one of COSC 322 or COSC 522. [3-2-0] Prerequisite: All of COSC 221, COSC 222. Laboratory In Person Learning Mon 12:00 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>COSC 322-U05</td>
<td>Introduction to Artificial Intelligence</td>
<td>1</td>
<td>AI and intelligent agents; state space search; game playing agents; logic and knowledge-based agents; constraint programming; planning; reasoning and decision-making under uncertainty; machine learning; natural language understanding. Credit will be granted for only one of COSC 322 or COSC 522. [3-2-0] Prerequisite: All of COSC 221, COSC 222. Laboratory In Person Learning Thu 2:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
<td>Prerequisites</td>
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<tr>
<td>COSC 328-L01</td>
<td>Introduction to Networks</td>
<td>0.01</td>
<td>None</td>
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<tr>
<td>COSC 341-L01</td>
<td>Human Computer Interaction</td>
<td>1.01</td>
<td>None</td>
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<tr>
<td>COSC 360-L01</td>
<td>Web Programming</td>
<td>0.01</td>
<td>None</td>
</tr>
<tr>
<td>COSC 360-L01</td>
<td>Web Programming</td>
<td>0.01</td>
<td>None</td>
</tr>
<tr>
<td>COSC 360-L02</td>
<td>Web Programming</td>
<td>0.01</td>
<td>None</td>
</tr>
<tr>
<td>COSC 360-L03</td>
<td>Web Programming</td>
<td>0.01</td>
<td>None</td>
</tr>
<tr>
<td>COSC 360-L04</td>
<td>Web Programming</td>
<td>0.01</td>
<td>None</td>
</tr>
<tr>
<td>COSC 360-L05</td>
<td>Web Programming</td>
<td>0.01</td>
<td>None</td>
</tr>
<tr>
<td>COSC 360-L06</td>
<td>Web Programming</td>
<td>0.01</td>
<td>None</td>
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<tr>
<td>COSC 360-L07</td>
<td>Web Programming</td>
<td>0.01</td>
<td>None</td>
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<tr>
<td>COSC 360-L08</td>
<td>Web Programming</td>
<td>0.01</td>
<td>None</td>
</tr>
<tr>
<td>COSC 360-L09</td>
<td>Web Programming</td>
<td>0.01</td>
<td>None</td>
</tr>
</tbody>
</table>

The five-layer Internet architecture using TCP/IP: application, transport, network, link, and physical. Topics include web protocols, network programming, routing, addressing, congestion control, error handling. Ethernet, wireless networks, security, multimedia transmission, and network management.

COSC 328-L01 Prerequisite: None.

COSC 341-L01 Prerequisite: None.

COSC 360-L01 Prerequisite: None.

COSC 360-L02 Prerequisite: None.

COSC 360-L03 Prerequisite: None.

COSC 360-L04 Prerequisite: None.

COSC 360-L05 Prerequisite: None.

COSC 360-L06 Prerequisite: None.

COSC 360-L07 Prerequisite: None.

COSC 360-L08 Prerequisite: None.

COSC 360-L09 Prerequisite: None.

Design and implementation of web-based information systems and app development. Rich user interfaces, asynchronous updates, client-side and server-side scripting using standard technologies such as HTML, CSS, SVG, JavaScript, PHP. Data manipulation with SQL, JSON, XML. Modern scripting frameworks and libraries.

COSC 360-L01 Prerequisite: None.

COSC 360-L02 Prerequisite: None.

COSC 360-L03 Prerequisite: None.

COSC 360-L04 Prerequisite: None.

COSC 360-L05 Prerequisite: None.

COSC 360-L06 Prerequisite: None.

COSC 360-L07 Prerequisite: None.

COSC 360-L08 Prerequisite: None.

COSC 360-L09 Prerequisite: None.

Fundamental concepts in constructing database systems including file organizations, storage management, system architectures, query processing/optimization, transaction management, recovery, and concurrency control. Additional topics may include distributed databases, mobile databases, and integration. Credit will be granted for only one of COSC 404 or COSC 504.

COSC 404-L01 Prerequisite: None.

Design and implementation of parallel programs using theoretical computer models, parallel architectures (distributed, multicore, GPU), and standard parallel libraries. Credit will be granted for only one of COSC 407 or COSC 507.

COSC 407-L01 Prerequisite: None.

Design and implementation of parallel programs using theoretical computer models, parallel architectures (distributed, multicore, GPU), and standard parallel libraries. Credit will be granted for only one of COSC 407 or COSC 507.

COSC 407-L02 Prerequisite: None.

Design and implementation of parallel programs using theoretical computer models, parallel architectures (distributed, multicore, GPU), and standard parallel libraries. Credit will be granted for only one of COSC 407 or COSC 507.

COSC 407-L03 Prerequisite: None.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Section</th>
<th>Instructor</th>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRWR_O 260-001</td>
<td>CRWR_O 001 Theory and Practice of Creative Writing</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>CRWR_O 384-101</td>
<td>CRWR_O 101 Spoken Word Advanced workshop in writing and performing Spoken Word texts. Restricted to students with at least third-year standing. Credit will be granted for only one of CRWR 384, CRWR 384, THTR 384 or CULT 308. [3-0-0] Prerequisite: A credit in Creative Writing and/or Theatre. For students without prerequisites, portfolio submission is also required. Equivalency: THTR 384, CULT 384</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Wed 11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>CRWR_O 385-101</td>
<td>CRWR_O 101 Writing for Children Advanced workshop in writing for children and young adults. Restricted to students with at least third-year standing. Restricted to Creative Writing Majors and Minors except with permission of the department. Credit will be granted for only one of CRWR 385 and CRWR 382 when the subject matter is of the same nature. [3-0-0] Prerequisite: Either (a) two of CRWR 205, CRWR 216, CRWR 217, CRWR 218, CRWR 219, CRWR 250, CRWR 260 or (b) two of CRWR 210, CRWR 216, CRWR 217, CRWR 218, CRWR 219, CRWR 250, CRWR 260. For non-majors and non-minors portfolio submission is also required.</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Wed 8:00 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>CRWR_O 470-B_101</td>
<td>CRWR_O B_101 Portfolio Intensive manuscript production in one or two major genres: fiction, poetry, drama, or creative non-fiction. As students begin to shape their portfolios, they will be asked to place their work in a contemporary aesthetic context. [3-0-0] Prerequisite: A credit in CRWR 380, CRWR 381, CRWR 382, CRWR 471 with a minimum grade of 72% in each of these two courses. For non-majors and non-minors, portfolio submission is also required.</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Mon 11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>CRWR_O 472-101</td>
<td>CRWR_O 101 Editing and Publishing For Creative Writing Majors. Develops specialized skills in editing and publishing for success in professional practice. Coursework includes experiential learning with solo and group projects. [3-0-0] Prerequisite: Third-year standing.</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Tue Thu 12:00 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>CRWR_O 473-001</td>
<td>CRWR_O 001 Writing and Community Learning Applied community learning aspects of creative writing. Develops specialized skills for success in professional practice by working in interdisciplinary and collaborative teams with community partners. Field trips will be required. [0-2-2] Prerequisite: Third-year standing.</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Tue Thu 4:00 p.m. - 6:00 p.m.</td>
</tr>
<tr>
<td>CRWR_O 475-001</td>
<td>CRWR_O 001 Preparing for a Career as a Writer Developing professional skills such as sustainable writing practices, preparing work for submission, marketing and promotion. Careers that are within and adjacent to creative writing will also be discussed. Restricted to CRWR Majors except with permission from instructor. [2-2-0]</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Fri 11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>CULT_O 100-101</td>
<td>CULT_O 101 Media and Popular Cultures in Global Context Introduction to media and cultural studies in a global context, specifically the critical analysis of cultural texts, cultural industries, and media audiences. [3-0-0]</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>CULT_O 100-102</td>
<td>CULT_O 102 Media and Popular Cultures in Global Context Introduction to media and cultural studies in a global context, specifically the critical analysis of cultural texts, cultural industries, and media audiences. [3-0-0]</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>CULT_O 100-103</td>
<td>CULT_O 103 Media and Popular Cultures in Global Context Introduction to media and cultural studies in a global context, specifically the critical analysis of cultural texts, cultural industries, and media audiences. [3-0-0]</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Mon Wed 8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>CULT_O 101-101</td>
<td>CULT_O 101 Cultural Studies Practices Key concepts and methods across the history of cultural studies including analysis of consumer society, identity, space, and memory. [3-0-0]</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>CULT_O 101-102</td>
<td>CULT_O 102 Cultural Studies Practices Key concepts and methods across the history of cultural studies including analysis of consumer society, identity, space, and memory. [3-0-0]</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.</td>
</tr>
<tr>
<td>CULT_O 101-103</td>
<td>CULT_O 103 Cultural Studies Practices Key concepts and methods across the history of cultural studies including analysis of consumer society, identity, space, and memory. [3-0-0]</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Mon 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>CULT_O 210-101</td>
<td>CULT_O 101 Reading Screens Introduction to film and other screen-based media as narratives, with a focus on both formal and ideological elements. Credit will be granted for only one of CULT 210 or ENGL 215. [3-0-3] Prerequisite: 3 credits of first-year CULT and 3 credits of first-year ENGL. Equivalency: ENGL 215</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>CULT_O 272-001</td>
<td>CULT_O 001 Feminism and Environment Examines contributions of feminist theories and praxis to understanding and addressing environmental change.Foregrounds the role of decolonial, anti-racist, disability justice and queer feminist perspectives in environmental justice, policy, art, and activism. Credit will be granted for only one of CULT 272 or GWST 272. [3-0-0] Prerequisite: 3 credits of first-year CULT or SUST 104. Equivalency: GWST 272</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Tue 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>CULT_O 272-001</td>
<td>CULT_O 001 Feminism and Environment Examines contributions of feminist theories and praxis to understanding and addressing environmental change. Foregrounds the role of decolonial, anti-racist, disability justice and queer feminist perspectives in environmental justice, policy, art, and activism. Credit will be granted for only one of CULT 272 or GWST 272. [3-0-0] Prerequisite: 3 credits of first-year CULT or SUST 104. Equivalency: GWST 272</td>
<td>W2</td>
<td></td>
<td></td>
<td>Discussion</td>
<td>In Person Learning Thu 11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>CULT_O 275-101</td>
<td>CULT_O 101 Foundations: Interdisciplinary Theory and Meth W2 Examines the major trends in critical theory. Attention will be given to applications of theory in literary research. Credit will be granted for only one of CULT 275 or ENGL 250. [3-0-0] Prerequisite: 3 credits of first-year CULT and 3 credits of first-year ENGL. Equivalency: ENGL 250</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Mon Wed 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>CULT_O 312-A_002</td>
<td>CULT_O A_002 Internet Culture A Critical study of the cultural influence of the Internet on everyday life. With different topics, this course may be taken more than once for credit. No more than 9 credits in total will be granted for CULT 312, DHU 312, or any combination thereof. Credit will be granted for only one of CULT 312 and DHU 312 when the subject matter is of the same nature. Prerequisite: Third-year standing. Equivalency: DIHU3312</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Mon Wed 12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>CULT_O 317-001</td>
<td>CULT_O 001 Digital Documentary Production Theory and practice from the point of view of producer/writer/director. Course culminates in the creation of a short-form documentary. Credit will be granted for only one of CULT 317 or FILM 371. [2-2-0] Prerequisite: One of VISA 106, VISA 261, FILM 261 and third-year standing or permission of the instructor. Equivalency: FILM 371</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Thu 8:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>CULT_O 351-001</td>
<td>CULT_O 001 Settler Studies, Literature, and Culture Approaches to the interdisciplinary field of settler colonial studies as Canadian and comparative contexts in relation to literature, film, and other forms of cultural production. Examines the role of representation, narrative, and discourse in settlement, colonization, and decolonization. Credit will be granted for only one of ENGL 385 or CULT 351. Prerequisite: 3 credits of 200-level CULT. CULT 250 or ENGL 234 is recommended. Equivalency: ENGL 385</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>CULT_O 360-101</td>
<td>CULT_O 101 Public Memory, Commemoration, and Identity Critical examination of commemoration practices, including museums, monuments, and heritage sites, specifically in terms of the construction of place, community, and identity. Credit will be granted for only one of CULT 360 or CORH 386. Prerequisite: Third-year standing. CULT 215, CULT 230, CULT 250, or CULT 275 recommended. Equivalency: CORH380</td>
<td>W2</td>
<td></td>
<td></td>
<td>Lecture</td>
<td>In Person Learning Mon Wed 11:00 a.m. - 2:00 p.m.</td>
</tr>
</tbody>
</table>
### CULT 382-B_002
#### CULT_O
B B_002 Advanced Practice in Photography

- **Course Description:** Advanced studio course in digital- and film-based photography. Emphasis on photography as an artistic tool. This course may be taken twice for a maximum of 6 credits. Students in the Major/Combined Major/Mirror in CULT can apply no more than 6 credits in total of CULT 310, VISA 362, or any combination thereof to this degree. Prerequisite: All of VISA 244, VISA 256. Or permission of the instructor. Note: for VISA 244, CULT students require permission of instructor. Equivalency: VISA 362
- **Delivery Method:** Lecture In Person Learning
- **Meeting Times:** Tue
- **Dates:** 5:00 p.m. - 9:00 p.m.

### CULT 382-B_002
#### CULT_O
B B_002 Advanced Practice in Media Arts

- **Course Description:** Advanced interdisciplinary course addressing the importance of technology-based approaches in contemporary art, with emphasis placed upon the formation of an idea and the media most appropriate to its expression. Students in the Major/Combined Major/Mirror in CULT can apply no more than 6 credits in total of CULT 382, VISA 382, or any combination thereof to their degree. Prerequisite: One of VISA 206, VISA 266, VISA 268, VISA 269, VISA 271, or permission of the instructor. Equivalency: VISA 382
- **Delivery Method:** Lecture In Person Learning
- **Meeting Times:** Fri
- **Dates:** 10:00 a.m. - 2:00 p.m.

### CULT 384-101
#### CULT_O
101 Spoken Word

- **Course Description:** Advanced workshop in writing and performing Spoken Word texts. Credit will be granted for only one of CULT 384, CULT 308, CRWR 384 or THTR 384. [3-0-0] Prerequisite: 6 credits of Creative Writing and/or Theatre. Third-year standing. Equivalency: THTR 384, CRWR 384
- **Delivery Method:** Lecture In Person Learning
- **Meeting Times:** Wed
- **Dates:** 11:00 a.m. - 2:00 p.m.

### CULT 400-L_101
#### CULT_O
L L_101 Topics in Popular Culture

- **Course Description:** Focus on media such as music, film, music video, television, advertising, and the Internet. No more than 9 credits in total will be granted for CULT 400, ENGL 493, or any combination thereof. [3-0-0] Prerequisite: 3 credits of 200-level CULT, CULT 210, CULT 211, and/or CULT 270 recommended. Equivalency: ENGL493
- **Delivery Method:** Lecture In Person Learning
- **Meeting Times:** Thu
- **Dates:** 8:00 a.m. - 11:00 a.m.

### CULT 400-M_101
#### CULT_O
M M_101 Topics in Popular Culture

- **Course Description:** Focus on media such as music, film, music video, television, advertising, and the Internet. No more than 9 credits in total will be granted for CULT 400, ENGL 493, or any combination thereof. [3-0-0] Prerequisite: 3 credits of 200-level CULT, CULT 210, CULT 211, and/or CULT 270 recommended. Equivalency: ENGL493
- **Delivery Method:** Lecture In Person Learning
- **Meeting Times:** Wed
- **Dates:** 8:00 a.m. - 11:00 a.m.

### CULT 400-N_101
#### CULT_O
N N_101 Topics in Popular Culture

- **Course Description:** Focus on media such as music, film, music video, television, advertising, and the Internet. No more than 9 credits in total will be granted for CULT 400, ENGL 493, or any combination thereof. [3-0-0] Prerequisite: 3 credits of 200-level CULT, CULT 210, CULT 211, and/or CULT 270 recommended. Equivalency: ENGL493
- **Delivery Method:** Lecture In Person Learning
- **Meeting Times:** Mon
- **Dates:** 5:00 p.m. - 8:00 p.m.

### CULT 401-A_101
#### CULT_O
A A_101 Topics in Media Studies

- **Course Description:** In-depth study of contemporary media phenomena and practices. With different topics, this course may be taken more than once for credit. Prerequisite: 3 credits of 200-level CULT
- **Delivery Method:** Lecture In Person Learning
- **Meeting Times:** Mon
- **Dates:** 5:00 p.m. - 8:00 p.m.

### CULT 460-101
#### CULT_O
101 Posthumanism and Critical Animal Studies

- **Course Description:** Contemporary theories in the field of critical animal studies via ecofeminism, literary studies, philosophy and history with the aim of considering the interconnectedness of speciesism, racism and sexism. Particular attention will be paid to ecofeminism and the ethics of care in regards to the treatment of animals. Credit will be granted for only one of CULT 460 or ENGL 457. [3-0-0] Prerequisite: Third-year standing. Equivalency: ENGL457
- **Delivery Method:** Lecture In Person Learning
- **Meeting Times:** Wed
- **Dates:** 5:00 p.m. - 6:30 p.m.

### CULT 491-101
#### CULT_O
101 Black Intellectual Traditions

- **Course Description:** Intellectual influences on, and responses to, Black experiences in our modern world. Credit will be granted for only one of CULT 491 or ENGL 491. Prerequisite: Third-year standing. Equivalency: ENGL 491
- **Delivery Method:** Lecture In Person Learning
- **Meeting Times:** Thu
- **Dates:** 11:00 a.m. - 12:30 p.m.

### CULT 499-101
#### CULT_O
101 Community-Engaged Research in Cultural Studies

- **Course Description:** Develops professional skills in research, collaboration, and communication. Students work in collaborative teams to complete projects that support the work of community partners. Projects vary from year to year. Students must arrange own transportation to/from Kelowna area required off-campus meetings. 65 contact hours of class and community partner interaction. Prerequisite: Third-year standing; students must complete an application; permission granted by the Cultural Studies program. Preference will be given to students enrolled as Major, Combined Major, or Minor in CULT.
- **Delivery Method:** Independent Study Hybrid Learning
- **Meeting Times:** Fri
- **Dates:** 2:00 p.m. - 5:00 p.m.

### CUST 562-001
#### CULT_O
001 Curriculum Issues and Theories

- **Course Description:** Curriculum theories and issues are explored through a review of literature (historical and contemporary) and critical reflection on existing practices. Provides a basis for examining knowledge claims, beliefs and assumptions underlying contemporary understandings and practices of curriculum.
- **Delivery Method:** Lecture Online Learning
- **Meeting Times:** Mon (Alternate weeks)
- **Dates:** 4:00 p.m. - 5:00 p.m.

### DATA 101-101
#### DATA_O
101 Making Predictions with Data

- **Course Description:** Introduction to the techniques and software for handling real-world data. Topics include data cleaning, visualization, simulation, basic modelling, and prediction making. [3-1-0]
- **Delivery Method:** Lecture In Person Learning
- **Meeting Times:** Thu
- **Dates:** 2:00 p.m. - 3:30 p.m.

### DATA 101-102
#### DATA_O
102 Making Predictions with Data

- **Course Description:** Introduction to the techniques and software for handling real-world data. Topics include data cleaning, visualization, simulation, basic modelling, and prediction making. [3-1-0]
- **Delivery Method:** Lecture In Person Learning
- **Meeting Times:** Wed
- **Dates:** 8:00 a.m. - 9:00 a.m.

### DATA 101-L2A
#### DATA_O
L2A Making Predictions with Data

- **Course Description:** Introduction to the techniques and software for handling real-world data. Topics include data cleaning, visualization, simulation, basic modelling, and prediction making. [3-1-0]
- **Delivery Method:** Laboratory In Person Learning
- **Meeting Times:** Thu
- **Dates:** 9:00 a.m. - 10:00 a.m.

### DATA 101-L2B
#### DATA_O
L2B Making Predictions with Data

- **Course Description:** Introduction to the techniques and software for handling real-world data. Topics include data cleaning, visualization, simulation, basic modelling, and prediction making. [3-1-0]
- **Delivery Method:** Laboratory In Person Learning
- **Meeting Times:** Fri
- **Dates:** 1:00 p.m. - 2:00 p.m.

### DATA 101-L2C
#### DATA_O
L2C Making Predictions with Data

- **Course Description:** Introduction to the techniques and software for handling real-world data. Topics include data cleaning, visualization, simulation, basic modelling, and prediction making. [3-1-0]
- **Delivery Method:** Laboratory In Person Learning
- **Meeting Times:** Wed
- **Dates:** 12:00 p.m. - 1:00 p.m.

### DATA 101-L2D
#### DATA_O
L2D Making Predictions with Data

- **Course Description:** Introduction to the techniques and software for handling real-world data. Topics include data cleaning, visualization, simulation, basic modelling, and prediction making. [3-1-0]
- **Delivery Method:** Laboratory In Person Learning
- **Meeting Times:** Fri
- **Dates:** 10:00 a.m. - 12:00 p.m.
Techniques for computation, analysis, and visualization of data using software. Manipulation of small and large data sets. Databases. Automation using scripting. Real-world applications from life sciences, physical sciences, economics, engineering, or psychology. No prior computing background is required. Cannot be used for credits toward a major in Computer Science, Data Science, Mathematics, or Statistics. Credit will be granted for only one of COSC 301, DATA 301 or DATA 501. [3-2-0] Prerequisite: Third-year standing. Laboratory In Person Learning Tue 12:00 p.m. - 2:00 p.m.

Techniques for computation, analysis, and visualization of data using software. Manipulation of small and large data sets. Databases. Automation using scripting. Real-world applications from life sciences, physical sciences, economics, engineering, or psychology. No prior computing background is required. Cannot be used for credits toward a major in Computer Science, Data Science, Mathematics, or Statistics. Credit will be granted for only one of COSC 301, DATA 301 or DATA 501. [3-2-0] Prerequisite: Third-year standing. Laboratory In Person Learning Fri 8:00 a.m. - 10:00 a.m.

Planning/practice of data collection. Pros/cons of both observational and experimental data. Survey samples: random sampling; bias and variance; unequal probability sampling; systematic, multistage, and stratified sampling; ratio and regression estimators. Experimental design: simple one-way comparisons; designs with randomization restrictions including blocking, split-plots, nested and repeated measures designs. Credit will be granted for only one of DATA 407 or STAT 507. [3-1-0] Prerequisite: One of STAT 205, STAT 230, PSY 372, BQL 202. Lecture In Person Learning Tue Thu 5:00 p.m. - 6:30 p.m.

Planning/practice of data collection. Pros/cons of both observational and experimental data. Survey samples: random sampling; bias and variance; unequal probability sampling; systematic, multistage, and stratified sampling; ratio and regression estimators. Experimental design: simple one-way comparisons; designs with randomization restrictions including blocking, split-plots, nested and repeated measures designs. Credit will be granted for only one of DATA 407 or STAT 507. [3-1-0] Prerequisite: One of STAT 205, STAT 230, PSY 372, BQL 202. Lecture In Person Learning Tue Thu 8:00 a.m. - 10:00 a.m.

Regression, linear models, generalized linear models, additive models, generalized additive models, mixed models, theory and numerical performance. Credit will be granted for only one of DATA 410 or STAT 538. [3-0-0] Prerequisite: STAT 350. Lecture In Person Learning Mon 11:00 a.m. - 12:30 p.m.

Investigation of a specific topic as agreed upon by the student and the faculty supervisor. Completion of a project and an oral presentation are required. Prerequisite: Third-year standing in the Data Science major or Honours, and permission of the department head. Independent Study In Person Learning Arranged Arranged

Parallel and cloud computing architectures and program deployment. Restricted to students in the MDS program. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

Parallel and cloud computing architectures and program deployment. Restricted to students in the MDS program. Laboratory In Person Learning Mon 11:00 a.m. - 12:00 p.m.

Parallel and cloud computing architectures and program deployment. Restricted to students in the MDS program. Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

Data transformation, filtering, sorting, grouping, cleaning, parsing. Automation. Restricted to students in the MDS program. Prerequisite: All of DATA 532, DATA 540, DATA 541. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

Data transformation, filtering, sorting, grouping, cleaning, parsing. Automation. Restricted to students in the MDS program. Prerequisite: All of DATA 532, DATA 540, DATA 541. Lecture In Person Learning Thu 12:30 p.m. - 4:30 p.m.

Data visualization to produce graphs and images. Advanced data analysis on spreadsheets. Restricted to students in the MDS program. Prerequisite: All of DATA 530, DATA 531. Discussion In Person Learning Mon 8:30 a.m. - 9:30 a.m.

Data visualization to produce graphs and images. Advanced data analysis on spreadsheets. Restricted to students in the MDS program. Lecture In Person Learning Mon 11:00 a.m. - 12:30 p.m.

Data visualization to produce graphs and images. Advanced data analysis on spreadsheets. Restricted to students in the MDS program. Lecture In Person Learning Tue 12:30 p.m. - 4:30 p.m.

Data visualization to produce graphs and images. Advanced data analysis on spreadsheets. Restricted to students in the MDS program. Lecture In Person Learning Wed 12:30 p.m. - 4:30 p.m.

Data visualization using business intelligence and data analysis software. Interactive visualization. Production of visualizations for mobile and web. Restricted to students in the MDS program. Prerequisite: All of DATA 534, DATA 543, DATA 550. Lecture In Person Learning Thu 8:30 a.m. - 9:30 a.m.

Data visualization using business intelligence and data analysis software. Interactive visualization. Production of visualizations for mobile and web. Restricted to students in the MDS program. Prerequisite: All of DATA 534, DATA 543, DATA 550. Discussion In Person Learning Wed 8:30 a.m. - 9:30 a.m.

Data visualization using business intelligence and data analysis software. Interactive visualization. Production of visualizations for mobile and web. Restricted to students in the MDS program. Prerequisite: All of DATA 534, DATA 543, DATA 550. Discussion In Person Learning Wed 9:30 a.m. - 11:00 a.m.

Data visualization using business intelligence and data analysis software. Interactive visualization. Production of visualizations for mobile and web. Restricted to students in the MDS program. Prerequisite: All of DATA 534, DATA 543, DATA 550. Lecture In Person Learning Mon 11:00 a.m. - 12:00 p.m.

Data visualization using business intelligence and data analysis software. Interactive visualization. Production of visualizations for mobile and web. Restricted to students in the MDS program. Prerequisite: All of DATA 534, DATA 543, DATA 550. Lecture In Person Learning Mon 12:30 p.m. - 4:30 p.m.
DATA_O 552-T1A DATA_O T1A Communication and Argumentation W2 Interpretation of data. Argumentation: hypothesis, claim, evidence and inference. Model limitations: bias, validity, reliability, sensitive analysis. Communication of recommendations to decision-makers. Restricted to students in the MDS program. Discussion In Person Learning Mon 8:30 a.m. - 9:30 a.m.

DATA_O 572-001 DATA_O 001 Supervised Learning W2 Analysis of data with categorical responses. Logistic regression, k-nearest neighbours classification, discriminant analysis, decision trees and random forests. Restricted to students in the MDS program. Prerequisite: DATA 571. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

DATA_O 572-L01 DATA_O L01 Supervised Learning W2 Analysis of data with categorical responses. Logistic regression, k-nearest neighbours classification, discriminant analysis, decision trees and random forests. Restricted to students in the MDS program. Prerequisite: DATA 571. Laboratory In Person Learning Wed 12:30 p.m. - 4:30 p.m.

DATA_O 572-T1A DATA_O T1A Supervised Learning W2 Analysis of data with categorical responses. Logistic regression, k-nearest neighbours classification, discriminant analysis, decision trees and random forests. Restricted to students in the MDS program. Prerequisite: DATA 571. Discussion In Person Learning Wed 8:30 a.m. - 9:30 a.m.

DATA_O 573-T1A DATA_O T1A Unsupervised and Semi-supervised Learning W2 Analysis of data with unknown responses. Distance measures, hierarchical clustering, k-means, mixture models. Restricted to students in the MDS program. Prerequisite: DATA 572. Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

DATA_O 573-L01 DATA_O L01 Unsupervised and Semi-supervised Learning W2 Analysis of data with unknown responses. Distance measures, hierarchical clustering, k-means, mixture models. Restricted to students in the MDS program. Prerequisite: DATA 572. Laboratory In Person Learning Tue 12:30 p.m. - 4:30 p.m.

DATA_O 575-T1A DATA_O T1A Unsupervised and Semi-supervised Learning W2 Analysis of data with unknown responses. Distance measures, hierarchical clustering, k-means, mixture models. Restricted to students in the MDS program. Prerequisite: DATA 572. Discussion In Person Learning Tue 8:30 a.m. - 9:30 a.m.

DATA_O 582-101 DATA_O 101 Bayesian Inference W2 Introduction to Bayesian paradigm and tools for Data Science. Topics include Bayes theorem, prior, likelihood and posterior. A detailed analysis of the cases of binominal, normal samples, normal linear regression models. A significant focus will be on computational aspects of Bayesian problems using software packages. Restricted to students in the MDS program. Prerequisite: All of DATA 572, DATA 581. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

DATA_O 582-L01 DATA_O L01 Bayesian Inference W2 Introduction to Bayesian paradigm and tools for Data Science. Topics include Bayes theorem, prior, likelihood and posterior. A detailed analysis of the cases of binominal, normal samples, normal linear regression models. Restricted to students in the MDS program. Prerequisite: All of DATA 572, DATA 581. Laboratory In Person Learning Thu 12:30 p.m. - 4:30 p.m.

DATA_O 582-T1A DATA_O T1A Bayesian Inference W2 Introduction to Bayesian paradigm and tools for Data Science. Topics include Bayes theorem, prior, likelihood and posterior. A detailed analysis of the cases of binominal, normal samples, normal linear regression models. Restricted to students in the MDS program. Prerequisite: All of DATA 572, DATA 581. Discussion In Person Learning Thu 8:30 a.m. - 9:30 a.m.


DATA_O 583-L01 DATA_O L01 Advanced Predictive Modelling W2 Splines. Smoothing. Generalized linear models. Generalized additive models. An introduction to mixed models. Restricted to students in the MDS program. Prerequisite: All of DATA 572, DATA 581. Laboratory In Person Learning Thu 12:30 p.m. - 4:30 p.m.

DATA_O 583-T1A DATA_O T1A Advanced Predictive Modelling W2 Splines. Smoothing. Generalized linear models. Generalized additive models. An introduction to mixed models. Restricted to students in the MDS program. Prerequisite: All of DATA 572, DATA 581. Discussion In Person Learning Thu 8:30 a.m. - 9:30 a.m.

DATA_O 585-101 DATA_O 101 Optimization W2 Modelling using mathematical programming. Fundamental continuous and discrete optimization algorithms. Optimization software for small to medium scale problems. Optimization algorithms for data science. Restricted to students in the MDS program. Prerequisite: DATA 580. Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

DATA_O 585-L01 DATA_O L01 Optimization W2 Modelling using mathematical programming. Fundamental continuous and discrete optimization algorithms. Optimization software for small to medium scale problems. Optimization algorithms for data science. Restricted to students in the MDS program. Prerequisite: DATA 580. Laboratory In Person Learning Tue 12:30 p.m. - 4:30 p.m.

DATA_O 585-T1A DATA_O T1A Optimization W2 Modelling using mathematical programming. Fundamental continuous and discrete optimization algorithms. Optimization software for small to medium scale problems. Optimization algorithms for data science. Restricted to students in the MDS program. Prerequisite: DATA 580. Discussion In Person Learning Tue 8:30 a.m. - 9:30 a.m.

DATA_O 586-101 DATA_O 101 Advanced Machine Learning W2 Neural networks, backpropagation, deep learning. Restricted to students in the MDS program. Prerequisite: DATA 580. Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

DATA_O 586-L01 DATA_O L01 Advanced Machine Learning W2 Neural networks, backpropagation, deep learning. Restricted to students in the MDS program. Prerequisite: DATA 580. Laboratory In Person Learning Wed 12:30 p.m. - 4:30 p.m.

DATA_O 586-T1A DATA_O T1A Advanced Machine Learning W2 Neural networks, backpropagation, deep learning. Restricted to students in the MDS program. Prerequisite: DATA 580. Discussion In Person Learning Wed 8:30 a.m. - 9:30 a.m.

DATA_O 589-101 DATA_O 101 Special Topic: W2 Advanced or specialized topic in Data Science with applications to specific data sets. Restricted to students in the MDS program. Prerequisite: DATA 543. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

DATA_O 589-L01 DATA_O L01 Special Topic: W2 Advanced or specialized topic in Data Science with applications to specific data sets. Restricted to students in the MDS program. Prerequisite: DATA 543. Laboratory In Person Learning Mon 12:30 p.m. - 4:30 p.m.

DATA_O 589-T1A DATA_O T1A Special Topic: W2 Advanced or specialized topic in Data Science with applications to specific data sets. Restricted to students in the MDS program. Prerequisite: DATA 543. Discussion In Person Learning Mon 8:30 a.m. - 9:30 a.m.

DHU_O 155-101 DHU_O 101 Writing and Making with Technology in the Humanities W2 Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155 Lecture In Person Learning Fri 2:00 p.m. - 4:00 p.m.

DHU_O 155-T2A DHU_O T2A Writing and Making with Technology in the Humanities W2 Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155 Discussion In Person Learning Tue 10:00 a.m. - 11:00 a.m.
DIHU_O 155-T2B  DIHU_O T2B Writing and Making with Technology in the Humanities W2
Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155
Discussion In Person Learning Mon 8:00 a.m. - 9:00 a.m.

DIHU_O 155-T2C  DIHU_O T2C Writing and Making with Technology in the Humanities W2
Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155
Discussion In Person Learning Wed 1:00 p.m. - 2:00 p.m.

DIHU_O 155-T2D  DIHU_O T2D Writing and Making with Technology in the Humanities W2
Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155
Discussion In Person Learning Tue 5:00 p.m. - 6:00 p.m.

DIHU_O 155-T2E  DIHU_O T2E Writing and Making with Technology in the Humanities W2
Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155
Discussion In Person Learning Fri 4:00 p.m. - 5:00 p.m.

DIHU_O 155-T2F  DIHU_O T2F Writing and Making with Technology in the Humanities W2
Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155
Discussion In Person Learning Mon 9:00 a.m. - 10:00 a.m.

DIHU_O 155-T2G  DIHU_O T2G Writing and Making with Technology in the Humanities W2
Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155
Discussion In Person Learning Wed 10:00 a.m. - 11:00 a.m.

DIHU_O 155-T2H  DIHU_O T2H Writing and Making with Technology in the Humanities W2
Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155
Discussion In Person Learning Wed 5:00 p.m. - 6:00 p.m.

DIHU_O 312-A_002  DIHU_O A A_002 Internet Culture W2
An examination of interrelated arts, visual cultures and texts in South Asia (15th to 19th C) within their historical and cultural contexts. Topics include the rise of the multicultural Mughal Empire, the roles of Hinduism, Islam, and Sikhism, and encounters with Renaissance and Colonial Europe. Digital art historical approaches will normally be used, though no computing experience is required. Credit will be granted for only one of DIHU 312, CULT 312 or WRLD 375. Prerequisite: Third-year standing. Equivalency: ARTH 375, WRLD 375
Lecture Online Learning Mon Wed 12:30 p.m. - 2:00 p.m.

DIHU_O 375-001  DIHU_O 001 Encountering India: The Age of the Mughals W2
Study of a particular topic in digital humanities. With different topics this course may be taken more than once for credit. Credit will be granted for only one of DIHU 409, CULT 409 and ENGL 409 when the subject matter is of the same nature. Prerequisite: 3 credits of 100-level CULT, DIHU, ENGL, or FILM 100, and third-year standing. Equivalency: ENGL409, CULT409
Lecture In Person Learning Mon Wed 6:00 p.m. - 7:30 p.m.

DIHU_O 409_B_101  DIHU_O B B_101 Topics in Digital Humanities W2
Study of a particular topic in digital humanities. With different topics this course may be taken more than once for credit. Credit will be granted for only one of DIHU 409, CULT 409 and ENGL 409 when the subject matter is of the same nature. Prerequisite: 3 credits of 100-level CULT, DIHU, ENGL, or FILM 100, and third-year standing. Equivalency: ENGL409, CULT409
Lecture In Person Learning Mon 5:00 p.m. - 8:00 p.m.

EAP_O 104-101  EAP_O 101 English for Academic Purposes Level IV W2
Development of advanced academic communication and composition skills: writing and grammar, reading comprehension and proficiency; comprehension and oral fluency; intercultural communication. Students participate in a variety of complex academic activities and situations involving multiple purposes and participants. Twelve weeks (240 hours). Prerequisite: Successful completion of EAP 103 or minimum English language competence level (see English Language Proficiency Tests at https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-profiency-tests-and-programs). Registration limited to students enrolled in the English Language Foundation Program.
Lecture In Person Learning Mon Tue Wed Thu Fri 8:00 a.m. - 11:00 a.m.

ECON_O 101-101  ECON_O 101 Principles of Microeconomics W2
Elements of theory and Canadian policy and institutions concerning the economics of markets and market behavior, prices and costs, exchange and trade, competition and monopoly, distribution of income. [3-0-0] Equivalency: B 101
Lecture In Person Learning Mon Wed 6:00 p.m. - 7:00 p.m.

ECON_O 102-101  ECON_O 101 Principles of Macroeconomics W2
Elements of theory and Canadian policy and institutions concerning the economics of growth and business cycles, national income accounting, interest and exchange rates, money and banking, the balance of trade. [3-0-0] Equivalency: B 102
Lecture In Person Learning Mon Wed 6:30 p.m. - 8:00 p.m.

ECON_O 204-101  ECON_O 101 Intermediate Microeconomic Analysis W2
Microtheory course at the post-principles level. Analysis of consumer behaviour, production, exchange, equilibrium of the firm under varying market structures, factor markets, economic efficiency, and welfare. [3-0-1] Prerequisite: ECON 101 and one of MATH 100, MATH 101
Lecture In Person Learning Mon Wed 6:00 p.m. - 7:00 p.m.

ECON_O 204-102  ECON_O T2A Intermediate Microeconomic Analysis W2
Microtheory course at the post-principles level. Analysis of consumer behaviour, production, exchange, equilibrium of the firm under varying market structures, factor markets, economic efficiency, and welfare. [3-0-1] Prerequisite: ECON 101 and one of MATH 100, MATH 101
Lecture In Person Learning Mon Wed 6:30 p.m. - 8:00 p.m.

ECON_O 204-103  ECON_O T2B Intermediate Microeconomic Analysis W2
Microtheory course at the post-principles level. Analysis of consumer behaviour, production, exchange, equilibrium of the firm under varying market structures, factor markets, economic efficiency, and welfare. [3-0-1] Prerequisite: ECON 101 and one of MATH 100, MATH 101
Lecture In Person Learning Mon Wed 6:30 p.m. - 8:00 p.m.

ECON_O 204-104  ECON_O T2A Intermediate Microeconomic Analysis W2
Microtheory course at the post-principles level. Analysis of consumer behaviour, production, exchange, equilibrium of the firm under varying market structures, factor markets, economic efficiency, and welfare. [3-0-1] Prerequisite: ECON 101 and one of MATH 100, MATH 101
Discussion In Person Learning Mon 9:00 a.m. - 10:00 a.m.

ECON_O 205-101  ECON_O 101 Intermediate Macroeconomic Analysis W2
Macrotheory course at the post-principles level. Income and employment theory, monetary and fiscal policies, the impact of international trade and finance on the domestic economy, economic growth and fluctuations. [3-0-1] Prerequisite: ECON 102 and one of MATH 100, MATH 101
Lecture In Person Learning Mon Tue Wed Thu Fri 12:30 p.m. - 2:00 p.m.

ECON_O 205-102  ECON_O T2A Intermediate Macroeconomic Analysis W2
Macrotheory course at the post-principles level. Income and employment theory, monetary and fiscal policies, the impact of international trade and finance on the domestic economy, economic growth and fluctuations. [3-0-1] Prerequisite: ECON 102 and one of MATH 100, MATH 101
Discussion In Person Learning Mon 10:00 a.m. - 11:00 a.m.
In Person Learning

World Economy since 1800

Discussion
In Person Learning
Tue
11:00 a.m. - 12:00 p.m.

ECON 221-101

Game theory with applications drawn from many disciplines and the principles of strategic interactions.

Prerequisite: All of ECON 101, ECON 102.

Lecture
In Person Learning
Wed
11:00 a.m. - 12:30 p.m.

ECON 225-101

Visualization and interpretation of economic data. Topics include descriptive statistics, graphical methods, and

inference, and applying these methods to economic data. Credit will be granted for only one of ECON 225 or

ECON 391M.

Prerequisite: One of ECON 101, ECON 102.

Lecture
In Person Learning
Mon
2:00 p.m. - 3:30 p.m.

ECON 295-101

Economic foundations of managerial decision-making. Demand theory, cost and production, market structure,

competitive strategy, organization of the firm, welfare-economic foundations of business regulation. [3-0-0]

Prerequisite: All of ECON 101, ECON 102.

Lecture
In Person Learning
Tue
2:00 p.m. - 3:30 p.m.

ECON 308-101

Factor markets, general equilibrium, uncertainty and information; contract theory, externalities, public goods,

and welfare. [3-0-0] Prerequisite: ECON 204.

Lecture
In Person Learning
Wed
8:00 a.m. - 9:30 a.m.

ECON 320-101

Application of single and multivariable calculus to economics. Includes comparative static analysis of

household and firm behaviour as well as simple dynamic models.

Prerequisite: All of ECON 101, ECON 102 and one of MATH 101, MATH 142.

Lecture
In Person Learning
Wed
3:30 p.m. - 5:00 p.m.

ECON 328-101

Methods of Empirical Research

Techniques of empirical economic research. Simple and multiple regression, time series analysis, and

simultaneous equation estimation. Students are required to undertake applied work. [3-0-1] Prerequisite:

ECON 327.

Lecture
In Person Learning
Tue
9:30 a.m. - 11:00 a.m.

ECON 328-12A

Methods of Empirical Research

Techniques of empirical economic research. Simple and multiple regression, time series analysis, and

simultaneous equation estimation. Students are required to undertake applied work. [3-0-1] Prerequisite:

ECON 327.

Discussion
In Person Learning
Mon
4:00 p.m. - 5:00 p.m.

ECON 328-12B

Methods of Empirical Research

Techniques of empirical economic research. Simple and multiple regression, time series analysis, and

simultaneous equation estimation. Students are required to undertake applied work. [3-0-1] Prerequisite:

ECON 327.

Discussion
In Person Learning
Mon
10:00 a.m. - 11:00 a.m.

ECON 331-101

World Economy since 1800

Development of the world economy, from the onset of the Industrial Revolution around 1800 to the present.

Broad causes of world economic development, interaction between economic forces and social institutions,

and development of particular national economies. [3-0-0] Prerequisite: All of ECON 101, ECON 102.

Lecture
In Person Learning
Tue
2:00 p.m. - 3:30 p.m.

ECON 339-101

Economics of Technological Change

Financial markets and financial institutions in theory and practice; structure and development of the Canadian

financial system; development and theory of the regulation of the financial system; process of monetary

control; theory and history of central banking and monetary policy. [3-0-0] Prerequisite: All of ECON 101, ECON

102.

Lecture
In Person Learning
Tue
12:30 p.m. - 2:00 p.m.

ECON 345-101

Money and Banking

The government plays a pervasive role in the Canadian economy. The powerful tools of government policy -

taxation, spending, borrowing, and regulation - affect the economic life of every Canadian. This course applies

the tools of economic analysis to the study of some of the most important aspects of public policy in these

areas. [3-0-0] Prerequisite: All of ECON 101, ECON 102.

Lecture
In Person Learning
Mon
3:30 p.m. - 5:00 p.m.

ECON 352-101

Public Sector Economics

The determinants of trade patterns, trade policy, tariff and non-tariff barriers to trade, political economy of

protectionism, bilateral and multilateral trade disputes, trade liberalization, trade and development. [3-0-0]

Prerequisite: All of ECON 101, ECON 102.

Lecture
In Person Learning
Mon
5:00 p.m. - 6:30 p.m.

ECON 355-101

International Trade

Examination of selected topics in current economic theory and/or policy. Topics vary each time the course is

offered. [3-0-0] Prerequisite: All of ECON 101, ECON 102.

Lecture
In Person Learning
Wed
9:30 a.m. - 11:00 a.m.

ECON 356-101

International Finance

Exchange rate policy regimes; international financial organizations; the interaction between monetary policy

and exchange rate regimes; financial crises. [3-0-0] Prerequisite: All of ECON 101, ECON 102.

Lecture
In Person Learning
Tue
2:00 p.m. - 3:30 p.m.

ECON 360-101

Labour Economics

The role of economics in health, healthcare, and health policy. Topics include economic determinants of

health, minority health and health equity, health economic evaluation, demand for healthcare and health

insurance, health risk behaviours, and public policy and health outcomes. Credit will be granted for only one of

ECON 363 or ECON 391V.

Prerequisite: All of ECON 101, ECON 225.

Lecture
In Person Learning
Tue
9:30 a.m. - 11:00 a.m.

ECON 363-101

Health Economics

Examination of selected topics in current economic theory and/or policy. Topics vary each time the course is

offered. With different topics, the course can be taken more than once for credit. [3-0-0] Prerequisite: All of

ECON 101, ECON 102.

Lecture
In Person Learning
Mon
9:30 a.m. - 11:00 a.m.

ECON 391-A

Topics in Economics

Examination of selected topics in current economic theory and/or policy. Topics vary each time the course is

offered. [3-0-0] Prerequisite: All of ECON 101, ECON 102.

Lecture
In Person Learning
Mon
11:00 a.m. - 12:30 p.m.

ECON 391-C

Topics in Economics

Theoretical underpinnings for education leaders to think more deeply and consider issues involved in

implementing social justice education and to respond to societal pressures around issues of equity, diversity,

and inclusion.

Seminar
Online Learning
Tue
5:00 p.m. - 8:00 p.m.

EDLL 006-001

Culturally Responsive Leadership in a Diverse So

Students will examine basic and fundamental questions about educational policy and practice by critically

examining a variety of controversial issues including, but not limited to, issues of equality, community, and

individual rights and freedoms. [3-0-0] Prerequisite: Students must have one of a) 70% in English 12 or English

12 First Peoples; b) a 5 on the LP; c) a passing grade in ENG 009; d) an acceptable equivalent. For a list of

equivalency options consult the Current Students website at students.ubc.ca/courses-money-

enrolment/registration/first-year-english/.

Lecture
In Person Learning
Tue
3:30 p.m. - 5:00 p.m.
Students will examine basic and fundamental questions about educational policy and practice by critically examining a variety of controversial issues including, but not limited to, issues of equality, community, and individual rights and freedoms. [3-0-0] Prerequisite: Students must have one of a) 70% in English 12 or English 12 First Peoples; b) 5 on the TLP; c) a passing grade in ENG 005; d) an acceptable equivalency. For a list of equivalency options consult the current Students website at students.ok.ubc.ca/courses-money-enrolment/registration/first-year-eng/. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

For Arts and prospective Education students who wish to gain a deeper understanding of mathematics. Using the approach of problem solving and logical reasoning throughout, topics are chosen from discrete mathematics, elementary number theory, probability and statistics, measurement and geometry, linear algebra, and applications. Credit will only be granted for one of MATH 160 or EDUC 160. Cannot be used for credit towards a B.Sc. or B.M.S. degree, or for the B.A. major in Mathematics program. Prerequisite: Foundations of Mathematics 11 or Pre-calculus 11 Equivalency: MATH 160 Lecture In Person Learning Mon Wed 2:00 p.m. - 3:30 p.m.

An introduction to the distinctive manner in which core concepts and methods of scholarly inquiry are applied to education as a field of inquiry. Through a variety of hands-on learning activities, readings, seminars, discussions, and personal reflection students will explore the processes and products of inquiry. Restricted to students with at least third-year standing. [3-0-0] Lecture In Person Learning Thu 5:00 p.m. - 8:00 p.m.

Examines the nature of curriculum focusing on the humanities and languages. Opportunities and challenges of developing curriculum for schooling are considered within contemporary political, legal, moral, administrative, and policy contexts. Pass/Fail. Prerequisite: All of EDUC 411, EDUC 440. Lecture In Person Learning Mon Wed Thu Fri 8:00 a.m. - 5:30 p.m.

Teaching and learning theory and practice relating to a holistic approach to well-being. Examining and interpreting the research on philosophical, psychological, physiological and political aspects of well-being. Pass/Fail. Prerequisite: EDUC 441. Lecture In Person Learning Mon Wed Thu Fri 8:00 a.m. - 5:30 p.m.

Working collaboratively in a school context, mentor teachers and teacher candidates co-plan, co-teach and co-assess. Insight into the significance of personal practical knowledge by engaging in dialogue, observation, and reflection concerning why the mentor teacher/scientists practice in particular ways, using specific strategies, resources, and lesson sequences. Pass/Fail. Prerequisite: All of EDUC 440, EDUC 431. Corequisite: EDUC 436. Experiential In Person Learning Arranged Arranged

An inquiry-oriented course designed for educators interested in inclusive aspects of special education. Participants will explore pedagogical, attitudinal, and systemic barriers to inclusion. Related theory and research-based inclusive approaches will serve as resources for individual and group inquiries. Building on coursework completed during the master's program, this course supports students in the development of their M.Ed. exit projects. It provides scaffolding for the conceptualization, development, and completion of projects that will meet or exceed the requirements for both graduate programs and teacher qualification standards. Pass/Fail. Prerequisite: All of EDUC 440, EDUC 431. Corequisite: EDUC 436. Experiential In Person Learning Arranged Arranged

Aims to broaden and enhance educators' research literacy skills and ability to read a range of empirical peer-reviewed findings that hold potential to shape their engagement in their coursework and their applied practice. Lecture Online Learning Arranged Arranged

A qualitative and scientific approach to the understanding of global energy, water and nutrient cycling; growth of human populations and their effects on the environment and ecosystem function. Functional understanding of modern environmental issues, and the requirement of, and opportunities for, sustainability. [3-0-0] Lecture In Person Learning Mon Wed Fri 4:00 p.m. - 5:00 p.m.

The causes, physical characteristics, and consequences of natural disasters such as earthquakes, volcanic eruptions, severe weather, landslides, tsunamis, floods, meteor impact, and mass extinctions. [3-0-0] Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

Earth systems and environment: atmosphere, climate, water cycle, oceans, surface water, groundwater, earth surface processes, soils, and bioscience cycling. Applications of environmental science to solving modern environmental problems. [3-0-0] Prerequisite: EESC 111 and one of CHEM 111, CHEM 121. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

Earth systems and environment: atmosphere, climate, water cycle, oceans, surface water, groundwater, earth surface processes, soils, and bioscience cycling. Applications of environmental science to solving modern environmental problems. [3-0-0] Lecture In Person Learning Tue Thu 11:00 a.m. - 2:00 p.m.

Earth systems and environment: atmosphere, climate, water cycle, oceans, surface water, groundwater, earth surface processes, soils, and bioscience cycling. Applications of environmental science to solving modern environmental problems. [3-0-0] Lecture In Person Learning Wed 11:00 a.m. - 2:00 p.m.

Origin of rocks, oceans, atmosphere and the record of life on Earth. Scientific methods of studying Earth history. Geologic time, dating methods, the stratigraphic record. Organic evolution, the fossil record, and extinctions. [3-2-0] Prerequisite: EESC 111 recommended. Lecture In Person Learning Tue 11:00 a.m. - 2:00 p.m.

Origin of rocks, oceans, atmosphere and the record of life on Earth. Scientific methods of studying Earth history. Geologic time, dating methods, the stratigraphic record. Organic evolution, the fossil record, and extinctions. [3-2-0] Prerequisite: EESC 111 recommended. Lecture In Person Learning Wed 8:00 a.m. - 10:00 a.m.

Origin of rocks, oceans, atmosphere and the record of life on Earth. Scientific methods of studying Earth history. Geologic time, dating methods, the stratigraphic record. Organic evolution, the fossil record, and extinctions. [3-2-0] Prerequisite: EESC 111 recommended. Lecture In Person Learning Mon 12:00 p.m. - 2:00 p.m.
In Person Learning
Atmospheric Environments
101
Wed
11:00 a.m. - 2:00 p.m.
L01
Laboratory
Optical Mineralogy and Petrology
Laboratory
11:00 a.m. - 12:30 p.m.
W2

In Person Learning
Global Biogeochemistry
Atmospheric Environments
Mon Wed
8:00 a.m. - 11:00 a.m.
W2
In Person Learning
Environmental Impact Assessment: Techniques and practice
Environmental Impact Assessment: Techniques and practice
11:00 a.m. - 12:30 p.m.
Laboratory
001
Fri

In Person Learning
Geophysics
3:30 p.m. - 6:30 p.m.
W2
Laboratory

In Person Learning
Laboratory
101
In Person Learning
8:00 a.m. - 10:00 a.m.
In Person Learning
Environmental Impact Assessment: Techniques and practice
Environmental Impact Assessment: Techniques and practice
11:00 a.m. - 2:00 p.m.
In Person Learning
101
Geophysics
W2
In Person Learning
11:00 a.m. - 2:00 p.m.
In Person Learning
101
Geophysics
W2
In Person Learning
Wed
11:00 a.m. - 2:00 p.m.
In Person Learning
5:00 p.m. - 6:30 p.m.
W2
In Person Learning
5:00 p.m. - 6:30 p.m.
001
W2
In Person Learning
2:00 p.m. - 5:00 p.m.
W2
Laboratory
2:00 p.m. - 5:00 p.m.
W2

In Person Learning
Atmospheric Environments
212-101
101
Atmospheric Environments
W2
Physical principles underlying weather and climates. Thermal, moisture, and wind climates at scales from valleys to the globe. Daily weather, air pollution, global change. Credit will be granted for only one of EESC 212 or GEOG 200. 

In Person Learning
Atmospheric Environments
212-101
101
Atmospheric Environments
W2
Physical principles underlying weather and climates. Thermal, moisture, and wind climates at scales from valleys to the globe. Daily weather, air pollution, global change. Credit will be granted for only one of EESC 212 or GEOG 200. 

In Person Learning
Atmospheric Environments
212-102
102
Atmospheric Environments
W2
Global forests, classification, silviculture, forest tenure systems, forest policy evolution, forest regulations, and the profession. Overview of forest disturbance impacts, eco-forestry, sustainable forest management, eco-certification, the role of information technologies and research. 

In Person Learning
Atmospheric Environments
213-001
001
Introductory Forest Science and Management
W2
Mechanisms of anthropogenic climate change and its impact on the atmosphere, hydrosphere, cryosphere, and oceans since the Industrial Revolution. Use of computer models to forecast 21st century climate changes. Credit will be granted for only one of GEOG 304 or EESC 304. 

In Person Learning
Global Biogeochemistry
101
Global Biogeochemistry
W2
Functional processes and reactions of our living planet. Cycles of materials and energy among the atmosphere, lithosphere, and terrestrial and aquatic ecosystems. Case studies on the degradation of ecosystem function from anthropogenic alterations of natural cycles. 

In Person Learning
Environmental Impact Assessment: Techniques
101
Environmental Impact Assessment: Techniques
W2
Practical techniques and methods for environmental impact assessment. Technical approaches, evaluation and estimation tools, and project management skills used for environmental assessment work. 

In Person Learning
Environmental Impact Assessment: Techniques
101
Environmental Impact Assessment: Techniques
W2
Practical techniques and methods for environmental impact assessment. Technical approaches, evaluation and estimation tools, and project management skills used for environmental assessment work. 

In Person Learning
Environmental Impact Assessment: Techniques
102
Environmental Impact Assessment: Techniques
W2
Practical techniques and methods for environmental impact assessment. Technical approaches, evaluation and estimation tools, and project management skills used for environmental assessment work.

In Person Learning
Geophysics
001
Geophysics
W2
Instrumentation, application, and limitations of gravity, magnetic, electromagnetic, electrical and seismic methods in the exploration for mineral energy resources and in environmental and engineering applications. 

In Person Learning
Geophysics
001
Geophysics
W2
Instrumentation, application, and limitations of gravity, magnetic, electromagnetic, electrical and seismic methods in the exploration for mineral energy resources and in environmental and engineering applications. 

In Person Learning
Geophysics
001
Geophysics
W2
Instrumentation, application, and limitations of gravity, magnetic, electromagnetic, electrical and seismic methods in the exploration for mineral energy resources and in environmental and engineering applications.

In Person Learning
Geophysics
001
Geophysics
W2
Instrumentation, application, and limitations of gravity, magnetic, electromagnetic, electrical and seismic methods in the exploration for mineral energy resources and in environmental and engineering applications.

In Person Learning
Geophysics
001
Geophysics
W2
Instrumentation, application, and limitations of gravity, magnetic, electromagnetic, electrical and seismic methods in the exploration for mineral energy resources and in environmental and engineering applications.

In Person Learning
Geophysics
001
Geophysics
W2
Instrumentation, application, and limitations of gravity, magnetic, electromagnetic, electrical and seismic methods in the exploration for mineral energy resources and in environmental and engineering applications.
EESC_O 356-001  EESC_O 001 Stratigraphy and Sedimentology  W2 Origin, classification and interpretation of sediments and sedimentary rocks. Weathering, erosion, transportation, sedimentation, and lithification of clastic materials. Non-clastic sediments. Sedimentary environments, faces and stratigraphic methods. Credit will be granted for only one of EESC 356 or GEOG 356. [3-3-0] Prerequisite: One of EESC 121, EESC 222, GEOG 222. Equivalency: GEOG356 Lecture In Person Learning Mon Wed 2:00 p.m. - 3:30 p.m.

EESC_O 356-010  EESC_O 010 Stratigraphy and Sedimentology  W3 Origin, classification and interpretation of sediments and sedimentary rocks. Weathering, erosion, transportation, sedimentation, and lithification of clastic materials. Non-clastic sediments. Sedimentary environments, faces and stratigraphic methods. Credit will be granted for only one of EESC 356 or GEOG 356. [3-3-0] Prerequisite: One of EESC 121, EESC 222, GEOG 222. Equivalency: GEOG356 Laboratory In Person Learning Fri 2:00 p.m. - 5:00 p.m.

EESC_O 356-011  EESC_O 011 Stratigraphy and Sedimentology  W2 Origin, classification and interpretation of sediments and sedimentary rocks. Weathering, erosion, transportation, sedimentation, and lithification of clastic materials. Non-clastic sediments. Sedimentary environments, faces and stratigraphic methods. Credit will be granted for only one of EESC 356 or GEOG 356. [3-3-0] Prerequisite: One of EESC 121, EESC 222, GEOG 222. Equivalency: GEOG356 Laboratory In Person Learning Mon 3:30 p.m. - 6:30 p.m.

EESC_O 380-101  EESC_O 101 Geologic Resources  W2 Mineral deposits, their geologic settings, genetic classification and models of formation. Metalliferous, non-metalliferous and industrial materials deposits. [3-3-0] Prerequisite: EESC 200 and EESC 201. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

EESC_O 380-102  EESC_O 102 Geologic Resources  W2 Mineral deposits, their geologic settings, genetic classification and models of formation. Metalliferous, non-metalliferous and industrial materials deposits. [3-3-0] Prerequisite: EESC 200 and EESC 201. Laboratory In Person Learning Tue 5:00 p.m. - 8:00 p.m.

EESC_O 367-001  EESC_O 001 Energy Resources Management  W2 Key energy systems and resources management from both global and Canadian perspectives. Supplies, distribution, consumption, resilience and sustainability of energy resources. Alternative energy sources, conventional and unconventional fossil fuels, energy production and delivery systems. Credit will be granted for only one of EESC 367 or GEOG 367. [3-0-0] Prerequisite: One of GEOG 108, GEOG 129, EESC 101, EESC 111. Third-year standing Equivalency: GEOG367 Lecture In Person Learning Wed Fri 12:30 p.m. - 2:00 p.m.

EESC_O 402-101  EESC_O 101 Freshwater Resources  W2 Integrated approach to freshwater resources and their place in environmental science. Topical issues with emphasis on management options and consequences. Required field trips during lab times. [3-3-0] Prerequisite: 3 credits of 200-level courses in BIO, CHEM, EESC or GEOG courses cross listed with EESC, and third-year standing. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

EESC_O 402-102  EESC_O 102 Freshwater Resources  W2 Integrated approach to freshwater resources and their place in environmental science. Topical issues with emphasis on management options and consequences. Required field trips during lab times. [3-3-0] Prerequisite: 3 credits of 200-level courses in BIO, CHEM, EESC or GEOG courses cross listed with EESC, and third-year standing. Lecture In Person Learning Lun Tur 8:00 a.m. - 11:00 a.m.

EESC_O 425-101  EESC_O 101 Tectonics and Orogenesis  W2 Large-scale Earth structure, tectonic environments, Archan geology and the initiation of pla te tectonics. Analytical toolsets. Orogenesis within the Canadian Cordillera, the Andes, the Alps, and the Himalaya. [3-0-0] Prerequisite: EESC 123 and EESC 325. Lecture In Person Learning Mon Wed 8:00 a.m. - 9:30 a.m.

ENGL_O 112-011  ENGL_O 011 Studies in Composition  W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture Online Learning Arranged Arranged

ENGL_O 112-012  ENGL_O 012 Studies in Composition  W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture Online Learning Arranged Arranged

ENGL_O 112-013  ENGL_O 013 Studies in Composition  W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture Online Learning Arranged Arranged

ENGL_O 112-014  ENGL_O 014 Studies in Composition  W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture In Person Learning Wed Fri 9:30 a.m. - 11:00 a.m.

ENGL_O 112-015  ENGL_O 015 Studies in Composition  W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture In Person Learning Thu Tu 12:30 p.m. - 2:00 p.m.

ENGL_O 112-016  ENGL_O 016 Studies in Composition  W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture In Person Learning Thu Tu 9:30 a.m. - 11:00 a.m.

ENGL_O 112-017  ENGL_O 017 Studies in Composition  W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture In Person Learning Thu Tu 5:00 p.m. - 6:30 p.m.

ENGL_O 112-018  ENGL_O 018 Studies in Composition  W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.

ENGL_O 112-019  ENGL_O 019 Studies in Composition  W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture In Person Learning Wed Fri 12:30 p.m. - 2:00 p.m.

ENGL_O 112-020  ENGL_O 020 Studies in Composition  W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture In Person Learning Thu Tu 3:30 p.m. - 5:00 p.m.

ENGL_O 112-021  ENGL_O 021 Studies in Composition  W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture In Person Learning Thu Tu 12:30 p.m. - 2:00 p.m.
ENGL 112-112 ENGL_O 112 Studies in Composition W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

ENGL 112-113 ENGL_O 113 Studies in Composition W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture In Person Learning Wed Fri 8:00 a.m. - 9:30 a.m.

ENGL 112-114 ENGL_O 114 Studies in Composition W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

ENGL 112-115 ENGL_O 115 Studies in Composition W2 Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.

ENGL 114-101 ENGL_O 101 Studies in Composition: Indigenous Perspectives W2 Practice-based approach to writing at the university level in relation to Indigenous perspectives. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 114, ENGL 109, or ENGL 112. Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

ENGL 150-101 ENGL_O 101 Introduction to Literary Genre W2 Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research. Lecture In Person Learning Mon Wed Fri 1:00 p.m. - 2:00 p.m.

ENGL 150-102 ENGL_O 102 Introduction to Literary Genre W2 Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research. Lecture In Person Learning Mon Wed Fri 2:00 p.m. - 3:00 p.m.

ENGL 150-103 ENGL_O 103 Introduction to Literary Genre W2 Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research. Lecture In Person Learning Tue Thu 8:00 a.m. - 9:30 a.m.

ENGL 150-104 ENGL_O 104 Introduction to Literary Genre W2 Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research. Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.

ENGL 150-105 ENGL_O 105 Introduction to Literary Genre W2 Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research. Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.

ENGL 150-106 ENGL_O 106 Introduction to Literary Genre W2 Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research. Lecture In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.

ENGL 150-107 ENGL_O 107 Introduction to Literary Genre W2 Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

ENGL 150-108 ENGL_O 108 Introduction to Literary Genre W2 Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research. Lecture In Person Learning Mon Wed 2:00 p.m. - 3:30 p.m.

ENGL 153-101 ENGL_O 101 Readings in Narrative W2 Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Lecture In Person Learning Fri 12:00 p.m. - 2:00 p.m.

ENGL 153-721 ENGL_O 721 Readings in Narrative W2 Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Discussion In Person Learning Thu 12:00 p.m. - 1:00 p.m.

ENGL 153-722 ENGL_O 722 Readings in Narrative W2 Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Discussion In Person Learning Mon 10:00 a.m. - 11:00 a.m.

ENGL 153-723 ENGL_O 723 Readings in Narrative W2 Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Discussion In Person Learning Thu 5:00 p.m. - 6:00 p.m.

ENGL 153-724 ENGL_O 724 Readings in Narrative W2 Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Discussion In Person Learning Tue 10:00 a.m. - 11:00 a.m.

ENGL 153-725 ENGL_O 725 Readings in Narrative W2 Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Discussion In Person Learning Thu 10:00 a.m. - 11:00 a.m.

ENGL 153-726 ENGL_O 726 Readings in Narrative W2 Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Discussion In Person Learning Tue 1:00 p.m. - 2:00 p.m.

ENGL 153-728 ENGL_O 728 Readings in Narrative W2 Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Discussion In Person Learning Tue 8:00 a.m. - 9:00 a.m.

ENGL 153-730 ENGL_O 730 Readings in Narrative W2 Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Discussion In Person Learning Wed 10:00 a.m. - 11:00 a.m.

ENGL 153-731 ENGL_O 731 Readings in Narrative W2 Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Discussion In Person Learning Mon 8:00 a.m. - 9:00 a.m.

ENGL 153-733 ENGL_O 733 Readings in Narrative W2 Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Discussion In Person Learning Thu 11:00 a.m. - 12:00 p.m.

ENGL 153-734 ENGL_O 734 Readings in Narrative W2 Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Discussion In Person Learning Wed 2:00 p.m. - 3:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 153-T3B</td>
<td>ENGL O T3B Readings in Narrative W2 Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Discussion</td>
</tr>
<tr>
<td>ENGL 155-101</td>
<td>ENGL O 101 Writing and Making Technology in the Humanities W2 Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Lecture</td>
</tr>
<tr>
<td>ENGL 155-T2B</td>
<td>ENGL O T2B Writing and Making Technology in the Humanities W2 Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Discussion</td>
</tr>
<tr>
<td>ENGL 155-T2C</td>
<td>ENGL O T2C Writing and Making Technology in the Humanities W2 Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Discussion</td>
</tr>
<tr>
<td>ENGL 155-T2D</td>
<td>ENGL O T2D Writing and Making Technology in the Humanities W2 Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Discussion</td>
</tr>
<tr>
<td>ENGL 155-T2E</td>
<td>ENGL O T2E Writing and Making Technology in the Humanities W2 Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Discussion</td>
</tr>
<tr>
<td>ENGL 155-T2F</td>
<td>ENGL O T2F Writing and Making Technology in the Humanities W2 Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Discussion</td>
</tr>
<tr>
<td>ENGL 155-T2G</td>
<td>ENGL O T2G Writing and Making Technology in the Humanities W2 Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Discussion</td>
</tr>
<tr>
<td>ENGL 155-T2H</td>
<td>ENGL O T2H Writing and Making Technology in the Humanities W2 Indigenous perspectives as demonstrated through oral story; Okanagan theory and philosophy through oral story; a systems-based Indigenous Peoples story approach to connection to land, ecology and society. Credit will be granted for only one of ENGL 202 or INDG 202. Prerequisite: One of INDG 100, INDG 102. Equivalency: INDG202 Lecture Online Learning</td>
</tr>
<tr>
<td>ENGL 202-101</td>
<td>ENGL O 101 Okanagan Syllis Literatures: Concepts and Frame W2 Examination of published research on a special topic with emphasis on rhetorical features and social contexts. Students will produce a final project that demonstrates their ability to reason, develop ideas, organize, write in an effective style, incorporate research, and revise their work. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Discussion</td>
</tr>
<tr>
<td>ENGL 203-A_101</td>
<td>ENGL O A A_101 Topics in Composition W2 Examination of published research on a special topic with emphasis on rhetorical features and social contexts. Students will produce a final project that demonstrates their ability to reason, develop ideas, organize, write in an effective style, incorporate research, and revise their work. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Lecture</td>
</tr>
<tr>
<td>ENGL 203-A_102</td>
<td>ENGL O A A_102 Topics in Composition W2 Examination of published research on a special topic with emphasis on rhetorical features and social contexts. Students will produce a final project that demonstrates their ability to reason, develop ideas, organize, write in an effective style, incorporate research, and revise their work. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Lecture</td>
</tr>
<tr>
<td>ENGL 203-A_103</td>
<td>ENGL O A A_103 Topics in Composition W2 Examination of published research on a special topic with emphasis on rhetorical features and social contexts. Students will produce a final project that demonstrates their ability to reason, develop ideas, organize, write in an effective style, incorporate research, and revise their work. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Lecture</td>
</tr>
<tr>
<td>ENGL 212-101</td>
<td>ENGL O 101 Children's Literature W2 Historical survey of literature written for and about children, in genres such as poems, short stories, fairy tales, novels, and treatises, covering a full range of modes from didactic to realistic to fantasy. At least 35% of class time involves practice-based instruction in critical analysis, essay writing and research. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Lecture</td>
</tr>
<tr>
<td>ENGL 215-101</td>
<td>ENGL O 101 Reading Screens W2 Film and other screen-based media as narrative, with a focus on both formal and ideological elements. Credit will be granted for only one of ENGL 215 or CULT 210. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Equivalency: CULT210 Lecture</td>
</tr>
<tr>
<td>ENGL 221-101</td>
<td>ENGL O 101 Foundations: Literature in Historical Context 2 W2 Poetry, drama, fiction, and non-fiction prose from the eighteenth century to the present, with attention to the importance of history and changes in form for literary analysis. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Lecture</td>
</tr>
<tr>
<td>ENGL 221-102</td>
<td>ENGL O 102 Foundations: Literature in Historical Context 2 W2 Poetry, drama, fiction, and non-fiction prose from the eighteenth century to the present, with attention to the importance of history and changes in form for literary analysis. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Lecture</td>
</tr>
</tbody>
</table>
ENGL O 291-101  ENGL O 101  The Bible in English Literature  W2  Biblical themes, figures, and images in English literature, with attention to English versions of the Bible. At least 35% of class time involves practice-based instruction in critical analysis, essay writing and research. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

ENGL O 250-101  ENGL O 101  Foundations: Interdisciplinary Theory and Methods  W2  Major trends in critical theory, with attention to the applications of theory in literary research. Credit will be granted for only one of ENGL 250 or CULT 275. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Equivalency: CULT 275

ENGL O 291-101  ENGL O 101  African Literary Canon  W2  Significant texts and authors in modern African literature (in English) covering various regions, histories and cultures of the continent. At least 35% of class time involves practice-based instruction in critical analysis, essay writing and research. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

ENGL O 335-E_101  ENGL O E  E_101  Canadian Fiction  W2  One or more major themes and/or movements in Canadian fiction. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Lecture In Person Learning Wed Fri 3:30 p.m. - 5:00 p.m.

ENGL O 337-101  ENGL O 101  American Literature between the Wars  W2  Major movements and writers. Prerequisite: One of ENGL 109, ENGL 112, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Recommended: One of ENGL 231 or ENGL 233. Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

ENGL O 344-B_101  ENGL O B  B_101  Topics in Medieval Studies  W2  Examines Shakespeare's works before 1599. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 115, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

ENGL O 352-001  ENGL O 001  Shakespeare: Earlier Works  W2  Examines Shakespeare's works before 1599. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 115, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Lecture In Person Learning Wed Fri 12:30 p.m. - 2:00 p.m.

ENGL O 357-101  ENGL O 101  Restoration Drama and Culture  W2  Examines the religious, social, and political crises of the Restoration period, 1660-1700, and innovations in dramatic form and style on the page and stage. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Recommended: ENGL 234. Equivalency: CULT 351 Lecture In Person Learning Tue 5:00 p.m. - 8:00 p.m.

ENGL O 385-001  ENGL O 001  Settler Studies, Literature, and Culture  W2  Approaches to the interdisciplinary field of settler colonial studies in Canadian and comparative contexts in relation to literature, film, and other forms of cultural production. Examines the role of representation, narrative, and discourse in settlement, colonization, and decolonization. Credit will be granted for only one of ENGL 385 or CULT 351. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

ENGL O 394-J_101  ENGL O J  J_101  Interdisciplinary Studies in English Literature  W2  Addresses a range of topics in medieval texts, from genres in medieval literature (such as lyric poetry, romance, and fabliaux) to topics dealing with cultural issues. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

ENGL O 395-H_101  ENGL O H  H_101  Popular Literature  W2  Addresses English literature through interdisciplinary perspectives and practices, ranging from performance, to visual arts, to creative writing and comparative literature. This course may involve cross-disciplinary pedagogies, experiential learning, community-based learning and/or undergraduate research opportunities. With different topics, this course may be taken three times for credit. ENGL 394 and ENGL 395 must have different topics in order for students to receive credit for both courses. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

ENGL O 423-A_101  ENGL O A  A_101  Approaches to 16th- and/or 17th-Century Literature  W2  Addresses topics in sixteenth- and/or seventeenth-century literature and culture. Prerequisite: 3 credits of 300-level ENGL. Equivalency: CULT460 Seminar In Person Learning Mon 11:00 a.m. - 2:00 p.m.

ENGL O 457-101  ENGL O 101  Posthumanism and Critical Animal Studies  W2  Contemporary theories in the field of critical animal studies via ecofeminism, literary studies, philosophy and history with the aim of considering the interconnectedness of speciesism, racism and sexism. Particular attention will be paid to ecofeminism and the ethics of care in regards to the treatment of animals. Credit will be granted for only one of ENGL 457 or CULT 460. Prerequisite: 3 credits of 300-level ENGL. Equivalency: CULT460 Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

ENGL O 481-101  ENGL O 101  Black Intellectual Traditions  W2  Intellectual influences on, and responses to, Black experiences in our modern world. Credit will be granted for only one of ENGL 491 or CULT 491. Prerequisite: Third-year standing. Equivalency: CULT 491 Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

ENGL O 483-G_101  ENGL O G  G_101  Topics in Popular Culture  W2  Focus on media such as music, film, music video, television, advertising, and the Internet. No more than 9 credits in total will be granted for ENGL 493, CULT 406, or any combination thereof: Prerequisite: 3 credits of 300-level ENGL. Equivalency: CULT400 Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

ENGL O 483-M_101  ENGL O M  M_101  Topics in Popular Culture  W2  Focus on media such as music, film, music video, television, advertising, and the Internet. No more than 9 credits in total will be granted for ENGL 493, CULT 406, or any combination thereof: Prerequisite: 3 credits of 300-level ENGL. Equivalency: CULT400 Lecture In Person Learning Fri 8:00 a.m. - 11:00 a.m.

ENGL O 485-N_101  ENGL O N  N_101  Topics in Popular Culture  W2  Focus on media such as music, film, music video, television, advertising, and the Internet. No more than 9 credits in total will be granted for ENGL 493, CULT 406, or any combination thereof: Prerequisite: 3 credits of 300-level ENGL. Equivalency: CULT400 Lecture In Person Learning Wed 11:00 a.m. - 2:00 p.m.

ENGL O 521-V_101  ENGL O V  V_101  Topics in Historical Periods and Movements  W2  Independent Study In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

ENGL O 524-G_101  ENGL O G  G_101  Individual Author Studies  W2  In Person Learning Mon 11:00 a.m. - 2:00 p.m.

ENGR O 305-201  ENGR O 201  Engineering Economic Analysis  W2  Cost concepts, accounting, time value of money; depreciation and taxes; public sector projects; economic evaluation techniques; handling uncertainty; sustainability in economic evaluation; societal context; infrastructure management needs; project impacts, mitigating risk. Case studies. Prerequisite: Second-year B.A.Sc. standing. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.
Prerequisite: APSC 255.


electromagnetic devices, synchronous machines, induction motors, and brushless DC motors. [3-2*-1]

Three-Phase AC power systems. DC and AC magnetic circuits, transformers, DC machines, principles of electromagnetic devices, synchronous machines, induction motors, and brushless DC motors. [3-2*-1] Prerequisite: APSC 246.

Dynamic systems, linear systems, control concepts, block diagrams, transient response, root locus, frequency response, Bode and Nyquist plots, and controller design. [3-2*-1] Prerequisite: APSC 246.

Dynamic systems, linear systems, control concepts, block diagrams, transient response, root locus, frequency response, Bode and Nyquist plots, and controller design. [3-2*-1] Prerequisite: APSC 246.

Dynamic systems, linear systems, control concepts, block diagrams, transient response, root locus, frequency response, Bode and Nyquist plots, and controller design. [3-2*-1] Prerequisite: APSC 246.

Dynamic systems, linear systems, control concepts, block diagrams, transient response, root locus, frequency response, Bode and Nyquist plots, and controller design. [3-2*-1] Prerequisite: APSC 246.

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Three-Phase AC power systems. DC and AC magnetic circuits, transformers, DC machines, principles of electromagnetic devices, synchronous machines, induction motors, and brushless DC motors. [3-2*-1] Prerequisite: APSC 255.

Three-Phase AC power systems. DC and AC magnetic circuits, transformers, DC machines, principles of electromagnetic devices, synchronous machines, induction motors, and brushless DC motors. [3-2*-1] Prerequisite: APSC 255.

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<table>
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<tr>
<th>Course Code</th>
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<th>Credits</th>
<th>Description</th>
<th>Instructor</th>
<th>Type</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR_O 330-L2E</td>
<td>Electromechanical Devices</td>
<td>2</td>
<td>Three-Phase AC power systems. DC and AC magnetic circuits, transformers, DC machines, principles of electromagnetic devices, synchronous machines, induction motors, and brushless DC motors. [3-2*-1] Prerequisite: APSC 255.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Fri (Alternate weeks) 2:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>ENGR_O 330-L2F</td>
<td>Electromechanical Devices</td>
<td>2</td>
<td>Three-Phase AC power systems. DC and AC magnetic circuits, transformers, DC machines, principles of electromagnetic devices, synchronous machines, induction motors, and brushless DC motors. [3-2*-1] Prerequisite: APSC 255.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Fri (Alternate weeks) 2:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>ENGR_O 330-L2G</td>
<td>Electromechanical Devices</td>
<td>2</td>
<td>Three-Phase AC power systems. DC and AC magnetic circuits, transformers, DC machines, principles of electromagnetic devices, synchronous machines, induction motors, and brushless DC motors. [3-2*-1] Prerequisite: APSC 255.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Wed (Alternate weeks) 8:00 a.m. - 10:00 a.m.</td>
</tr>
<tr>
<td>ENGR_O 330-L2H</td>
<td>Electromechanical Devices</td>
<td>2</td>
<td>Three-Phase AC power systems. DC and AC magnetic circuits, transformers, DC machines, principles of electromagnetic devices, synchronous machines, induction motors, and brushless DC motors. [3-2*-1] Prerequisite: APSC 255.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Wed (Alternate weeks) 8:00 a.m. - 10:00 a.m.</td>
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</tbody>
</table>

**Course Notes:**
- The course description includes topics such as theory and application methods for measuring and representing objects of interest on, below, and over the earth's surface, and for analyzing data to meet engineering design and operational objectives driven by socio-economic or environmental concerns of natural and engineered systems. Corequisite: APSC 255.
- Prerequisite: APSC 254.
**ENGR_O 340-101** ENGR_O 101 Soil Mechanics W2 Geological processes, soil classification, principle of effective stress, seepage analysis, shear strength, soil compaction, consolidation, and slope stability analysis. [3-2*-0] Prerequisite: All of APSC 253, APSC 260. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

**ENGR_O 340-11A** ENGR_O 11A Soil Mechanics W2 Geological processes, soil classification, principle of effective stress, seepage analysis, shear strength, soil compaction, consolidation, and slope stability analysis. [3-2*-0] Prerequisite: All of APSC 253, APSC 260. Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.

**ENGR_O 340-11B** ENGR_O 11B Soil Mechanics W2 Geological processes, soil classification, principle of effective stress, seepage analysis, shear strength, soil compaction, consolidation, and slope stability analysis. [3-2*-0] Prerequisite: All of APSC 253, APSC 260. Laboratory In Person Learning Mon (Alternate weeks) 10:00 a.m. - 12:00 p.m.

**ENGR_O 340-11C** ENGR_O 11C Soil Mechanics W2 Geological processes, soil classification, principle of effective stress, seepage analysis, shear strength, soil compaction, consolidation, and slope stability analysis. [3-2*-0] Prerequisite: All of APSC 253, APSC 260. Laboratory In Person Learning Wed (Alternate weeks) 12:00 p.m. - 2:00 p.m.

**ENGR_O 340-11D** ENGR_O 11D Soil Mechanics W2 Geological processes, soil classification, principle of effective stress, seepage analysis, shear strength, soil compaction, consolidation, and slope stability analysis. [3-2*-0] Prerequisite: All of APSC 253, APSC 260. Laboratory In Person Learning Mon (Alternate weeks) 2:00 p.m. - 4:00 p.m.

**ENGR_O 340-11E** ENGR_O 11E Soil Mechanics W2 Geological processes, soil classification, principle of effective stress, seepage analysis, shear strength, soil compaction, consolidation, and slope stability analysis. [3-2*-0] Prerequisite: All of APSC 253, APSC 260. Laboratory In Person Learning Wed (Alternate weeks) 3:00 p.m. - 5:00 p.m.

**ENGR_O 340-11F** ENGR_O 11F Soil Mechanics W2 Geological processes, soil classification, principle of effective stress, seepage analysis, shear strength, soil compaction, consolidation, and slope stability analysis. [3-2*-0] Prerequisite: All of APSC 253, APSC 260. Laboratory In Person Learning Wed (Alternate weeks) 8:00 a.m. - 10:00 a.m.

**ENGR_O 340-11G** ENGR_O 11G Soil Mechanics W2 Geological processes, soil classification, principle of effective stress, seepage analysis, shear strength, soil compaction, consolidation, and slope stability analysis. [3-2*-0] Prerequisite: All of APSC 253, APSC 260. Laboratory In Person Learning Fri (Alternate weeks) 2:00 p.m. - 4:00 p.m.

**ENGR_O 352-001** ENGR_O 001 Microelectronics II W2 Building blocks of integrated-circuit amplifiers; differential multistage amplifiers; frequency response; feedback; output stages and power amplifiers; and operational amplifier circuitry. Credit will be granted for only one of ENGR 352 or ENGR 451. [3-2*-0] Prerequisite: ENGR 351. Lecture In Person Learning Tue Thu 5:00 p.m. - 6:30 p.m.

**ENGR_O 352-02A** ENGR_O 02A Microelectronics II W2 Building blocks of integrated-circuit amplifiers; differential multistage amplifiers; frequency response; feedback; output stages and power amplifiers; and operational amplifier circuitry. Credit will be granted for only one of ENGR 352 or ENGR 451. [3-2*-0] Prerequisite: ENGR 351. Laboratory In Person Learning Mon (Alternate weeks) 4:00 p.m. - 6:00 p.m.

**ENGR_O 352-02B** ENGR_O 02B Microelectronics II W2 Building blocks of integrated-circuit amplifiers; differential multistage amplifiers; frequency response; feedback; output stages and power amplifiers; and operational amplifier circuitry. Credit will be granted for only one of ENGR 352 or ENGR 451. [3-2*-0] Prerequisite: ENGR 351. Laboratory In Person Learning Mon (Alternate weeks) 4:00 p.m. - 6:00 p.m.

**ENGR_O 352-02C** ENGR_O 02C Microelectronics II W2 Building blocks of integrated-circuit amplifiers; differential multistage amplifiers; frequency response; feedback; output stages and power amplifiers; and operational amplifier circuitry. Credit will be granted for only one of ENGR 352 or ENGR 451. [3-2*-0] Prerequisite: ENGR 351. Laboratory In Person Learning Fri (Alternate weeks) 4:00 p.m. - 6:00 p.m.

**ENGR_O 352-02D** ENGR_O 02D Microelectronics II W2 Building blocks of integrated-circuit amplifiers; differential multistage amplifiers; frequency response; feedback; output stages and power amplifiers; and operational amplifier circuitry. Credit will be granted for only one of ENGR 352 or ENGR 451. [3-2*-0] Prerequisite: ENGR 351. Laboratory In Person Learning Fri (Alternate weeks) 4:00 p.m. - 6:00 p.m.

**ENGR_O 352-02E** ENGR_O 02E Microelectronics II W2 Building blocks of integrated-circuit amplifiers; differential multistage amplifiers; frequency response; feedback; output stages and power amplifiers; and operational amplifier circuitry. Credit will be granted for only one of ENGR 352 or ENGR 451. [3-2*-0] Prerequisite: ENGR 351. Laboratory In Person Learning Wed (Alternate weeks) 2:00 p.m. - 4:00 p.m.

**ENGR_O 362-102** ENGR_O 102 Digital Signal Processing I W2 Discrete-time signals and systems, difference equations, sampling and aliasing, decimation and interpolation, quantization errors, z-transform, discrete Fourier transform, fast Fourier transform, implementation of discrete-time systems, finite and infinite impulse response filter design. [3-0-1] Prerequisite: APSC 246. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

**ENGR_O 362-12A** ENGR_O 12A Digital Signal Processing I W2 Discrete-time signals and systems, difference equations, sampling and aliasing, decimation and interpolation, quantization errors, z-transform, discrete Fourier transform, fast Fourier transform, implementation of discrete-time systems, finite and infinite impulse response filter design. [3-0-1] Prerequisite: APSC 246. Discussion In Person Learning Fri 11:00 a.m. - 12:00 p.m.

**ENGR_O 362-12B** ENGR_O 12B Digital Signal Processing I W2 Discrete-time signals and systems, difference equations, sampling and aliasing, decimation and interpolation, quantization errors, z-transform, discrete Fourier transform, fast Fourier transform, implementation of discrete-time systems, finite and infinite impulse response filter design. [3-0-1] Prerequisite: APSC 246. Discussion In Person Learning Mon 11:00 a.m. - 12:00 p.m.

**ENGR_O 362-12C** ENGR_O 12C Digital Signal Processing I W2 Discrete-time signals and systems, difference equations, sampling and aliasing, decimation and interpolation, quantization errors, z-transform, discrete Fourier transform, fast Fourier transform, implementation of discrete-time systems, finite and infinite impulse response filter design. [3-0-1] Prerequisite: APSC 246. Discussion In Person Learning Thu 2:00 p.m. - 3:00 p.m.

**ENGR_O 362-12D** ENGR_O 12D Digital Signal Processing I W2 Discrete-time signals and systems, difference equations, sampling and aliasing, decimation and interpolation, quantization errors, z-transform, discrete Fourier transform, fast Fourier transform, implementation of discrete-time systems, finite and infinite impulse response filter design. [3-0-1] Prerequisite: APSC 246. Discussion In Person Learning Thu 11:00 a.m. - 12:00 p.m.
Primary energy sources and carriers. Energy conversion. Analysis of thermal systems. Reacting systems and combustion. Thermal systems design including steam power plants, gas turbines, internal combustion engines, and refrigeration systems. [3-0-1] Prerequisite: All of APSC 252, APSC 253.

Primary energy sources and carriers. Energy conversion. Analysis of thermal systems. Reacting systems and combustion. Thermal systems design including steam power plants, gas turbines, internal combustion engines, and refrigeration systems. [3-0-1] Prerequisite: All of APSC 252, APSC 253.

Primary energy sources and carriers. Energy conversion. Analysis of thermal systems. Reacting systems and combustion. Thermal systems design including steam power plants, gas turbines, internal combustion engines, and refrigeration systems. [3-0-1] Prerequisite: All of APSC 252, APSC 253.

Primary energy sources and carriers. Energy conversion. Analysis of thermal systems. Reacting systems and combustion. Thermal systems design including steam power plants, gas turbines, internal combustion engines, and refrigeration systems. [3-0-1] Prerequisite: All of APSC 252, APSC 253.

Primary energy sources and carriers. Energy conversion. Analysis of thermal systems. Reacting systems and combustion. Thermal systems design including steam power plants, gas turbines, internal combustion engines, and refrigeration systems. [3-0-1] Prerequisite: All of APSC 252, APSC 253.

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Primary energy sources and carriers. Energy conversion. Analysis of thermal systems. Reacting systems and combustion. Thermal systems design including steam power plants, gas turbines, internal combustion engines, and refrigeration systems. [3-0-1] Prerequisite: All of APSC 252, APSC 253.

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Primary energy sources and carriers. Energy conversion. Analysis of thermal systems. Reacting systems and combustion. Thermal systems design including steam power plants, gas turbines, internal combustion engines, and refrigeration systems. [3-0-1] Prerequisite: All of APSC 252, APSC 253.

Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. \[3-2*-1\] Prerequisite: All of APSC 248, APSC 252.

Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. \[3-2*-1\] Prerequisite: All of APSC 248, APSC 252.

Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. \[3-2*-1\] Prerequisite: All of APSC 248, APSC 252.

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Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. \[3-2*-1\] Prerequisite: All of APSC 248, APSC 252.

Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. \[3-2*-1\] Prerequisite: All of APSC 248, APSC 252.

Maxwell's equations, time harmonic fields, plane waves in media, polarization, Fresnel equations, transmission lines, scattering parameters, the Smith Chart, and waveguides. \[3-0-1\] Prerequisite: APSC 278.

Maxwell's equations, time harmonic fields, plane waves in media, polarization, Fresnel equations, transmission lines, scattering parameters, the Smith Chart, and waveguides. \[3-0-1\] Prerequisite: APSC 278.

Maxwell's equations, time harmonic fields, plane waves in media, polarization, Fresnel equations, transmission lines, scattering parameters, the Smith Chart, and waveguides. \[3-0-1\] Prerequisite: APSC 278.

Maxwell's equations, time harmonic fields, plane waves in media, polarization, Fresnel equations, transmission lines, scattering parameters, the Smith Chart, and waveguides. \[3-0-1\] Prerequisite: APSC 278.
ENGR_O 385-L2H | ENGR_O 12H | Heat Transfer Applications | W2 | Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. [3-2*-1] Prerequisite: All of APSC 248, APSC 252. | Laboratory | In Person Learning | Fri (Alternate weeks) | 10:00 a.m. - 12:00 p.m. | ENGR_O 385-L2I | ENGR_O 12I | Heat Transfer Applications | W2 | Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. [3-2*-1] Prerequisite: All of APSC 248, APSC 252. | Laboratory | In Person Learning | Fri (Alternate weeks) | 8:00 a.m. - 10:00 a.m. | ENGR_O 385-L2J | ENGR_O 12J | Heat Transfer Applications | W2 | Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. [3-2*-1] Prerequisite: All of APSC 248, APSC 252. | Laboratory | In Person Learning | Fri (Alternate weeks) | 8:00 a.m. - 10:00 a.m. | ENGR_O 385-L2K | ENGR_O 12K | Heat Transfer Applications | W2 | Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. [3-2*-1] Prerequisite: All of APSC 248, APSC 252. | Laboratory | In Person Learning | Mon (Alternate weeks) | 12:00 p.m. - 2:00 p.m. | ENGR_O 385-L2L | ENGR_O 12L | Heat Transfer Applications | W2 | Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. [3-2*-1] Prerequisite: All of APSC 248, APSC 252. | Laboratory | In Person Learning | Mon (Alternate weeks) | 12:00 p.m. - 2:00 p.m. | ENGR_O 385-T2A | ENGR_O 24A | Heat Transfer Applications | W2 | Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. [3-2*-1] Prerequisite: All of APSC 248, APSC 252. | Discussion | In Person Learning | Thu | 1:00 p.m. - 2:00 p.m. | ENGR_O 385-T2B | ENGR_O 24B | Heat Transfer Applications | W2 | Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. [3-2*-1] Prerequisite: All of APSC 248, APSC 252. | Discussion | In Person Learning | Wed | 11:00 a.m. - 12:00 p.m. | ENGR_O 385-T2C | ENGR_O 24C | Heat Transfer Applications | W2 | Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. [3-2*-1] Prerequisite: All of APSC 248, APSC 252. | Discussion | In Person Learning | Mon | 1:00 p.m. - 2:00 p.m. | ENGR_O 385-T2D | ENGR_O 24D | Heat Transfer Applications | W2 | Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. [3-2*-1] Prerequisite: All of APSC 248, APSC 252. | Discussion | In Person Learning | Tue | 12:00 p.m. - 1:00 p.m. | ENGR_O 385-T2E | ENGR_O 24E | Heat Transfer Applications | W2 | Steady and transient conduction heat transfer, radiation heat transfer, convection heat transfer, introduction to heat exchanger. [3-2*-1] Prerequisite: All of APSC 248, APSC 252. | Discussion | In Person Learning | Fri | 10:00 a.m. - 11:00 a.m. | ENGR_O 411-101 | ENGR_O 101 | Technology Entrepreneurship for Engineers | W2 | Engineering and innovation, business models, customer development, intellectual property, product development, customer validation, hypothesis testing, company positioning. Credit will be granted for only one of ENGR 411 or ENGR 511. [3-0-0] Prerequisite: Fourth-year B.A.Sc., B.A. COSC or B.Sc. COSC standing. | Lecture | In Person Learning | Thu | 2:00 p.m. - 3:30 p.m. | ENGR_O 413-201 | ENGR_O 201 | Law and Ethics for Engineers | W2 | Ethical theories and their application. The Canadian legal system. Companies, partnerships, independent contractors. Contract documents, specifications, liability, torts and liens. Intellectual property. Agency; evidence; role of an expert witness. Employment law. Professional Governance Act, Code of Ethics, consultation and engagement with Indigenous communities. [3-0-0] Prerequisite: Third-year B.A.Sc. standing. | Lecture | In Person Learning | Wed Fri | 3:30 p.m. - 5:00 p.m. | ENGR_O 424-001 | ENGR_O 001 | Smart Cities | W2 | Smart city concept, smart city standardization, smart grid and energy management, Internet of Things and cloud computing for smart city, smart city lighting, intelligent transportation, technology-enhanced infrastructure, water solutions, smart buildings and technology, data analytics in smart cities. [3-0-0] | Prerequisite: Fourth-year B.A.Sc. standing. | Lecture | In Person Learning | Mon Wed | 8:00 a.m. - 9:30 a.m. | ENGR_O 425-001 | ENGR_O 001 | Design of Steel and Timber Structures | W2 | Introduction to limit states design of steel and timber structures: material properties, design of tension and compression members, beams, columns, and connections. [3-0-0] Prerequisite: All of ENGR 325, ENGR 327. | Lecture | In Person Learning | Tue Th u | 11:00 a.m. - 12:30 p.m. | ENGR_O 429-101 | ENGR_O 101 | Rehabilitation of Concrete Structures | W2 | Management of the firm: strategic planning, designing, construction, productivity management, and project closure. Project delivery systems: traditional, construction management, and turnkey. Estimating, bidding, and bonding. Project control tools and procedures. Safety and quality control. Project management. Credit will be granted for only one of ENGR 429 or ENGR 529. [3-0-0] Prerequisite: All of ENGR 325, ENGR 327. | Lecture | In Person Learning | Wed Fri | 9:30 a.m. - 11:00 a.m. | ENGR_O 441-103 | ENGR_O 101 | Construction Engineering and Management | W2 | Theory and design of advanced drinking water treatment processes used for challenging source water conditions including advanced oxidation, membrane filtration, ultraviolet disinfection, and adsorption processes. Discussion of removal of emerging contaminants (e.g. pharmaceuticals), regulated and unregulated disinfection by-products, and current issues in potable water treatment and quality. [3-0-0] Prerequisite: ENGR 447. | Lecture | In Person Learning | Tue Thu | 2:00 p.m. - 3:30 p.m. | ENGR_O 444-101 | ENGR_O 101 | Advanced Water Treatment Processes | W2 | Identification and evaluation of design solutions for providing a community with adequate water supply, collecting and disposing of stormwater and sewage, and managing excess stormwater flow. [3-0-0] | Prerequisite: ENGR 434. | Lecture | In Person Learning | Wed Fri | 2:00 p.m. - 3:30 p.m. | ENGR_O 445-201 | ENGR_O 201 | Design of Water and Wastewater Conveyance Systems I | W2 | Sensing, actuation, sampling, analog-to-digital and digital-to-analog conversion, voice over IP, video codecs, audio codecs, multimedia communication protocols for IoT, wireless communication protocols for IoT. [3-2*-0] | Prerequisite: APSC 245. | Lecture | In Person Learning | Wed Fri | 11:00 a.m. - 12:30 p.m. | ENGR_O 453-101 | ENGR_O 101 | Internet of Things | W2 | Sensing, actuation, sampling, analog-to-digital and digital-to-analog conversion, voice over IP, video codecs, audio codecs, multimedia communication protocols for IoT, wireless communication protocols for IoT. [3-2*-0] | Prerequisite: APSC 245. | Lecture | In Person Learning | Mon Wed | 12:30 p.m. - 2:00 p.m. | ENGR_O 454-201 | ENGR_O 201 | Internet of Things | W2 | Three-phase AC/DC PWM inverter, converter modulation techniques, abs/β reference frame theory, brushed DC machine drives, induction motor drives, permanent magnet AC machines, brushless dc motors and drive circuits. [3-2*-0] | Prerequisite: ENGR 320. | Lecture | In Person Learning | Fri (Alternate weeks) | 8:00 a.m. - 10:00 a.m. | ENGR_O 455-101 | ENGR_O 101 | Internet of Things | W2 | Three-phase AC/DC PWM inverter, converter modulation techniques, abs/β reference frame theory, brushed DC machine drives, induction motor drives, permanent magnet AC machines, brushless dc motors and drive circuits. [3-2*-0] | Prerequisite: ENGR 320. | Lecture | In Person Learning | Fri (Alternate weeks) | 8:00 a.m. - 10:00 a.m. | ENGR_O 455-102 | ENGR_O 102 | Internet of Things | W2 | Three-phase AC/DC PWM inverter, converter modulation techniques, abs/β reference frame theory, brushed DC machine drives, induction motor drives, permanent magnet AC machines, brushless dc motors and drive circuits. [3-2*-0] | Prerequisite: ENGR 320. | Lecture | In Person Learning | Fri (Alternate weeks) | 8:00 a.m. - 10:00 a.m. | ENGR_O 455-103 | ENGR_O 103 | Internet of Things | W2 | Three-phase AC/DC PWM inverter, converter modulation techniques, abs/β reference frame theory, brushed DC machine drives, induction motor drives, permanent magnet AC machines, brushless dc motors and drive circuits. [3-2*-0] | Prerequisite: ENGR 320. | Lecture | In Person Learning | Fri (Alternate weeks) | 8:00 a.m. - 10:00 a.m. | ENGR_O 460-001 | ENGR_O 001 | Tools and Applications in Environmental and Eng W2 | W2 | Fundamentals of environmental microbiology and DNA sequencing technologies including microbial detection with molecular methods, bioinformatics and computational analysis. [3-0-0] Prerequisite: Either (a) all of APSC 182, APSC 183 or (b) CHEM 113 or (c) CHEM 123. Third-year B.A.Sc. or B.Sc. Standing. | Lecture | In Person Learning | Wed | 12:30 p.m. - 2:00 p.m. |
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<thead>
<tr>
<th>ENGR_O 469-101</th>
<th>ENGR_O</th>
<th>101</th>
<th>Polymer Engineering</th>
<th>W2</th>
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<tbody>
<tr>
<td>Introduction to polymer science and technology, molecular structure of polymers, polymer synthesis, structure-property relationship in polymers, physical properties of polymers, reinforced polymers, polymer composites and nanocomposites, polymer characterization, polymer processing, and forming. [3-0-0] Prerequisite: All of ENGR 352, APSC 259, APSC 260.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
<td>9:30 a.m. - 11:00 a.m.</td>
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<tr>
<th>ENGR_O 470-101</th>
<th>ENGR_O</th>
<th>001</th>
<th>Microwave Engineering</th>
<th>W2</th>
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<tbody>
<tr>
<td>Review of electromagnetic principles, waveguides, transmission lines, impedance matching, Smith charts, network characterization, and microwave engineering applications. [1-2-0] Prerequisite: ENGR 378.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>11:00 a.m. - 12:30 p.m.</td>
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<tr>
<th>ENGR_O 470-L2A</th>
<th>ENGR_O</th>
<th>L2A</th>
<th>Microwave Engineering</th>
<th>W2</th>
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<tr>
<td>Review of electromagnetic principles, waveguides, transmission lines, impedance matching, Smith charts, network characterization, and microwave engineering applications. [1-2-0] Prerequisite: ENGR 378.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Mon (Alternate weeks)</td>
<td>4:00 p.m. - 6:00 p.m.</td>
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<tr>
<th>ENGR_O 474-101</th>
<th>ENGR_O</th>
<th>001</th>
<th>Analog Integrated Circuits</th>
<th>W2</th>
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<tbody>
<tr>
<td>Design and analysis of analog integrated circuits with emphasis on CMOS technology; MOS device physics and models, processing technology and layout, differential amplifiers, current mirrors, noise, feedback, opamp design and compensation, two-stage CMOS opamp design, switched-capacitor filters. [3-0-0] Prerequisite: ENGR 352.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
<td>9:30 a.m. - 11:00 a.m.</td>
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<tr>
<th>ENGR_O 475-201</th>
<th>ENGR_O</th>
<th>201</th>
<th>Materials Selection and Design</th>
<th>W2</th>
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<tr>
<td>Review of materials classifications, ASTM standard for ferrous materials and non-ferrous alloys. Material property charts. Materials selection and material indices. Introduction to various materials processing. Process selection and materials selection with multiple constraints and objectives, cost analysis. [3-0-1*] Prerequisite: ENGR 376.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
<td>2:00 p.m. - 3:30 p.m.</td>
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<tr>
<th>ENGR_O 475-T2A</th>
<th>ENGR_O</th>
<th>T2A</th>
<th>Materials Selection and Design</th>
<th>W2</th>
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<tbody>
<tr>
<td>Description of alternative sources of energy, electric vehicles, thermoelectric energy, generation of electricity by photovoltaic effect, wind power energy, hydropower, geothermal, nuclear power, power plants with fuel cells, aspects of hydrogen as fuel, fuel from biomass, energy storage parameters, integration of alternative sources of energy. [3-0-0] Prerequisite: All of ENGR 375, ENGR 385.</td>
<td>Discussion</td>
<td>In Person Learning</td>
<td>Thu (Alternate weeks)</td>
<td>8:00 a.m. - 9:00 a.m.</td>
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<tr>
<th>ENGR_O 478-101</th>
<th>ENGR_O</th>
<th>001</th>
<th>Alternative Energy Systems</th>
<th>W2</th>
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<tr>
<td>Introduction to the microcirculation; gas exchange in organs, including diffusion, perfusion and ventilation; surface energy in biological systems; principles of hemodynamics including vascular resistance and flow regimes at different levels of organs, tissues and cells; principles of tissue mechanics; introduction to tissue engineering; introduction to medical devices design and development. [3-0-0] Prerequisite: Fourth-year standing.</td>
<td>Lecture</td>
<td>Mon Wed</td>
<td>12:30 p.m. - 2:00 p.m.</td>
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<tr>
<th>ENGR_O 482-101</th>
<th>ENGR_O</th>
<th>001</th>
<th>Biomedical Engineering I</th>
<th>W2</th>
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<tbody>
<tr>
<td>Digital control theory and a brief review of classical control and its relationship to discrete systems. Discrete time systems, sampling, z-transform, pulse transfer function, stability in z-domain, pole-placement control design and state estimation, discrete linear quadratic optimal control, introduction to system identification and Kalman filter. Credit will be granted for only one of ENGR 487 or ENGR 587. [3-0-0] Prerequisite: ENGR 315.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>9:30 a.m. - 11:00 a.m.</td>
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<tr>
<th>ENGR_O 487-101</th>
<th>ENGR_O</th>
<th>001</th>
<th>Digital Control</th>
<th>W2</th>
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<tbody>
<tr>
<td>Computational fluid dynamics theory and methods for the numerical simulation of heat and fluid flow. Governing equations, meshing strategies and mesh requirements, finite difference methods, finite volume methods, solution of algebraic systems of equations, compressible flows, turbulence modelling. [3-0-0] Prerequisite: ENGR 310.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>5:00 p.m. - 6:30 p.m.</td>
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<tr>
<th>ENGR_O 491-101</th>
<th>ENGR_O</th>
<th>101</th>
<th>Computational Fluid Dynamics</th>
<th>W2</th>
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<td>Autonomous navigation: perception, localization and mapping, motion planning, and motion control; and applications to unmanned aerial vehicles (UAVs), automated vehicles and self-driving cars. Credit will be granted for only one of ENGR 494 or ENGR 535. [3-1-0] Prerequisite: ENGR 480.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
<td>11:00 a.m. - 12:30 p.m.</td>
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</tbody>
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<thead>
<tr>
<th>ENGR_O 494-201</th>
<th>ENGR_O</th>
<th>201</th>
<th>Autonomous Vehicle Technology</th>
<th>W2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomous navigation: perception, localization and mapping, motion planning, and motion control; and applications to unmanned aerial vehicles (UAVs), automated vehicles and self-driving cars. Credit will be granted for only one of ENGR 494 or ENGR 535. [3-1-0] Prerequisite: ENGR 480.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>9:30 a.m. - 11:00 a.m.</td>
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<tr>
<th>ENGR_O 494-2A</th>
<th>ENGR_O</th>
<th>L2A</th>
<th>Autonomous Vehicle Technology</th>
<th>W2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomous navigation: perception, localization and mapping, motion planning, and motion control; and applications to unmanned aerial vehicles (UAVs), automated vehicles and self-driving cars. Credit will be granted for only one of ENGR 494 or ENGR 535. [3-1-0] Prerequisite: ENGR 480.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<thead>
<tr>
<th>ENGR_O 495-101</th>
<th>ENGR_O</th>
<th>001</th>
<th>Tissue Engineering</th>
<th>W2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundamentals of cell biology; extracellular matrix, receptors, and cell-cell and cell-matrix interactions at both the theoretical and experimental levels; effects of physical, chemical, and electrical stimuli on cell function; tissue structure and function and the clinical need for tissue repair; scaffold design and processing for tissue engineering. Credit will be granted for only one of ENGR 495 or ENGR 515. [3-0-0] Prerequisite: Fourth-year standing.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>12:30 p.m. - 2:00 p.m.</td>
</tr>
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<thead>
<tr>
<th>ENGR_O 498-Q_001</th>
<th>ENGR_O</th>
<th>Q</th>
<th>Q_001</th>
<th>Special Topics in Engineering</th>
<th>W2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topics in engineering not covered in other technical electives. Students should consult the School of Engineering for the particular topics offered in a given year. This course may not be offered every year. [3-0-0] Prerequisite: Fourth-year standing in the B.A.Sc. Program and approval of the Associate Director of Undergraduate Studies.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
<td>2:00 p.m. - 3:30 p.m.</td>
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<thead>
<tr>
<th>ENGR_O 498-B_001</th>
<th>ENGR_O</th>
<th>R</th>
<th>R_001</th>
<th>Special Topics in Engineering</th>
<th>W2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topics in engineering not covered in other technical electives. Students should consult the School of Engineering for the particular topics offered in a given year. This course may not be offered every year. [3-0-0] Prerequisite: Fourth-year standing in the B.A.Sc. Program and approval of the Associate Director of Undergraduate Studies.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>12:30 p.m. - 2:00 p.m.</td>
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<tr>
<th>ENGR_O 501-001</th>
<th>ENGR_O</th>
<th>001</th>
<th>Deep and Reinforcement Learning for Engineers</th>
<th>W2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundations of neural networks and deep learning; techniques to improve neural networks; convolutional neural networks, recurrent neural networks and their applications; reinforcement learning: basics, Q-learning, actor-critic algorithms; practical engineering applications of deep and reinforcement learning</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
<td>9:30 a.m. - 11:00 a.m.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>ENGR_O 502-002</th>
<th>ENGR_O</th>
<th>002</th>
<th>Technical Communication for Engineering Resea</th>
<th>W2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering and innovation, business models, customer development, intellectual property, product development, customer validation, hypothesis testing, company positioning. Credit will be granted for only one of ENGR 511 or ENGR 411. [3-0-0]</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thurs</td>
<td>2:00 p.m. - 3:30 p.m.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ENGR_O 511-001</th>
<th>ENGR_O</th>
<th>101</th>
<th>Technology Entrepreneurship for Engineers</th>
<th>W2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review of signals and systems basics; LTI state-space methods; probabilistic models and estimation of random variable; hypothesis testing rules; random processes and power spectral density; signal estimation based on linear minimum mean square error principle; signal detection in i.i.d. Gaussian noise and colored noise. Credit will be granted for only one of ENGR 412 or ENGR 512.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
<td>8:00 a.m. - 9:30 a.m.</td>
</tr>
</tbody>
</table>
ENGR_O 519-001  ENGR_O  001  Tissue Engineering  W2
Fundamentals of cell biology; extracellular matrix, receptors, and cell-cell and cell-matrix interactions at both
the theoretical and experimental levels; effects of physical, chemical, and electrical stimuli on cell function;
tissue structure and function and the clinical need for tissue repair; scaffold design and processing for tissue
engineering. Credit will be granted for only one of ENGR 495 or ENGR 519. [3-0-0]
Lecture  In Person Learning  Tue Thu  12:30 p.m. - 2:00 p.m.

ENGR_O 522-001  ENGR_O  101  Advanced Design of Steel Structures  W2
Behaviour and design of steel structures, members, and cross sections in accordance with limit states
principles. Behaviour and design of braced frames and moment resisting frames. Second-order analysis of
frames. Load path concepts for detailing connections.
Lecture  In Person Learning  Tue Thu  11:00 a.m. - 12:30 p.m.

ENGR_O 523-001  ENGR_O  001  Seismic Design of Buildings  W2
Review of structural dynamic and response spectra; seismic design of steel and masonry buildings; seismic
design of reinforced concrete structures; design simplified code procedures and computer tools.
Lecture  In Person Learning  Mon Wed  12:30 p.m. - 2:00 p.m.

ENGR_O 529-001  ENGR_O  011  Rehabilitation of Concrete Structures  W2
Concrete damage and deterioration mechanisms, assessment and instrumentation; repair and strengthening
materials and techniques; design of structural strengthening systems. Credit will be granted for only one of
ENGR 429 or ENGR 529.
Lecture  In Person Learning  Wed Fri  9:30 a.m. - 11:00 a.m.

ENGR_O 532-001  ENGR_O  001  Project Planning and Control  W2
Project planning and alignment, project control standards and deliverables, project selection process, project
definition rating index, and risk management. Analytical hierarchical processes, and Monte-Carlo simulation
scheduling and costing.
Lecture  In Person Learning  Wed Fri  11:00 a.m. - 12:30 p.m.

ENGR_O 535-201  ENGR_O  201  Autonomous Vehicle Technology  W2
Autonomous navigation: perception, localization and mapping, motion planning, and motion control; and
applications to unmanned aerial vehicles (UAVs), automated vehicles and self-driving cars. Credit will be
granted for only one of ENGR 494 or ENGR 535.
Lecture  In Person Learning  Wed  3:30 p.m. - 5:00 p.m.

ENGR_O 563-001  ENGR_O  001  Advanced Polymer Science and Engineering  W2
Introduction to polymer science, polymer chain architecture and configuration, thermodynamics of polymer
solutions, amorphous and crystalline states of polymers, rubber elasticity, networks and gels, polymer
viscoelasticity and rheology, mechanical properties of polymers, multicomponent polymer systems, polymer
processing and forming.
Lecture  In Person Learning  Wed  9:30 a.m. - 11:00 a.m.

ENGR_O 587-001  ENGR_O  001  Digital Control  W2
Review of classical control and its relationship to discrete systems, discrete-time systems, sampling, z-
transform, pulse transfer function, stability in z-domain, pole-placement control design and state estimation,
discrete linear quadratic optimal control, introduction to system identification and Kalman filter. Credit will be
granted for only one of ENGR 587 or ENGR 487. [3-0-0]
Lecture  In Person Learning  Mon Wed  5:00 p.m. - 6:30 p.m.

ENGR_O 588-Q.001  ENGR_O  Q, Q.001  Topics in Engineering  W2
Project on assigned topic of specialization. Th is course is restricted to M.Eng. students.
Lecture  In Person Learning  Wed  2:00 p.m. - 3:30 p.m.

ENGR_O 598-R-001  ENGR_O  R, R.001  Topics in Engineering  W2
Independent Study
Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

Thesis  In Person Learning  Arranged  Arranged

Thesis  In Person Learning  Arranged  Arranged

EPE_S 470-G.001  EPE_S  G, G.001  Selected Topics in Inclusive Education  W2
Course content focuses upon a single topic or competency in inclusive education (e.g., autism, gifted students,
ADHD). Topics may differ in each offering to respond to new research or current needs in the field. This course
may be repeated with new content. Restricted to students with at least third-year standing. Pass/Fail. [3-0-0]
Lecture  Online Learning  Arranged  Arranged

EXCH_O 380-201  EXCH_O  201  Student Exchange Program, Undergraduate  W2
EXCH_O 380-212  EXCH_O  212  Student Exchange Program, Undergraduate  W2
EXCH_O 380-311  EXCH_O  311  Student Exchange Program, Undergraduate  W2
EXCH_O 380-312  EXCH_O  312  Student Exchange Program, Undergraduate  W2
EXCH_O 380-412  EXCH_O  412  Student Exchange Program, Undergraduate  W2
EXCH_O 381-201  EXCH_O  201  Study Abroad Program, Undergraduate  W2
EXCH_O 381-202  EXCH_O  202  Study Abroad Program, Undergraduate  W2
EXCH_O 382-201  EXCH_O  201  Student Exchange Program, Graduate  W2
EXCH_O 382-202  EXCH_O  202  Student Exchange Program, Graduate  W2
EXCH_O 385-201  EXCH_O  201  Student Exchange Program, Undergraduate  W2
EXCH_O 385-202  EXCH_O  202  Student Exchange Program, Undergraduate  W2
EXCH_O 385-301  EXCH_O  301  Student Exchange Program, Undergraduate  W2

FILM_O 100-001  FILM_O  001  Introduction to Film Studies  W2
Basic aesthetic, economic, sociological, and technological aspects of film.
Lecture  In Person Learning  Fri  8:00 a.m. - 11:00 a.m.

FILM_O 103-101  FILM_O  101  Acting for Stage and Screen  W2
Continuation of FILM 261. Further work on organizational, technical, creative, and critical skills required in
video production. Provides experience in all stages of the production process, including pre-production,
production, and post-production. Considers a variety of approaches to video, such as artist videos, music
videos, and television productions. Credit will be granted for only one of FILM 271 or VISA 271.
[2-2-0] Prerequisite: One of VISA 106, VISA 261, FILM 261, and third-year standing or permission of the instructor. Equivalency: CULT 317 Studio
In Person Learning  Mon  2:00 p.m. - 5:00 p.m.

FILM_O 271-101  FILM_O  101  Video II  W2
Continuation of Elementary French I. Completes level A1 of the Common European Framework of Reference
for Languages (CEFRL). Not available to students who have completed French 11 and/or students who have a
CEFR level A1. The next level course series available is FREN 103-104. Prerequisite: FREN 101 or prior
interchangeable French course at CEFRL Level A1.
Lecture  In Person Learning  Thu  8:00 a.m. - 12:00 p.m.

FREN_O 102-101  FREN_O  102  Elementary French II  W2
Continuation of Elementary French I. Completes level A1 of the Common European Framework of Reference
for Languages (CEFRL). Not available to students who have completed French 11 and/or students who have a
CEFR level A1. The next level course series available is FREN 103-104. Prerequisite: FREN 101 or prior
interchangeable French course at CEFRL Level A1.
Lecture  In Person Learning  Mon Wed  2:00 p.m. - 3:00 p.m.

FREN_O 102-103  FREN_O  103  Elementary French II  W2
Continuation of Elementary French I. Completes level A1 of the Common European Framework of Reference
for Languages (CEFRL). Not available to students who have completed French 11 and/or students who have a
CEFR level A1. The next level course series available is FREN 103-104. Prerequisite: FREN 101 or prior
interchangeable French course at CEFRL Level A1.
Lecture  Online Learning  Arranged  Arranged

FREN_O 104-101  FREN_O  101  Upper Elementary French II  W2
Continuation of Upper Elementary French I. Completes level A2 of the Common European Framework of
Reference for Languages (CEFRL). Not available to students who have completed French 12 and/or students
who have a CEFR level A2. The next level course series available is FREN 122-123. Prerequisite: FREN 103 or prior
interchangeable French course at CEFRL Level A2.
Lecture  In Person Learning  Mon Wed  3:00 p.m. - 4:00 p.m.

FREN_O 104-102  FREN_O  102  Upper Elementary French II  W2
Continuation of Upper Elementary French I. Completes level A2 of the Common European Framework of
Reference for Languages (CEFRL). Not available to students who have completed French 12 and/or students
who have a CEFR level A2. The next level course series available is FREN 122-123. Prerequisite: FREN 103 or prior
interchangeable French course at CEFRL Level A2.
Lecture  Online Learning  Arranged  Arranged
FREN_O 123-101 FREN_O 101 Intermediate French II W2
Continuation of FREN 122. Not available to students who have completed Français Immersion 12 and/or students who have a CEFR level B1 or higher. The next level course series available is FREN 223-225. Prerequisite: FREN 122, or prior introductory French course at CEFR Level B1. Lecture In Person Learning Mon Wed Fri 12:30 p.m. - 2:00 p.m.

FREN_O 215-001 FREN_O 001 Oral French Practice II W2
Consists of conversational and listening comprehension activities, review of grammar, and vocabulary expansion exercises. Students will be expected to participate actively in group activities and to give frequent oral presentations. Not available to students who have completed Français 12 in a Francophone school and/or students who have a CEFR level B2 or higher. The next level courses available are FREN 344 or FREN 345. [3-1-0] Prerequisite: One of FREN 115, FREN 123, or French 12 Immersion. Lecture In Person Learning Thu Tu 2:00 p.m. - 3:30 p.m.

FREN_O 215-101 FREN_O 101 Oral French Practice II W2
Consists of conversational and listening comprehension activities, review of grammar, and vocabulary expansion exercises. Students will be expected to participate actively in group activities and to give frequent oral presentations. Not available to students who have completed Français 12 in a Francophone school and/or students who have a CEFR level B2 or higher. The next level courses available are FREN 344 or FREN 345. [3-1-0] Prerequisite: One of FREN 115, FREN 123, or French 12 Immersion. Laboratory In Person Learning Fri 10:00 a.m. - 11:00 a.m.

FREN_O 215-102 FREN_O 102 Oral French Practice II W2
Grammar, vocabulary, composition, language in context. Not available to students who have completed Français 12 in a Francophone school and/or students who have a CEFR level B2 or higher. The next level courses available are FREN 344 or FREN 345. [3-1-0] Prerequisite: One of FREN 115, FREN 123, or French 12 Immersion. Laboratory In Person Learning Fri 1:00 p.m. - 2:00 p.m.

FREN_O 223-001 FREN_O 001 French Language and Style II W2
Development of essay writing skills in French. Prerequisite: FREN 351. Lecture In Person Learning Mon Wed Fri 12:00 p.m. - 1:00 p.m.

FREN_O 355-001 FREN_O 001 Advanced Composition W2
Laboratory In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

FREN_O 430-101 FREN_O 101 Quebecois Poetry W2
Examines works from selected Quebecois poets from the nineteenth century to the present. Prerequisite: FREN 353 and one of FREN 327, FREN 330, FREN 338, FREN 360, FREN 362, FREN 390. Lecture In Person Learning Thu 3:30 p.m. - 5:00 p.m.

FREN_O 444-001 FREN_O 001 French for Work: Professional Oral Performance W2
Oral expressions, such as academic and professional presentations, debates, and public speaking. Exposure to regional and foreign French accents through a selection of audiolingu material. Of use to students pursing careers in teaching or international relations, or applying for graduate programs in French. Prerequisite: Either (a) FREN 344 or (b) FREN 345, and one of FREN 327, FREN 330, FREN 360, FREN 362, FREN 390. Lecture In Person Learning Thu Tu 2:00 p.m. - 3:30 p.m.

FREN_O 461-101 FREN_O 101 17th- and 18th-Century French Comedy W2
Explores French comedies through a selection of works by authors such as Moliné, Leseinc, Mairivis, and Beaumarchais. Examines the aesthetic and political forces that shaped these plays, as well as the relationships between comedy and the representation of class and gender. Plays will be studied in their socio-historical context and approached using current literary criticism. Prerequisite: FREN 351 and one of FREN 327, FREN 330, FREN 338, FREN 360, FREN 390. Lecture In Person Learning Thu Tu 11:00 a.m. - 12:30 p.m.

Principles and processes that govern the functions of the Earth's lithosphere and terrestrial geomorphology. Interactions between the lithospheric system and human activity. [3-2-0] Lecture In Person Learning Thu Tu 5:00 p.m. - 6:30 p.m.

GEOG_O 109-L01 GEOG_O 01 Earth Systems: Landscape Dynamics W2
Principles and processes that govern the functions of the Earth's lithosphere and terrestrial geomorphology. Interactions between the lithospheric system and human activity. [3-2-0] Laboratory In Person Learning Mon 8:00 a.m. - 10:00 a.m.

GEOG_O 109-L02 GEOG_O 102 Earth Systems: Landscape Dynamics W2
Principles and processes that govern the functions of the Earth's lithosphere and terrestrial geomorphology. Interactions between the lithospheric system and human activity. [3-2-0] Laboratory In Person Learning Wed 12:00 p.m. - 2:00 p.m.

GEOG_O 109-L03 GEOG_O 103 Earth Systems: Landscape Dynamics W2
Principles and processes that govern the functions of the Earth's lithosphere and terrestrial geomorphology. Interactions between the lithospheric system and human activity. [3-2-0] Laboratory In Person Learning Fri 8:00 a.m. - 10:00 a.m.

GEOG_O 109-L04 GEOG_O 04 Earth Systems: Landscape Dynamics W2
Principles and processes that govern the functions of the Earth's lithosphere and terrestrial geomorphology. Interactions between the lithospheric system and human activity. [3-2-0] Laboratory In Person Learning Fri 12:00 p.m. - 2:00 p.m.

GEOG_O 109-L05 GEOG_O 05 Earth Systems: Landscape Dynamics W2
Principles and processes that govern the functions of the Earth's lithosphere and terrestrial geomorphology. Interactions between the lithospheric system and human activity. [3-2-0] Laboratory In Person Learning Thu 10:00 a.m. - 12:00 p.m.

GEOG_O 109-L06 GEOG_O 106 Earth Systems: Landscape Dynamics W2
Principles and processes that govern the functions of the Earth's lithosphere and terrestrial geomorphology. Interactions between the lithospheric system and human activity. [3-2-0] Laboratory In Person Learning Mon 12:00 p.m. - 2:00 p.m.

GEOG_O 109-XMT GEOG_O XMT Earth Systems: Landscape Dynamics W2
Critical introduction to the study and application of the major themes of human geography, including historical, regional, urban, social, and cultural geographies. Draws upon a range of geographic research methods to investigate geographic phenomena, especially human-environment relations. Not for Science credit. [3-0-0] Laboratory In Person Learning Arranged Arranged

GEOG_O 128-101 GEOG_O 101 Human Geography: Space, Place, and Community W2
Introduction to concepts, methods, modes of explanation, and recent critical changes in the study of human geography. Interpretation and explanation of geographic variations arising within contexts of rapidly changing cultural, demographic, economic, political, and social phenomena and their relationship to the environment. Not for Science credit. [3-0-0] Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

GEOG_O 129-101 GEOG_O 101 Human Geography: Resources, Development, or W2
Introduction to concepts, methods, modes of explanation, and recent critical changes in the study of human geography. Interpretation and explanation of geographic variations arising within contexts of rapidly changing cultural, demographic, economic, political, and social phenomena and their relationship to the environment. Not for Science credit. [3-0-0] Lecture In Person Learning Thu 8:00 a.m. - 9:30 a.m.

GEOG_O 129-102 GEOG_O 102 Human Geography: Resources, Development, or W2
Introduction to concepts, methods, modes of explanation, and recent critical changes in the study of human geography. Interpretation and explanation of geographic variations arising within contexts of rapidly changing cultural, demographic, economic, political, and social phenomena and their relationship to the environment. Not for Science credit. [3-0-0] Lecture Online Learning Thu 12:30 p.m. - 2:00 p.m.

GEOG_O 200-101 GEOG_O 101 Atmospheric Environments W2
Physical principles underlying weather and climates. Thermal, moisture, and wind climates at scales from valleys to the globe. Daily weather, air pollution, global change. Credit will be granted for only one of GEOG 200 or EESC 212. [3-3-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC212 Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

GEOG_O 200-101 GEOG_O 101 Atmospheric Environments W2
Physical principles underlying weather and climates. Thermal, moisture, and wind climates at scales from valleys to the globe. Daily weather, air pollution, global change. Credit will be granted for only one of GEOG 200 or EESC 212. [3-3-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC212 Laboratory In Person Learning Wed 6:30 p.m. - 9:30 p.m.
<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>GEOG_O 200-L02</td>
<td>Atmospheric Environments</td>
<td>W2 Physical principles underlying weather and climates. Thermal, moisture, and wind climates at scales from valleys to the globe. Daily weather, air pollution, global change. Credit will be granted for only one of GEOG 200 or EESC 212. [3-0-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC 212.</td>
</tr>
<tr>
<td>GEOG_O 205-001</td>
<td>Introduction to Hydrology</td>
<td>W2 Principles of hydrology at site, watershed, and regional scales. Techniques of measurement and analysis. Emphasizes surface water hydrology of western North America. Credit will be granted for only one of GEOG 205 or EESC 205. [3-0-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC 205.</td>
</tr>
<tr>
<td>GEOG_O 205-L01</td>
<td>Introduction to Hydrology</td>
<td>W2 Principles of hydrology at site, watershed, and regional scales. Techniques of measurement and analysis. Emphasizes surface water hydrology of western North America. Credit will be granted for only one of GEOG 205 or EESC 205. [3-0-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC 205.</td>
</tr>
<tr>
<td>GEOG_O 205-L02</td>
<td>Introduction to Hydrology</td>
<td>W2 Principles of hydrology at site, watershed, and regional scales. Techniques of measurement and analysis. Emphasizes surface water hydrology of western North America. Credit will be granted for only one of GEOG 205 or EESC 205. [3-0-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 111, EESC 112, EESC 121 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC 205.</td>
</tr>
<tr>
<td>GEOG_O 270-101</td>
<td>Introduction to Cartography and Mapmaking</td>
<td>W2 The theory and practice of cartography and map making; thematic map design techniques; cartographic conventions; spatial data acquisition; cartographic communication; critical cartography; historical and Indigenous mapping; participatory and cognitive mapping. [3-0-0] Prerequisite: One of GEOG 108, GEOG 109, GEOG 128, GEOG 129.</td>
</tr>
<tr>
<td>GEOG_O 270-L01</td>
<td>Introduction to Cartography and Mapmaking</td>
<td>W2 The theory and practice of cartography and map making; thematic map design techniques; cartographic conventions; spatial data acquisition; cartographic communication; critical cartography; historical and Indigenous mapping; participatory and cognitive mapping. [3-0-0] Prerequisite: One of GEOG 108, GEOG 109, GEOG 128, GEOG 129.</td>
</tr>
<tr>
<td>GEOG_O 304-101</td>
<td>Anthropic Climate Change</td>
<td>W2 The role of physical and biological hazards, human ecology, environmental perception and world social and political order in explaining the risk of natural disasters. Assessment of acceptable risk, disaster relief and reconstruction, and contrasts between developed and developing nations. [3-0-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) two of EESC 101, EESC 205, EESC 212, EESC 222, EESC 200, GEOG 205, GEOG 205.</td>
</tr>
<tr>
<td>GEOG_O 316-001</td>
<td>Geography of Natural Hazards</td>
<td>W2 222. Third-year standing.</td>
</tr>
<tr>
<td>GEOG_O 317-101</td>
<td>The Physical Environment of British Columbia</td>
<td>W2 The biophysical processes that are shaping and have shaped B.C. Characteristic associations between landforms, climate, soil, and vegetation; biophysical constraints on air, land, and water use. [3-0-0] Prerequisite: One of GEOG 205, EESC 212, EESC 222, GEOG 205, GEOG 205. Third-year standing.</td>
</tr>
<tr>
<td>GEOG_O 318-101</td>
<td>Rural Geographies</td>
<td>W2 Introduction to the social geographies of cities. Draws on critical social and cultural theories. Gentrification, racialization in the city, gendered spaces, class segregation, urban form, and cultural geographies of urban life. [3-0-0] Prerequisite: All of GEOG 128, GEOG 129, and third-year standing.</td>
</tr>
<tr>
<td>GEOG_O 351-101</td>
<td>Urban Social Geography</td>
<td>W2 Origin, classification and interpretation of sediments and sedimentary rocks. Weathering, erosion, transportation, sedimentation, and lithification of clastic materials. Non-clastic sediments. Sedimentary environments, facies and stratigraphic methods. Credit will be granted for only one of GEOG 356 or EESC 356. [3-0-0] Prerequisite: One of EESC 101, EESC 212, EESC 121, EESC 109. Equivalency: EESC 356.</td>
</tr>
<tr>
<td>GEOG_O 356-001</td>
<td>Stratigraphy and Sedimentology</td>
<td>W2 Origin, classification and interpretation of sediments and sedimentary rocks. Weathering, erosion, transportation, sedimentation, and lithification of clastic materials. Non-clastic sediments. Sedimentary environments, facies and stratigraphic methods. Credit will be granted for only one of GEOG 356 or EESC 356. [3-0-0] Prerequisite: One of EESC 122, EESC 222, GEOG 222. Equivalency: EESC 356.</td>
</tr>
<tr>
<td>GEOG_O 356-L01</td>
<td>Stratigraphy and Sedimentology</td>
<td>W2 Origin, classification and interpretation of sediments and sedimentary rocks. Weathering, erosion, transportation, sedimentation, and lithification of clastic materials. Non-clastic sediments. Sedimentary environments, facies and stratigraphic methods. Credit will be granted for only one of GEOG 356 or EESC 356. [3-0-0] Prerequisite: One of EESC 122, EESC 222, GEOG 222. Equivalency: EESC 356.</td>
</tr>
<tr>
<td>GEOG_O 356-L02</td>
<td>Stratigraphy and Sedimentology</td>
<td>W2 Key energy systems and resources management from both global and Canadian perspectives. Supplies, distribution, consumption, resilience and sustainability of energy resources. Alternative energy sources, conventional and unconventional fossil fuels, energy production and delivery systems. Credit will be granted for only one of GEOG 367 or EESC 367. [3-0-0] Prerequisite: One of GEOG 108, GEOG 128, EESC 101, EESC 111. Third-year standing. Equivalency: EESC 367.</td>
</tr>
<tr>
<td>GEOG_O 367-001</td>
<td>Energy Resources Management</td>
<td>W2 An examination of attitudes that have influenced land use and environmental change in the past and present. [3-0-0] Prerequisite: Two of GEOG 128, GEOG 129, SUST 104.</td>
</tr>
<tr>
<td>GEOG_O 423-010</td>
<td>Development of Environmental Thought</td>
<td>W2</td>
</tr>
</tbody>
</table>
Expands from a singular focus of sexuality and gender to consider how space is also racialized, ableized, and normalized according to hierarchies of power and privilege. Builds a foundational understanding of how queer geographies has emerged, possibilities for ‘queering’ geographical themes, and queer futurities. Credit will be granted for only one of GEOG 426, GWST 426, GEOG 495 and GWST 495 when the subject matter is of the same nature. Prerequisite: Either (a) Two of GEOG 128, GEOG 129, SUST 104, or (b) 6 credits of GWST. Third-year standing. Equivalency: GWST426

Lecture Hybrid Learning Fri 2:00 p.m. - 5:00 p.m.

GISC_O 381-01 GISC_O 101 Fundamentals of Geographic Information Science: W2

GIL, remote sensing, GPS; geostatistics, spatial analysis, and neighbourhood analysis; visualization, 3D rendering, and animation; principles of geocoding; online mapping and open-source GIS; applied project and workflow management. Laboratory exercises require ArcGIS. Credit will be granted for only one of GIS 381, GEOG 381, or EESC 381. [3-3-0] Prerequisite: One of GISC 380, EESC 380, GEOG 380.

Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

GISC_O 381-01 GISC_O 101 Fundamentals of Geographic Information Science: W2

GIL, remote sensing, GPS; geostatistics, spatial analysis, and neighbourhood analysis; visualization, 3D rendering, and animation; principles of geocoding; online mapping and open-source GIS; applied project and workflow management. Laboratory exercises require ArcGIS. Credit will be granted for only one of GIS 381, GEOG 381, or EESC 381. [3-3-0] Prerequisite: One of GISC 380, EESC 380, GEOG 380.

Laboratory In Person Learning Thu 8:00 a.m. - 11:00 a.m.

GISC_O 381-02 GISC_O 102 Fundamentals of Geographic Information Science: W2

GIL, remote sensing, GPS; geostatistics, spatial analysis, and neighbourhood analysis; visualization, 3D rendering, and animation; principles of geocoding; online mapping and open-source GIS; applied project and workflow management. Laboratory exercises require ArcGIS. Credit will be granted for only one of GIS 381, GEOG 381, or EESC 381. [3-3-0] Prerequisite: One of GISC 380, EESC 380, GEOG 380.

Laboratory In Person Learning Tue 8:00 a.m. - 11:00 a.m.

GISC_O 381-103 GISC_O 103 Fundamentals of Geographic Information Science: W2

GIL, remote sensing, GPS; geostatistics, spatial analysis, and neighbourhood analysis; visualization, 3D rendering, and animation; principles of geocoding; online mapping and open-source GIS; applied project and workflow management. Laboratory exercises require ArcGIS. Credit will be granted for only one of GIS 381, GEOG 381, or EESC 381. [3-3-0] Prerequisite: One of GISC 380, EESC 380, GEOG 380.

Laboratory In Person Learning Fri 8:00 a.m. - 11:00 a.m.

GISC_O 480-101 GISC_O 101 Practical Applications in GIS W2

Application of GIS principles and tools in a problem solving context. Case studies are used as the basis for student projects, emphasizing data sourcing, data analysis, decision-support, and project management skills. Laboratory and term projects require ArcGIS. [3-3-0] Prerequisite: One of GISC 381, EESC 381, GEOG 381.

Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

GISC_O 480-101 GISC_O 101 Practical Applications in GIS W2

Cross-cultural and historical antecedents to gender studies and feminist thought. The social construction of knowledge and inequality through gender, race, sexuality, and class, the cultural and structural forces that create the dynamic for change and resistance in the personal and political realms of gendered lives. [3-0-0]

Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

GWST_O 100-101 GWST_O 101 Gender, Race, Sexuality, and Power I: An Intro. W2

Applying the conceptual frameworks learned in GWST 100, considers how gender, race, sexuality and power shape social inequalities in such realms as health, violence, poverty, and work. GWST 100 recommended. [3-0-0]

Lecture Online Learning Tue Thu 2:00 p.m. - 3:30 p.m.

GWST_O 110-101 GWST_O 101 Gender, Race, Sexuality, and Power II: Everyday W2

Practice-based writing course designed to further develop communication skills in genres and media integral to Gender, Women and Sexuality Studies. Attentive to the dynamic relationship between knowledge and power, the course will focus on analysis and communication in written, visual, oral, mixed media, and digital modes. [3-0-0] Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156.

Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

GWST_O 272-101 GWST_O 101 Feminism and Environment W2

Feminist theories and practice to understand and address environmental change. Role of decolonial, antiracist, disability justice and queer feminist perspectives in environmental justice, policy, art, and activism. Credit will be granted for only one of GWST 272 or CULT 272. [3-0-0] Prerequisite: 6 credits of GWST, CULT, SUST 104. Equivalency: CULT 272

Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

GWST_O 272-201 GWST_O 101 Feminism and Environment W2

Feminist theories and practice to understand and address environmental change. Role of decolonial, antiracist, disability justice and queer feminist perspectives in environmental justice, policy, art, and activism. Credit will be granted for only one of GWST 272 or CULT 272. [3-0-0] Prerequisite: 6 credits of GWST, CULT, SUST 104. Equivalency: CULT 272

Discussion In Person Learning Thu 11:00 a.m. - 12:30 p.m.

GWST_O 415-A_101 GWST_O A A_101 Topics in Gender, Sexuality and Popular Culture W2

Examines feminist critiques of the history of Western thought and surveys the development of feminist cultural theory. 6 credits of 100-level GWST recommended. [3-0-0] Prerequisite: Third-year standing.

Lecture Online Learning Tue Thu 12:30 p.m. - 2:00 p.m.

GWST_O 426-101 GWST_O 101 Queer Geographies W2

Expands from a singular focus of sexuality and gender to consider how space is also racialized, ableized, and normalized according to hierarchies of power and privilege. Builds a foundational understanding of how queer geographies has emerged, possibilities for ‘queering’ geographical themes, and queer futurities. Credit will be granted for only one of GWST 426, GEOG 426, GEOG 495 and GWST 495 when the subject matter is of the same nature. Prerequisite: Either (a) 6 credits of GWST, or (b) Two of GEOG 128, GEOG 129, SUST 104. Third-year standing. Equivalency: GEOG426

Lecture Hybrid Learning Fri 2:00 p.m. - 5:00 p.m.

MEAL_O 100-001 MEAL_O 001 Introduction and Principles of Health and Wellness W2

Social frameworks used to understand mental health and wellbeing of individuals, families and communities. [3-0-0]

Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

MEAL_O 101-001 MEAL_O 001 Mental Health in Social Contexts W2

Understanding and critical thinking about the intersections of gender, sexuality, and disability justice and feminist perspectives in health and public policy. The topic is explored in a framework of gender and sexual identity, by drawing on feminist critiques. [3-0-0]

Lecture In Person Learning Thu 11:00 a.m. - 2:00 p.m.
Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200.

[3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.

Laboratory In Person Learning Wed Fri 9:30 a.m. - 11:00 a.m.

Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200.

[3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.

Laboratory In Person Learning Mon 8:00 a.m. - 10:00 a.m.

Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200.

[3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.

Laboratory In Person Learning Mon 10:00 a.m. - 12:00 p.m.

Acute and chronic changes observed in physiological systems as a result of exercise and exercise training. Aerobic and anaerobic metabolism during exercise and cardiovascular, respiratory and muscular responses to physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200.

[3-2-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.

Laboratory In Person Learning Mon 12:00 p.m. - 2:00 p.m.
In Person Learning
Laboratory
2:00 p.m. - 4:00 p.m.
Mon
Human Physiology II
W2

Laboratory
12:30 p.m. - 2:30 p.m.
001
L01
8:00 a.m. - 10:00 a.m.
L09
Human Physiology II

Laboratory
12:00 p.m. - 2:00 p.m.
L06
Human Physiology II

Laboratory
11:00 a.m. - 12:30 p.m.
W2
Exercise Psychology

Laboratory
12:30 p.m. - 2:30 p.m.
001
12:30 p.m. - 2:30 p.m.
L02
Lecture
3:00 p.m. - 5:00 p.m.
L08
Human Physiology II

Laboratory
3:00 p.m. - 5:00 p.m.
W2
Exercise Psychology

Laboratory
5:00 p.m. - 6:30 p.m.
001
8:00 a.m. - 9:30 a.m.
133. [3-2-0] Prerequisite: HES 100.

Principles governing physical growth and motor development related to physical activity. Lifespan changes, including aging, and their impact on physical activity participation and performance. Formerly offered as HMKN 202. Credit will be granted for only one of HES 202 or HMKN 202. [3-0-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100.

Processes and structures underlying the production human movement. Sensory, motor and cognitive factors influencing the learning, execution, and control of action will be addressed. Formerly offered as HMKN 201. Credit will be granted for only one of HES 100 or HMKN 100. [3-0-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 102 or (b) HMKN 101; and either (a) HES 111 or (b) HMKN 191.

An introduction to human physiology from the cellular to the systemic level. This course will examine the gastrointestinal system, the neuroendocrine system, renal function, immune function, the integumentary system, reproduction and special senses. Credit will only be granted for one of HES 111, HMKN 191 or BIOL 133. [3-2-0] Prerequisite: HES 101.

An introduction to human physiology from the cellular to the systemic level. This course will examine the gastrointestinal system, the neuroendocrine system, renal function, immune function, the integumentary system, reproduction and special senses. Credit will only be granted for one of HES 111, HMKN 191 or BIOL 133. [3-2-0] Prerequisite: HES 101.

An introduction to human physiology from the cellular to the systemic level. This course will examine the gastrointestinal system, the neuroendocrine system, renal function, immune function, the integumentary system, reproduction and special senses. Credit will only be granted for one of HES 111, HMKN 191 or BIOL 133. [3-2-0] Prerequisite: HES 101.

Exercise Training, Conditioning and Rehabilitation
2:00 p.m. - 3:30 p.m.
001
12:30 p.m. - 2:30 p.m.
L02
Laboratory
2:00 p.m. - 4:00 p.m.
Mon

The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.

Lecture
12:00 p.m. - 2:00 p.m.
L01
Exercise Training, Conditioning and Rehabilitation

Lecture
11:00 a.m. - 12:30 p.m.
L02
Human Physiology II

Lecture
3:00 p.m. - 5:00 p.m.
L08
Human Physiology II

Lecture
2:00 p.m. - 3:30 p.m.
001
Exercise Psychology

Lecture
12:00 p.m. - 2:00 p.m.
L01
Exercise Training, Conditioning and Rehabilitation

Lecture
11:00 a.m. - 12:30 p.m.
L02
Exercise Psychology
The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.

HES 212-L04
L04 Exercise Training, Conditioning and Rehabilitation W2
The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.

HES 212-L05
L05 Exercise Training, Conditioning and Rehabilitation W2
The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.

HES 212-L06
L06 Exercise Training, Conditioning and Rehabilitation W2
The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.

HES 212-L07
L07 Exercise Training, Conditioning and Rehabilitation W2
The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.

HES 212-L08
L08 Exercise Training, Conditioning and Rehabilitation W2
The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.

HES 212-L09
L09 Exercise Training, Conditioning and Rehabilitation W2
The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.

HES 212-L10
L10 Exercise Training, Conditioning and Rehabilitation W2
The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.

HES 212-L11
L11 Exercise Training, Conditioning and Rehabilitation W2
The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.

HES 212-L12
L12 Exercise Training, Conditioning and Rehabilitation W2
The theory, practice and analysis of safe and effective exercise training, including the design, implementation and analysis of exercise sessions, training and rehabilitation programs and ongoing monitoring strategies. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.

HES 231-001
L01 Exercise Counseling and Behaviour Modification W2
Application of evidence-informed behavior change techniques to help individuals adopt and adhere to health behaviors. Credit will only be granted for one of HES 231 or HMKN 336. [3-2-0] Prerequisite: Either (a) HES 131 or (b) HMKN 201.

HES 231-015
L01 Exercise Counseling and Behaviour Modification W2
Application of evidence-informed behavior change techniques to help individuals adopt and adhere to health behaviors. Credit will only be granted for one of HES 231 or HMKN 336. [3-2-0] Prerequisite: Either (a) HES 131 or (b) HMKN 201.

HES 231-L01
L01 Exercise Counseling and Behaviour Modification W2
Application of evidence-informed behavior change techniques to help individuals adopt and adhere to health behaviors. Credit will only be granted for one of HES 231 or HMKN 336. [3-2-0] Prerequisite: Either (a) HES 131 or (b) HMKN 201.

HES 311-002
L02 Pathophysiology W2
The physiological basis of selected cardiovascular, muscular, respiratory, and nervous system disorders, and their effects on health and exercise. Formerly offered as HMKN 335. Credit will be granted for only one of HES 311 or HMKN 335, BIOC 231, BIOC 235 or HINT 231. [3-0-0] Prerequisite: All of HES 101, 105 and HES 111.

HES 312-001
L01 Introduction to Athletic Injury Management W2
Basic principles and concepts associated with the prevention, recognition and management of athletic injuries. Common athletic injuries will be studied along with the practical skills in basic prophylactic wrapping and taping associated with the care of these injuries. Credit will only be granted for one of HES 312 or HMKN 336. [3-2-0] Prerequisite: HES 120.

HES 312-L01
L01 Introduction to Athletic Injury Management W2
Basic principles and concepts associated with the prevention, recognition and management of athletic injuries. Common athletic injuries will be studied along with the practical skills in basic prophylactic wrapping and taping associated with the care of these injuries. Credit will only be granted for one of HES 312 or HMKN 336. [3-2-0] Prerequisite: HES 120.

HES 312-L02
L02 Introduction to Athletic Injury Management W2
Basic principles and concepts associated with the prevention, recognition and management of athletic injuries. Common athletic injuries will be studied along with the practical skills in basic prophylactic wrapping and taping associated with the care of these injuries. Credit will only be granted for one of HES 312 or HMKN 336. [3-2-0] Prerequisite: HES 120.

HES 312-L03
L03 Introduction to Athletic Injury Management W2
Basic principles and concepts associated with the prevention, recognition and management of athletic injuries. Common athletic injuries will be studied along with the practical skills in basic prophylactic wrapping and taping associated with the care of these injuries. Credit will only be granted for one of HES 312 or HMKN 336. [3-2-0] Prerequisite: HES 120.

HES 312-L04
L04 Introduction to Athletic Injury Management W2
Basic principles and concepts associated with the prevention, recognition and management of athletic injuries. Common athletic injuries will be studied along with the practical skills in basic prophylactic wrapping and taping associated with the care of these injuries. Credit will only be granted for one of HES 312 or HMKN 336. [3-2-0] Prerequisite: HES 120.

HES 312-L05
L05 Introduction to Athletic Injury Management W2
Basic principles and concepts associated with the prevention, recognition and management of athletic injuries. Common athletic injuries will be studied along with the practical skills in basic prophylactic wrapping and taping associated with the care of these injuries. Credit will only be granted for one of HES 312 or HMKN 336. [3-2-0] Prerequisite: HES 120.

HES 312-L06
L06 Introduction to Athletic Injury Management W2
Basic principles and concepts associated with the prevention, recognition and management of athletic injuries. Common athletic injuries will be studied along with the practical skills in basic prophylactic wrapping and taping associated with the care of these injuries. Credit will only be granted for one of HES 312 or HMKN 336. [3-2-0] Prerequisite: HES 120.

HES 321-001
L01 Laboratory Techniques in Exercise Science W2
Current methods in exercise science will be demonstrated via modules presented by faculty in their areas of specialization including electrophysiological techniques and methods of assessing blood-flow, respiratory capacity, and muscle function. Formerly offered as HMKN 312. Credit will be granted for only one of HES 321 or HMKN 312. [3-5-0] Prerequisite: One of HES 305, HMKN 310. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HES 332-001</td>
<td>Advanced Theories of Health Behaviour Change W2</td>
<td>3</td>
<td>Study of behaviour change techniques with a particular focus on motivational interviewing, used in one-to-one behavioural support interactions. The course will instill knowledge of theory as well as applied skills in behaviour change counselling. Credit will be only be granted for one of HES 331 or HMKN 495N. Prerequisite: HES 231. Credit will be only be granted for one of HES 331 or HMKN 495N.</td>
</tr>
<tr>
<td>HES 333-001</td>
<td>Health Program Evaluation W2</td>
<td>3</td>
<td>Introduction to the key concepts and methods used in evaluation of health programs. Formerly offered as HMKN 303. Credit will be granted for only one of HMKN 303 or HES 333. Prerequisite: HES 231 and HMKN 330.</td>
</tr>
<tr>
<td>HES 351-001</td>
<td>Exercise Testing for Clinical Populations W2</td>
<td>3</td>
<td>Analysis of standard and specialized protocols, recommendations, equipment, personnel and parameters of exercise assessments for individuals living with chronic populations. Prerequisite: HES 250 and either HES 331 or (b) HMKN 335.</td>
</tr>
<tr>
<td>HES 352-001</td>
<td>Exercise Testing for Clinical Populations W2</td>
<td>3</td>
<td>Analysis of standard and specialized protocols, recommendations, equipment, personnel and parameters of exercise assessments for individuals living with chronic populations. Prerequisite: HES 250 and either HES 331 or (b) HMKN 335.</td>
</tr>
<tr>
<td>HES 353-001</td>
<td>Clinical Exercise Prescription W2</td>
<td>3</td>
<td>Advanced exercise prescription considerations for individuals with chronic conditions and special populations (e.g., pediatric, aging). Prerequisite: HES 352. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.</td>
</tr>
<tr>
<td>HES 354-001</td>
<td>Clinical Exercise Physiology Applications in Chronic W2</td>
<td>3</td>
<td>An overview of the clinical considerations of metabolic and endocrine pathologies and treatment for the safe and effective design and implementation of exercise programs for people with metabolic and/or endocrine disease. Students will critically review evidence and current standards and recommendations for the use of exercise in the management and prevention of metabolic and endocrine diseases. Prerequisite: HES 351.</td>
</tr>
<tr>
<td>HES 355-001</td>
<td>Clinical Exercise Physiology Applications in Chronic W2</td>
<td>3</td>
<td>Body composition, with particular emphasis on the influence of physical (bio)activity. Techniques for measuring the amounts of adipose tissue, muscle, and bone in the body. Formerly offered as HMKN 314. Credit will be granted for only one of HES 381 or HMKN 314. Prerequisite: Either (a) HMKN 190 or (b) HES 120.</td>
</tr>
<tr>
<td>HES 381-001</td>
<td>Body Composition</td>
<td>3</td>
<td>Practical work experience in a supervised health/human kinetics related work setting with a cooperating agency, private business, or industry. No more than 9 credits in total will be granted for any combination of HMKN 401, HMKN 402, HMKN 499. Formerly offered as HMKN 401. Credit will be granted for only one of HES 401 or HMKN 401. Pass/Fail: Prerequisite: One of HMKN 205, HES 240 and one of HMKN 206, HES 340 and fourth-year standing in Human Kinetics and permission of the Undergraduate Chair.</td>
</tr>
<tr>
<td>HES 401-002</td>
<td>Community Placement Experience W2</td>
<td>2</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Section</td>
<td>Credits</td>
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<tr>
<td>HES 402-002</td>
<td>Advanced Community Placement Experience</td>
<td>W2</td>
<td>3</td>
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<tr>
<td>HES 480-001</td>
<td>Concussion</td>
<td>W2</td>
<td>3</td>
</tr>
<tr>
<td>HES 481-001</td>
<td>Pediatric Exercise Physiology</td>
<td>W2</td>
<td>3</td>
</tr>
<tr>
<td>HES 483-001</td>
<td>Environmental Physiology</td>
<td>W2</td>
<td>3</td>
</tr>
<tr>
<td>HES 490-C 101</td>
<td>Emerging Health Issues and Trends</td>
<td>W2</td>
<td>3</td>
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<tr>
<td>HES 495-D 001</td>
<td>Special Topics in Health and Exercise Sciences</td>
<td>W2</td>
<td>3</td>
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<tr>
<td>HES 506-001</td>
<td>Research Methods in Health and Exercise Science</td>
<td>W2</td>
<td>3</td>
</tr>
<tr>
<td>HES 541-J 001</td>
<td>Special Topics in Health and Exercise Sciences</td>
<td>W2</td>
<td>3</td>
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<tr>
<td>HIST 119-101</td>
<td>Medieval Europe</td>
<td>W2</td>
<td>3</td>
</tr>
<tr>
<td>HIST 126-101</td>
<td>Europe from the French Revolution</td>
<td>W2</td>
<td>3</td>
</tr>
<tr>
<td>HIST 150-001</td>
<td>Introduction to Asian History</td>
<td>W2</td>
<td>3</td>
</tr>
<tr>
<td>HIST 211-101</td>
<td>The United States to 1865</td>
<td>W2</td>
<td>3</td>
</tr>
<tr>
<td>HIST 222-001</td>
<td>Canadian State and Economy</td>
<td>W2</td>
<td>3</td>
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<tr>
<td>HIST 240-101</td>
<td>Pre-Contact and Colonial Latin American History</td>
<td>W2</td>
<td>3</td>
</tr>
<tr>
<td>HIST 301-101</td>
<td>History of Indigenous Peoples of Canada Since 1525</td>
<td>W2</td>
<td>3</td>
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<tr>
<td>HIST 304-001</td>
<td>The Rise and Fall of the Roman Republic</td>
<td>W2</td>
<td>3</td>
</tr>
<tr>
<td>HIST 308-101</td>
<td>The Scientific Revolution</td>
<td>W2</td>
<td>3</td>
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<tr>
<td>HIST 320-001</td>
<td>Iran: From the Safavid Empire to the Islamic Rev.</td>
<td>W2</td>
<td>3</td>
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<tr>
<td>HIST 328-101</td>
<td>The American Revolution and the Formation of I W2</td>
<td>W2</td>
<td>3</td>
</tr>
<tr>
<td>HIST 354-101</td>
<td>Social Movements in 20th-Century Latin America W2</td>
<td>W2</td>
<td>3</td>
</tr>
</tbody>
</table>
HIST_O 384-101  HIST_O 101 Commodity Studies in Africa  W2  
Examines the history of commodity production (agricultural, mineral, oil, and other resources) on the African continent from the late nineteenth century to the present day with attention to how commodities have shaped and continue to influence the development of the continent and inform its political, social and economic encounters. [3-0-0] Prerequisite: 6 credits of HIST; or one of HIST 111, HIST 145 and third-year standing.

Lecture  In Person Learning  Mon Wed  11:00 a.m. - 12:30 p.m.

HIST_O 414-101  HIST_O 101 Medieval England  W2  
Study of selected themes in the history of England from the eleventh to the fifteenth centuries. [1.5-0-1.5] Prerequisite: 6 credits of HIST; or HIST 119 and third-year standing.

Lecture  In Person Learning  Mon Wed  5:00 p.m. - 6:30 p.m.

HIST_O 430-A_101  HIST_O A A_101 Topics in the History of Migration  W2  
[3-0-0] Prerequisite: 6 credits of HIST and third-year standing.

Lecture  In Person Learning  Tue  2:00 p.m. - 5:00 p.m.

HIST_O 469-101  HIST_O 101 International Relations of the Great Powers of the 20th Century  W2  
International relations of Britain, France, Germany, Russia, and the United States since 1939. Emphasis upon the emergence, course, and end of the Cold War. Great Powers in decolonization and the end of empires. [3-0-0] Prerequisite: 6 credits of HIST; or one of HIST 146, HIST 126 and third-year standing.

Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

HIST_O 495-A_101  HIST_O A A_101 Special Topics in History  W2  
Examination of selected topics and issues in history. With different topics, this course may be taken more than once for credit. [3-0-0] Prerequisite: 12 credits of HIST.

Lecture  In Person Learning  Fri  11:00 a.m. - 2:00 p.m.

HIST_O 495-B_101  HIST_O B B_101 Special Topics in History  W2  
Examination of selected topics and issues in history. With different topics, this course may be taken more than once for credit. [3-0-0] Prerequisite: 12 credits of HIST.

Lecture  In Person Learning  Wed Fri  2:00 p.m. - 3:30 p.m.

IGS_O 501_C_001  IGS_C C_001 Interdisciplinary Topics in Research Methods an W2  
IGS_O 501_D_001 IGS D D_001 Interdisciplinary Topics in Research Methods an W2  
IGS_O 503_S_001 IGS_S S_001 Indigenous Research Methods W2  
IGS_O 515_B_001 IGS_B B_001 Advanced Qualitative Methods W2  
IGS_O 539_L_101 IGS_L L_101 Directed Studies in Creative and Critical Studies W2  
IGS_O 550_Q_001 IGS_Q Q_001 Special Topics in Social Science Research W2

Seminar  In Person Learning  Mon  11:00 a.m. - 2:00 p.m.

IGS_O 585-101  IGS_O 101 Knowledge Mobilization and Sustainability Policy W2  
Exploration of opportunities and constraints to translating interdisciplinary sustainability research into effective social action. Approaches to implementing sustainability to be considered include: political and legal frameworks; federal and provincial policy forums; corporate social responsibility; First Nations environmental stewardship challenges; and sustainability in education and the arts.

Seminar  In Person Learning  Mon  11:00 a.m. - 2:00 p.m.

IGS_O 588-101  IGS_O 101 Global Studies Panorama W2  
Introduction to interdisciplinary and collaborative approaches to the field of Global Studies.

Seminar  In Person Learning  Tue  2:00 p.m. - 5:00 p.m.

IGS_O 591-101  IGS_O 101 Society and Conflict W2  
Utilizing social theory to analyze conflict and inequality. [0-0-5]

Seminar  In Person Learning  Tue  11:00 a.m. - 2:00 p.m.

IGS_O 593-001  IGS_O 001 Decolonizing the "Global": Contemporary Ethnography W2  
An examination and close reading of global issues drawing on ethnography and postcolonial theory. [0-0-3]

Seminar  In Person Learning  Thu  11:00 a.m. - 2:00 p.m.

IGS_O 596-001  IGS_O 001 Voice, Justice & Change W2  
Engage in critical and shifting discussions, theories, and praxis related to justice-oriented research and community initiatives for social change. The power of voice, representation, and systems transformation will be key aspects of this course, in addition to community-led and self-determined initiatives. Credit will be granted for only one of IGS 596 or IGS 559-SD. [0-0-3] Prerequisite: IGS 586.

Lecture  In Person Learning  Thu  11:00 a.m. - 2:00 p.m.

IGS_O 599_B_002  IGS_B B_002 Master's Thesis W2  
Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous peoples. [2-0-1]

Thesis  In Person Learning  Arranged  Arranged

IGS_O 599_C_002  IGS_C C_002 Master's Thesis W2  
Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous peoples. [2-0-1]

Thesis  In Person Learning  Arranged  Arranged

IGS_O 699-002  IGS 002 Doctoral Thesis W2  
Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous peoples. [2-0-1]

Thesis  In Person Learning  Arranged  Arranged

IMTC_O 507-001  IMTC_O 001 Immersive Technology Design Studio W2  
Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous peoples. [2-0-1]

Thesis  In Person Learning  Arranged  Arranged

INDG_O 100-001  INDG_O 101 Introduction to Decolonisation: Indigenous Stud W2  
Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous peoples. [2-0-1]

Lecture  Online Learning  Mon Wed  1:00 p.m. - 2:00 p.m.

INDG_O 100-003  INDG_O 003 Introduction to Decolonisation: Indigenous Stud W2  
Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous peoples. [2-0-1]

Discussion  Online Learning  Wed  2:00 p.m. - 3:00 p.m.

INDG_O 102-101  INDG_O 101 Introduction to Indigenous: Ways of Knowing W2  
Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous peoples. [2-0-1]

Lecture  Online Learning  Tue Thu  3:30 p.m. - 5:00 p.m.

INDG_O 201-101  INDG_O 101 Okanagan Indigenous Peoples' Historical Pen W2  
Indigenous perspectives as demonstrated through Okanagan traditional oral techniques for documentation of knowledge; an Indigenous peoples' approach to creativity and the maintenance of social, ecological, and land-based practice. Offered in relationship with the En'owkin Centre. [3-0-0] Prerequisite: One of INDG 100, INDG 102.

Lecture  In Person Learning  Mon Wed  11:00 a.m. - 12:30 p.m.

Indigenous perspectives as demonstrated through oral story; Interior Salishan theory and philosophy through oral story; a systems-based Indigenous Peoples story approach to connection to land, ecology and society.

Lecture  Online Learning  Arranged  Arranged

INDG_O 203-101  INDG_O 101 Indigenous Peoples' Historical Perspectives W2  
Overview of the historical and contemporary socio-economic, political, cultural, and ecological perspectives of Indigenous Peoples. [3-0-0] Prerequisite: One of INDG 100, INDG 102. Equivalent: ENGL202

Lecture  In Person Learning  Thu  3:30 p.m. - 5:00 p.m.

INDG_O 301-002  INDG_O 002 Examining an Indigenous Methodology: En’Wak W2  
Understanding an Indigenous strategy of community discourse as a methodology for inquiry, a technique of examination employing sequential stages of critical analysis in a whole-systems approach. Offered in relationship with the En’owkin Centre. [3-0-0] Prerequisite: One of INDG 100, INDG 102.

Lecture  Online Learning  Arranged  Arranged

INDG_O 304-101  INDG_O 101 Indigenous Studies Field Methods W2  
Research strategies and research techniques used in Indigenous studies and related disciplines. These elements will be applied to various topical issues including intellectual property rights, research ethics, oral histories, ethnographic research, and the use of statistics (both descriptive and inferential). [3-0-0] Prerequisite: One of INDG 100, INDG 102.

Lecture  In Person Learning  Wed Fri  2:00 p.m. - 3:30 p.m.

INDG_O 306-101  INDG_O 101 Indigenous Land Rights W2  
Legal theories under British Law or its historical derivations that have been used to justify the colonization of Indigenous peoples. Legal arguments and anthropological evidence raised by Indigenous groups to challenge those theories. Particular reference is paid to Canada, Australia, New Zealand, and the United States. [3-0-0] Prerequisite: One of INDG 100, INDG 102.

Lecture  In Person Learning  Tue Thu  3:30 p.m. - 5:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDG_100</td>
<td>Indigenous Culture, Heritage, and Intellectual Property</td>
<td>INLG_O</td>
<td>3</td>
<td>Historical realities of the salience of states and nations in the lives of Indigenous women. Indigenous methods, de-colonial historical analysis, and gender theory are used to analyze Indigenous women’s and peoples’ resistances to invasion, colonization, occupation, settler states, and dispossession. Prerequisites: One of INDG 101, INDG 102, GWST 100 recommended.</td>
</tr>
<tr>
<td>INDG_101</td>
<td>Indigenous Women's Perspectives: Gender, Natl Wld</td>
<td>INLG_O</td>
<td>3</td>
<td>Focuses on Indigenous women's perspectives and struggles to frame Indigenous Peoples' health opportunities, issues, and challenges, with an emphasis on physical activity contexts. Restricted to students in the Bachelor of Health and Exercise Sciences program. Prerequisite: One of HEAL 200, HEIS 100, Third-year standing.</td>
</tr>
<tr>
<td>INDG_102</td>
<td>Indigenous Perspectives on Health and Physical L2</td>
<td>INLG_O</td>
<td>3</td>
<td>The planning of research projects from the perspective of Indigenous cultures and values. Topics include project development, community relations and ethics, and identification and acquisition of appropriate resources. Prerequisite: One of INDG 101, INDG 303, INDG 304.</td>
</tr>
<tr>
<td>INDG_103</td>
<td>Indigenous Studies Internship</td>
<td>INLG_O</td>
<td>1</td>
<td>Work experience in language revitalization efforts in the community or organization. Periodic workshops to support placement are required. Restricted to students in the Indigenous language fluency degrees or Indigenous Studies major program.</td>
</tr>
<tr>
<td>INDG_104</td>
<td>Indigenous Studies Internship</td>
<td>INLG_O</td>
<td>1</td>
<td>Work experience in language revitalization efforts in the community or organization. Periodic workshops to support placement are required. Restricted to students in the Indigenous language fluency degrees or Indigenous Studies major program.</td>
</tr>
<tr>
<td>JPST_101</td>
<td>Beginning Japanese Language II</td>
<td>JPST_O</td>
<td>3</td>
<td>With permission of the program advisor, students may take and receive credit for this course more than once. Prerequisite: One of INDG 100, INDG 102, 3 credits in INDG 200- or 300-level courses, and third-year standing.</td>
</tr>
<tr>
<td>JPST_102</td>
<td>Beginning Japanese Language II</td>
<td>JPST_O</td>
<td>3</td>
<td>Historical and thematic survey of major directors, genres, and traditions in Japanese film from 1950 to the present. In English. Prerequisite: Third-year standing.</td>
</tr>
<tr>
<td>JPST_350</td>
<td>Introduction to Japanese Cinema</td>
<td>JPST_O</td>
<td>3</td>
<td>An introduction to the grammar, syntax, and function of modern spoken and written Korean. For absolute beginners; not available to students who have obtained the equivalent of CEFR A2 Level in the language. Prerequisite: One of INDG 101, INDG 102. GWST 100 recommended.</td>
</tr>
<tr>
<td>KORN_100</td>
<td>Basic Korean I</td>
<td>KORN_O</td>
<td>3</td>
<td>Language teaching methods, instructional skills in English and motivational design are examined. Sociocultural factors and language acquisition are explored with a focus on teaching and assessing listening, speaking, reading, writing, grammar, and vocabulary. Restricted to students with at least third-year standing. Pass/Fail.</td>
</tr>
<tr>
<td>MANN_270</td>
<td>Production Systems Management I</td>
<td>MANF_O</td>
<td>3</td>
<td>Introduction to production systems management and operations. Focus on the impact of operations in increasing productivity, reducing waste in manufacturing facilities. Prerequisite: Second-year standing.</td>
</tr>
<tr>
<td>MANN_378</td>
<td>Advanced Manufacturing</td>
<td>MANF_O</td>
<td>3</td>
<td>Practical and theoretical applications of life cycle thinking in engineering projects, products, and processes. Understand international standards and methods in life cycle assessment (LCA), life cycle costing (LCC), Interpret and provide critical feedback on LCA/LCC studies and analyze claims on sustainability. Credit will be granted for only one of MANF450 or ENGR 545. Prerequisite: Fourth-year standing.</td>
</tr>
<tr>
<td>MANN_450</td>
<td>Life Cycle Analysis and Sustainability</td>
<td>MANF_O</td>
<td>3</td>
<td>Systems integration and data analytics for engineering processes in a digital enterprise with industrial automation systems, production and operations, information fusion, performance monitoring and learning, and software and simulation platforms for manufacturing applications. Prerequisite: MANN 386.</td>
</tr>
</tbody>
</table>
MANF_O 465-11A  MANF_O 11A  Digital Enterprise  W2

Systems integration and data analytics for engineering processes in a digital enterprise with industrial automation systems, production and operation, information fusion, performance monitoring and learning, and software and simulation platforms for manufacturing applications. [3-2-0] Prerequisite: MANF 386. Laboratory In Person Learning Mon 12:00 p.m. - 2:00 p.m.

MANF_O 466-11B  MANF_O 11B  Digital Enterprise  W2

Systems integration and data analytics for engineering processes in a digital enterprise with industrial automation systems, production and operation, information fusion, performance monitoring and learning, and software and simulation platforms for manufacturing applications. [3-2-0] Prerequisite: MANF 386. Laboratory In Person Learning Tue 1:00 p.m. - 3:00 p.m.

MATH_O 100-101  MATH_O 101  Differential Calculus with Applications to Physics W2

Equivalency: MATH136

Lecture

In Person Learning

Mon Wed 11:00 a.m. - 12:30 p.m.

MATH_O 101-101  MATH_O 101  Integral Calculus with Applications to Physical Sr W2

Definite integral, integration techniques, applications, modelling, linear ODE's. Credit will be granted for only one of MATH 101 or MATH 142. [3-0-0] Prerequisite: One of MATH 100, MATH 116. Lecture

In Person Learning

Tue Fri 11:00 a.m. - 12:30 p.m.

MATH_O 101-102  MATH_O 102  Integral Calculus with Applications to Physical Sr W2

Definite integral, integration techniques, applications, modelling, linear ODE's. Credit will be granted for only one of MATH 101 or MATH 142. [3-0-0] Prerequisite: One of MATH 100, MATH 116. Lecture

In Person Learning

Wed Fri 11:00 a.m. - 12:30 p.m.

MATH_O 101-103  MATH_O 103  Integral Calculus with Applications to Physical Sr W2

Definite integral, integration techniques, applications, modelling, linear ODE's. Credit will be granted for only one of MATH 101 or MATH 142. [3-0-0] Prerequisite: One of MATH 100, MATH 116. Lecture

In Person Learning

Tue Thu 9:30 a.m. - 11:00 a.m.

MATH_O 101-104  MATH_O 104  Integral Calculus with Applications to Physical Sr W2

Definite integral, integration techniques, applications, modelling, linear ODE's. Credit will be granted for only one of MATH 101 or MATH 142. [3-0-0] Prerequisite: One of MATH 100, MATH 116. Lecture

In Person Learning

Tue Thu 8:00 a.m. - 9:30 a.m.

MATH_O 103-101  MATH_O 101  Integral Calculus with Applications to Life Science W2

Antiderivatives, the definite integral, integration techniques, numerical integration, infinite series, applications of integration to differential equations and probability, linear algebra. Credit will be granted for only one of MATH 101, MATH 103, or MATH 142. [3-1-0] Prerequisite: One of MATH 100, MATH 116. Lecture

In Person Learning

Tue Thu 11:00 a.m. - 12:30 p.m.

MATH_O 103-101  MATH_O 101  Integral Calculus with Applications to Life Science W2

Antiderivatives, the definite integral, integration techniques, numerical integration, infinite series, applications of integration to differential equations and probability, linear algebra. Credit will be granted for only one of MATH 101, MATH 103, or MATH 142. [3-1-0] Prerequisite: One of MATH 100, MATH 116. Laboratory

In Person Learning

Mon 12:00 p.m. - 2:00 p.m.

MATH_O 103-102  MATH_O 102  Integral Calculus with Applications to Life Science W2

Antiderivatives, the definite integral, integration techniques, numerical integration, infinite series, applications of integration to differential equations and probability, linear algebra. Credit will be granted for only one of MATH 101, MATH 103, or MATH 142. [3-1-0] Prerequisite: One of MATH 100, MATH 116. Laboratory

In Person Learning

Wed 11:00 a.m. - 12:00 p.m.

MATH_O 103-103  MATH_O 103  Integral Calculus with Applications to Life Science W2

Antiderivatives, the definite integral, integration techniques, numerical integration, infinite series, applications of integration to differential equations and probability, linear algebra. Credit will be granted for only one of MATH 101, MATH 103, or MATH 142. [3-1-0] Prerequisite: One of MATH 100, MATH 116. Laboratory

In Person Learning

Thu 8:00 a.m. - 9:00 a.m.

MATH_O 103-104  MATH_O 104  Integral Calculus with Applications to Life Science W2

The derivative; limits; rate of change; derivatives of algebraic, logarithmic, trigonometric and exponential functions; applications to marginal analysis; elasticity of demand; optimization and curve-sketching, Newtons Method and Taylor polynomials. Credit will be granted for only one of MATH 116 or MATH 100. [3-0-0] Prerequisite: Either (a) a score of 67% or higher in one of MATH 12, PREC 12 or (b) a score of 60% or higher in one of MATH 125, MATH 126. Equivalency: MATH100 Lecture

In Person Learning

Tue Thu 5:00 p.m. - 6:30 p.m.

MATH_O 116-101  MATH_O 101  Calculus I for Management and Economics W2

Prepares students for a calculus course. Functions and their graphs; inverse functions; algebraic, exponential, logarithmic, trigonometric functions; trigonometric identities. Cannot be counted for credit toward the B.Sc. or B.Sust. degree. Credit will be granted for only one of MATH 125 or MATH 126. Students with credit for MATH 100 or 116 may not take MATH 126 for further credit. [3-0-0] Prerequisite: One of Principles of Mathematics 11, Pre-Calculus 11, Foundations of Mathematics 12. Lecture

In Person Learning

Wed Fri 12:30 p.m. - 2:00 p.m.

MATH_O 125-101  MATH_O 101  Pre-Calculus W2

Prepares students for calculus. Functions; graphs; inverse, algebraic, exponential, logarithmic, trigonometric functions; trigonometric identities. Uses cyclical analysis common in some Indigenous cultures. Cannot be counted for credit toward the B.Sc. or B.Sust. degree. Credit will be granted for only one of MATH 125 or MATH 126. Students with credit for MATH 100 or 116 may not take MATH 126 for credit. [3-0-1] Prerequisite: One of Principles of Mathematics 11, Pre-Calculus 11, Foundations of Mathematics 12, or permission of the Department. Lecture

In Person Learning

Wed Fri 3:30 p.m. - 5:00 p.m.


Prepares students for calculus. Functions; graphs; inverse, algebraic, exponential, logarithmic, trigonometric functions; trigonometric identities. Uses cyclical analysis common in some Indigenous cultures. Cannot be counted for credit toward the B.Sc. or B.Sust. degree. Credit will be granted for only one of MATH 125 or MATH 126. Students with credit for MATH 100 or 116 may not take MATH 126 for credit. [3-0-1] Prerequisite: One of Principles of Mathematics 11, Pre-Calculus 11, Foundations of Mathematics 12, or permission of the Department. Lecture

In Person Learning

Wed Fri 3:30 p.m. - 5:00 p.m.

MATH_O 126-201  MATH_O 101  Basic Mathematics: An Indigenous Perspective W2

Systems of linear equations, operations on matrices, determinants, eigenvalues and eigenvectors, diagonalization of symmetric matrices, and vector geometry. [3-0-0] Prerequisite: One of MATH 100, MATH 116. Lecture

In Person Learning

Tue Thu 9:30 a.m. - 11:00 a.m.

MATH_O 221-101  MATH_O 101  Matrix Algebra W2

Vector spaces, linear maps, change of basis, eigenvalues and eigenvectors, Jordan canonical forms, matrix decomposition, inner product spaces, orthogonality, linear operators. [3-0-0] Prerequisite: MATH 221. Lecture

In Person Learning

Wed Fri 3:30 p.m. - 5:00 p.m.
MATH_O 225-T01  101  Introduction to Differential Equations  W2
First-order equations, initial value problems, existence and uniqueness theorems, second-order linear equations, superposition of solutions, independence, general solutions, non-homogeneous equations, phaseplane analysis, numerical methods, matrix methods for linear systems, and applications of differential equations to the physical, biological, and social sciences. [3-0-1] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Corequisite: MATH 221 is recommended.
Lecture  In Person Learning  Mon Wed Fri  8:00 a.m. - 9:00 a.m.

MATH_O 225-T01  101  Introduction to Differential Equations  W2
First-order equations, initial value problems, existence and uniqueness theorems, second-order linear equations, superposition of solutions, independence, general solutions, non-homogeneous equations, phaseplane analysis, numerical methods, matrix methods for linear systems, and applications of differential equations to the physical, biological, and social sciences. [3-0-1] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Corequisite: MATH 221 is recommended.
Discussion  In Person Learning  Thu  11:00 a.m. - 12:00 p.m.

MATH_O 225-T02  101  Introduction to Differential Equations  W2
First-order equations, initial value problems, existence and uniqueness theorems, second-order linear equations, superposition of solutions, independence, general solutions, non-homogeneous equations, phaseplane analysis, numerical methods, matrix methods for linear systems, and applications of differential equations to the physical, biological, and social sciences. [3-0-1] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Corequisite: MATH 221 is recommended.
Discussion  In Person Learning  Wed  5:00 p.m. - 6:00 p.m.

MATH_O 225-T03  101  Introduction to Differential Equations  W2
First-order equations, initial value problems, existence and uniqueness theorems, second-order linear equations, superposition of solutions, independence, general solutions, non-homogeneous equations, phaseplane analysis, numerical methods, matrix methods for linear systems, and applications of differential equations to the physical, biological, and social sciences. [3-0-1] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Corequisite: MATH 221 is recommended.
Discussion  In Person Learning  Wed  1:00 p.m. - 2:00 p.m.

MATH_O 303-01  101  Numerical Analysis  W2
Numerical techniques for basic mathematical processes and their analysis. Taylor polynomials, root-finding, linear systems, eigenvalues, approximating derivatives, locating minima, approximating integrals, solving differential equations. Credit will be granted for only one of MATH 303 or COSC 303. [3-1-0] Prerequisite: All of MATH 100, MATH 221 and either (a) COSC 111 or (b) DATA 301. Equivalency: COSC303
Lecture  In Person Learning  Mon Thu  9:30 a.m. - 11:00 a.m.

MATH_O 303-01  101  Numerical Analysis  W2
Numerical techniques for basic mathematical processes and their analysis. Taylor polynomials, root-finding, linear systems, eigenvalues, approximating derivatives, locating minima, approximating integrals, solving differential equations. Credit will be granted for only one of MATH 303 or COSC 303. [3-1-0] Prerequisite: All of MATH 100, MATH 221 and either (a) COSC 111 or (b) DATA 301. Equivalency: COSC303
Laboratory  In Person Learning  Thu  11:00 a.m. - 12:00 p.m.

MATH_O 303-02  101  Numerical Analysis  W2
Numerical techniques for basic mathematical processes and their analysis. Taylor polynomials, root-finding, linear systems, eigenvalues, approximating derivatives, locating minima, approximating integrals, solving differential equations. Credit will be granted for only one of MATH 303 or COSC 303. [3-1-0] Prerequisite: All of MATH 100, MATH 221 and either (a) COSC 111 or (b) DATA 301. Equivalency: COSC303
Laboratory  In Person Learning  Fri  11:00 a.m. - 12:00 p.m.

MATH_O 312-101  101  Introduction to Number Theory  W2
Divisibility of integers, congruences, Euler’s Theorem, primitive roots, quadratic reciprocity, special Diophantine equations, distributions of primes. [3-0-0] Prerequisite: One of MATH 220, COSC 221.
Lecture  In Person Learning  Tue Thu  5:00 p.m. - 6:30 p.m.

MATH_O 317-001  001  Calculus IV  W2
Parameterizations, inverse and implicit functions, integrals with respect to length and area, grad, div, and curl; theorems of Green, Gauss, and Stokes. [3-0-0] Prerequisite: MATH 200.
Lecture  In Person Learning  Wed Fri  2:00 p.m. - 3:30 p.m.

MATH_O 340-001  001  Introduction to Linear Programming  W2
Linear programming problems, dual problems, the simplex algorithm, solution of primal and dual problems, sensitivity analysis. Additional topics chosen from: Karmarkar’s algorithm, nonlinear programming, game theory, applications. [3-0-0] Prerequisite: MATH 221.
Lecture  In Person Learning  Mon Wed  5:00 p.m. - 6:30 p.m.

MATH_O 350-001  001  Complex Variables and Applications  W2
Analytic functions, Cauchy-Riemann equations, power series, Laurent series, elementary functions, contour integrals, and poles and residues. Introduction to conformal mapping and applications of analysis to problems in physics and engineering. [3-0-0] Prerequisite: MATH 200.
Lecture  In Person Learning  Tue Thu  2:00 p.m. - 3:30 p.m.

MATH_O 432-I_101  001  Special Topics in Algebra and Number Theory  W2
Students should consult the department for the particular topics offered in a given year. [3-0-0] Prerequisite: Third-year standing and permission of the department head.
Lecture  In Person Learning  Wed Fri  2:00 p.m. - 3:30 p.m.

MATH_O 448-A_101  001  Directed Studies in Mathematics  W2
Investigation of a specific topic as agreed upon by the student and the faculty supervisor. Students will be expected to complete a project and make an oral presentation. Prerequisite: 15 credits of 300- or 400-level MATH and STAT courses and permission of the department head and faculty supervisor.
Independent Study  In Person Learning  Arranged  Arranged

MATH_O 448-C_101  001  Directed Studies in Mathematics  W2
Investigation of a specific topic as agreed upon by the student and the faculty supervisor. Students will be expected to complete a project and make an oral presentation. Prerequisite: 15 credits of 300- or 400-level MATH and STAT courses and permission of the department head and faculty supervisor.
Independent Study  In Person Learning  Arranged  Arranged

MATH_O 459-101  101  Mathematical Biology  W2
Mathematical modelling in biological disciplines such as population dynamics, ecology, pattern formation, tumour growth, immune response, biomechanics, and epidemiology. Theory of such models formulated as difference equations, ordinary differential equations, and partial differential equations. [3-0-0] Prerequisite: MATH 225. MATH 319 is recommended.
Lecture  In Person Learning  Mon Wed  12:00 p.m. - 1:00 p.m.

MATH_O 464-101  101  Nonconvex Optimization  W2
Nonconvex analysis, semi-continuous functions, Lipschitz functions, tangent cone, normal cone, subdifferentials, optimality conditions, regularizations, algorithms for nonconvex optimization. Credit will be granted for only one of MATH 464 or MATH 564. [3-0-0] Prerequisite: MATH 327.
Lecture  In Person Learning  Mon Wed  9:30 a.m. - 11:00 a.m.

MATH_O 559-101  101  Mathematical Biology  W2
Mathematical methods in modelling biological processes at levels from cell biochemistry to community ecology. [3-0-0]
Lecture  In Person Learning  Mon Wed Fri  12:00 p.m. - 1:00 p.m.

MATH_O 564-101  101  Nonconvex Optimization  W2
Nonconvex analysis, semi-continuous functions, Lipschitz functions, tangent cone, normal cone, subdifferentials, optimality conditions, regularizations, algorithms for nonconvex optimization. Credit will be granted for only one of MATH 464 or MATH 564. [3-0-0]
Lecture  In Person Learning  Mon Wed  9:30 a.m. - 11:00 a.m.

MATH_O 590-E_101  001  Graduate Seminar  W2
Presentation and discussion of recent results in the mathematical, statistical, or related literature. Credit may be obtained more than once. Pass/Fail. [0-0-0]
The credit value for this course will be determined in consultation with the student prior to the registration.
Seminar  In Person Learning  Tue  5:00 p.m. - 8:00 p.m.
Topics chosen from group theory, rings and modules, Galois theory, commutative rings, categorical algebra, representations of finite groups, and other topics. The credit value for this course will be determined in consultation with the student prior to the registration. Lecture In Person Learning Wed Fri 2:00 p.m. - 3:30 p.m.

Contemporary issues in media studies. Notions of copyright, intellectual property, and information privacy and globalization in relation to digital media, identity, and creativity. Analysis of the digital culture, professionalism and ethics. [2-2-0]

Coding as Practice: thinking through code; art and design principles for computational media; generative algorithms for media art and design. Prerequisite: One of MDST 110, COSC 123.

Key concepts and techniques in the domain of Artificial Intelligence and machine learning for creative media systems, cognitive science, machine analysis, classification, prediction, generative systems. Concepts are analyzed through the research and development of student-led creative projects. Prerequisite: MDST 210.

Explores immersive environments as a creative practice that blurs the line between and among both physical and virtual environments. Focus on interactive installation production, reflection on practice and critical discussion. Prerequisite: MDST 311.

Approved and supervised paid work experience with a public or private organization for a minimum of 455 hours full time. Pre-employment training workshops and co-op assignments are required. Course is restricted to students who have completed all third-year requirements and have secured a work-term with an appropriate employer either independently or through the Co-op Office. Restricted to students accepted to the Management Co-operative Education Program.

Approved and supervised paid work experience with a public or private organization for a minimum of 455 hours full time. Pre-employment training workshops and co-op assignments are required. Course is restricted to students who have completed all third-year requirements and have secured a work-term with an appropriate employer either independently or through the Co-op Office. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 401.

Approved and supervised paid work experience with a public or private organization for a minimum of 455 hours full time. Pre-employment training workshops and co-op assignments are required. Course is restricted to students who have completed all third-year requirements and have secured a work-term with an appropriate employer either independently or through the Co-op Office. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 402.

Approved and supervised paid work experience with a public or private organization for a minimum of 455 hours full time. Pre-employment training workshops and co-op assignments are required. Course is restricted to students who have completed all third-year requirements and have secured a work-term with an appropriate employer either independently or through the Co-op Office. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 404.

Approved and supervised paid work experience with a public or private organization for a minimum of 455 hours full time. Pre-employment training workshops and co-op assignments are required. Course is restricted to students who have completed all third-year requirements and have secured a work-term with an appropriate employer either independently or through the Co-op Office. Prerequisite: MGCO 401. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 403.

Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0]

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Special Topics in Marketing
Fri
In Person Learning
Lecture
Project Management
In Person Learning
Mon
Mon Wed
W2
A
Project Management
Advanced Managerial Accounting
Thu
In Person Learning
3:30 p.m. - 5:00 p.m.
8:00 a.m. - 9:30 a.m.
Lecture
In Person Learning
Marketing Strategy
Mon Wed
W2
101
In Person Learning
Negotiations
11:00 a.m. - 12:30 p.m.
Project Management
Lecture
In Person Learning
W2
002
Online Learning
6:30 p.m. - 9:30 p.m.
001
Thu
2:00 p.m. - 5:00 p.m.
W2
L02
001
Workshop
2:00 p.m. - 5:00 p.m.
W2
L03
Auditing and Assurance Services
Lecture
In Person Learning
W2
001
Auditing and Assurance Services
MGMT-O 403-001
MGMT-O
001
Auditing and Assurance Services
W2
Lecture
In Person Learning
Thu
2:00 p.m. - 5:00 p.m.
MGMT-O 405-101
MGMT-O
101
Advanced Managerial Accounting
W2
Lecture
In Person Learning
Fri
2:00 p.m. - 5:00 p.m.
MGMT-O 410-002
MGMT-O
002
Leadership in Complex Environments
W2
Lecture
In Person Learning
Mon
2:00 p.m. - 5:00 p.m.
MGMT-O 412-101
MGMT-O
101
Negotiations
W2
Lecture
In Person Learning
Mon Wed
11:00 a.m. - 12:30 p.m.
MGMT-O 421-101
MGMT-O
101
Globalization, Offshoring and Outsourcing
W2
Lecture
In Person Learning
Fri
2:00 p.m. - 5:00 p.m.
MGMT-O 422-001
MGMT-O
001
Project Management
W2
Lecture
In Person Learning
Mon Wed
8:00 a.m. - 9:30 a.m.
MGMT-O 422-LO1
MGMT-O
001
Project Management
W2
Laboratory
In Person Learning
Thu
5:00 p.m. - 6:00 p.m.
MGMT-O 422-LO2
MGMT-O
002
Project Management
W2
Laboratory
In Person Learning
Mon
10:00 a.m. - 11:00 a.m.
MGMT-O 422-LO3
MGMT-O
003
Project Management
W2
Laboratory
In Person Learning
Tue
10:00 a.m. - 11:00 a.m.
MGMT-O 441-001
MGMT-O
001
Marketing Strategy
W2
Lecture
In Person Learning
Thu
6:30 p.m. - 9:30 p.m.
MGMT-O 441-W01
MGMT-O
001
Marketing Strategy
W2
Workshop
Online Learning
Arranged
Arranged
MGMT-O 442-001
MGMT-O
001
Consumer Behaviour
W2
Lecture
In Person Learning
Wed
6:30 p.m. - 9:30 p.m.
MGMT-O 449-A_101
MGMT-O
A A_101
Special Topics in Marketing
W2
Lecture
In Person Learning
Mon
3:30 p.m. - 5:00 p.m.
MGMT-O 449-A_W01
MGMT-O
A A_W01
Special Topics in Marketing
W2
Workshop
In Person Learning
Thu
11:00 a.m. - 12:30 p.m.
Nursing Lab Practice I
In Person Learning
W2
Mon
2:00 p.m. - 3:30 p.m.

Numcracy and Math
W2
001
Law and Business
Culumin experience for a management education. Includes team-based work on a community service project, consulting project, or some other form of experiential or immersion-based learning effort. Explores connections among students' disciplines and between their educational experience and issues in the off-campus community. [3-0-0] Prerequisite: All of MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, and third-year standing.

Language Practice and Pedagogy: Praxis in Different Immersion Contexts

Global Food Systems: Society, Ecology, Sustainability
Introduces managers of organizations and businesses to basic legal concepts that they can expect to encounter. Provides the background needed to identify legal issues and make informed decisions in instructing legal counsel and acting on legal advice. May cover product liability, tort, and intellectual property. [3-0-4] Prerequisite: MGMT 349 when the subject matter is of the same nature. Credit will be granted for only one of MGMT 449 or MGMT 449-A_W03. Latest concepts and/or issues in marketing, consumer behavior, e-marketing, international marketing, sales management, and other related topics within the field of marketing. Not intended for topics routinely covered in the curriculum. Credit will be granted for only one of MGMT 449 or MGMT 449-A_W03. Special Topics in Marketing Workshop In Person Learning Wed 2:00 p.m. - 3:30 p.m.

Entrepreneurship and the Smaller Firm
Special Topics in Marketing
W2
A_W03
Study group experience for a management education. Includes team-based work on a community service project, consulting project, or some other form of experiential or immersion-based learning effort. Explores connections among students' disciplines and between their educational experience and issues in the off-campus community. [3-0-0] Prerequisite: All of MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, and third-year standing.

NLEK 333.

Language Practice and Pedagogy: Praxis in Different Immersion Contexts

Entrepreneurship and the Smaller Firm
Evaluating food system sustainability issues, including management and technology alternatives, through the lenses of (1) systems-analytic (i.e. life cycle) thinking and tools; and (2) sustainable scale (relative to ecological carrying capacity), distributive justice, and efficient allocation. Credit will be granted for only one of BIOL 424 or MGMT 470. [3-0-0] Prerequisite: Third-year standing. Equivalency: BIOL 424

Special Topics in Language Practice and Pedagogy
Introduces students to the academic and professional roles of managers in organizations and businesses. Explores the nature and function of managerial work, including the role of management in organizations and businesses in society, the environment, and the campus community. [3-0-0] Prerequisite: All of MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250. and third-year standing.

Seminar
In Person Learning
Wed
2:00 p.m. - 3:30 p.m.

Seminar
In Person Learning
Wed
2:00 p.m. - 3:30 p.m.

Seminar
In Person Learning
Thu
3:30 p.m. - 5:00 p.m.

Online Learning
Arranged
Arranged
Arranged

Online Learning
Arranged
Arranged
Arranged

Seminar
In Person Learning
Tue
2:30 p.m. - 5:30 p.m.

Seminar
In Person Learning
Fri
3:00 p.m. - 5:00 p.m.

Seminar
In Person Learning
Mon
9:30 a.m. - 11:00 a.m.

Seminar
In Person Learning
Fri
3:00 p.m. - 5:00 p.m.

Introduction to nursing research to provide knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Tue 2:30 p.m. - 5:30 p.m.

NRSG 101-010 NRSG_O L010 Nursing Lab Practice I W2

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Wed 2:30 p.m. - 5:30 p.m.

NRSG 101-011 NRSG_O L011 Nursing Lab Practice I W2

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Thu 2:30 p.m. - 5:30 p.m.

NRSG 101-012 NRSG_O L012 Nursing Lab Practice I W2

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Fri 2:30 p.m. - 5:30 p.m.

NRSG 101-013 NRSG_O L013 Nursing Lab Practice I W2

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Wed 2:30 p.m. - 5:30 p.m.

NRSG 101-014 NRSG_O L014 Nursing Lab Practice I W2

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Thu 2:30 p.m. - 5:30 p.m.

NRSG 101-015 NRSG_O L015 Nursing Lab Practice I W2

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Tue 2:30 p.m. - 5:30 p.m.

NRSG 101-016 NRSG_O L016 Nursing Lab Practice I W2

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Thu 2:30 p.m. - 5:30 p.m.

NRSG 101-017 NRSG_O L017 Nursing Lab Practice I W2

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Fri 2:30 p.m. - 5:30 p.m.

NRSG 101-018 NRSG_O L018 Nursing Lab Practice I W2

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Fri 2:30 p.m. - 5:30 p.m.

NRSG 101-019 NRSG_O L019 Nursing Lab Practice I W2

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Tue 2:30 p.m. - 5:30 p.m.

NRSG 101-020 NRSG_O L020 Nursing Lab Practice I W2

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Wed 2:30 p.m. - 5:30 p.m.

NRSG 101-021 NRSG_O L021 Nursing Lab Practice I W2

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Thu 2:30 p.m. - 5:30 p.m.

NRSG 101-022 NRSG_O L022 Nursing Lab Practice I W2

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Fri 2:30 p.m. - 5:30 p.m.

NRSG 101-023 NRSG_O L023 Nursing Lab Practice I W2

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Laboratory In Person Learning Fri 2:30 p.m. - 5:30 p.m.

NRSG 102-001 NRSG_O L001 Introduction to Nursing Research W2

Introduction to nursing research to provide knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Lecture In Person Learning Tue 8:00 a.m. - 11:00 a.m.

NRSG 120-001 NRSG_O L001 Introduction to the Profession of Nursing II W2

Introduction to the Profession of Nursing II to provide knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Lecture In Person Learning Wed 8:00 a.m. - 9:30 a.m.

NRSG 122-001 NRSG_O L001 Introduction to the Profession of Nursing II W2

Introduction to the Profession of Nursing II to provide knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 136 intentional learning activities. [0-3-1.5] Prerequisite: All of NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 126, NRSG 136. Lecture In Person Learning Fri 8:00 a.m. - 9:30 a.m.
NRSG 136-P01
NRSG_0 001 Relational Practice II W2
Understanding relational care and relational ethics to build knowledge, skills, and abilities to engage in relational practice with diverse individuals, families, and groups. Explore concepts and evidence for caring, therapeutic communication, and relational identity.
Pass/Fail. [1.5-0-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, NRSG 114, NRSG 115. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 124, NRSG 126.
Lecture In Person Learning Wed 9:30 a.m. - 11:00 a.m.

NRSG 136-P02
NRSG_0 002 Relational Practice II W2
Introduction to adult health assessment with a focus on the older adult with stable chronic health conditions. Concepts will align with NRSG 101 and NRSG 136 intentional learning activities. Nursing theories and evidence-informed frameworks guide approaches to inclusive care, assessments, clinical reasoning, and care planning.
[3-0-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, NRSG 114, NRSG 115. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 124, NRSG 126.
Lecture In Person Learning Fri 9:30 a.m. - 11:00 a.m.

NRSG 136-P03
NRSG_0 001 Health & Healing I W2
Introduction to adult health assessment with a focus on the older adult with stable chronic health conditions. Concepts will align with NRSG 101 and NRSG 136 intentional learning activities. Nursing theories and evidence-informed frameworks guide approaches to inclusive care, assessments, clinical reasoning, and care planning.
[3-0-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, NRSG 114, NRSG 115. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 124, NRSG 126.
Lecture In Person Learning Mon 11:00 a.m. - 2:00 p.m.

NRSG 136-P04
NRSG_0 002 Health & Healing I W2
This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation.
Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, NRSG 114, NRSG 115. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.
Experiential In Person Learning Wed 7:00 a.m. - 10:00 p.m.

NRSG 136-P05
NRSG_0 003 Nursing Practice I W2
This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation.
Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, NRSG 114, NRSG 115. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.
Experiential In Person Learning Wed 7:00 a.m. - 10:00 p.m.

NRSG 136-P06
NRSG_0 004 Nursing Practice I W2
This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation.
Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, NRSG 114, NRSG 115. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.
Experiential In Person Learning Wed 7:00 a.m. - 10:00 p.m.

NRSG 136-P07
NRSG_0 005 Nursing Practice I W2
This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation.
Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, NRSG 114, NRSG 115. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.
Experiential In Person Learning Thu 7:00 a.m. - 10:00 p.m.

NRSG 136-P08
NRSG_0 006 Nursing Practice I W2
This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation.
Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, NRSG 114, NRSG 115. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.
Experiential In Person Learning Thu 7:00 a.m. - 10:00 p.m.

NRSG 136-P09
NRSG_0 007 Nursing Practice I W2
This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation.
Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, NRSG 114, NRSG 115. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.
Experiential In Person Learning Thu 7:00 a.m. - 10:00 p.m.
This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

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This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

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This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

This first nursing practicum develops knowledge, skills, and abilities to provide safe ethical nursing care to adults with stable chronic health challenges. Intentional learning activities integrate knowledge from NRSG 101 and NRSG 126. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] Prerequisite: All of HINT 110, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

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<tr>
<th>Course Code</th>
<th>Offered Course</th>
<th>Description</th>
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<tr>
<td>NRSG 201-002</td>
<td>Nursing Lab Practice III</td>
<td>This course is a continuation of NRSG 201 and provides additional opportunities to develop evidence-informed approaches for safe ethical care. Concepts will align with NRSG 237 intentional learning activities. [3-0-1.5] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<td>NRSG 201-003</td>
<td>Nursing Lab Practice III</td>
<td>This course is a continuation of NRSG 201 and provides additional opportunities to develop evidence-informed approaches for safe ethical care. Concepts will align with NRSG 237 intentional learning activities. [3-0-1.5] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<td>NRSG 201-004</td>
<td>Nursing Lab Practice III</td>
<td>This course is a continuation of NRSG 201 and provides additional opportunities to develop evidence-informed approaches for safe ethical care. Concepts will align with NRSG 237 intentional learning activities. [3-0-1.5] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<td>NRSG 201-005</td>
<td>Nursing Lab Practice III</td>
<td>This course is a continuation of NRSG 201 and provides additional opportunities to develop evidence-informed approaches for safe ethical care. Concepts will align with NRSG 237 intentional learning activities. [3-0-1.5] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<td>NRSG 201-006</td>
<td>Nursing Lab Practice III</td>
<td>This course is a continuation of NRSG 201 and provides additional opportunities to develop evidence-informed approaches for safe ethical care. Concepts will align with NRSG 237 intentional learning activities. [3-0-1.5] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<td>NRSG 201-007</td>
<td>Nursing Lab Practice III</td>
<td>This course is a continuation of NRSG 201 and provides additional opportunities to develop evidence-informed approaches for safe ethical care. Concepts will align with NRSG 237 intentional learning activities. [3-0-1.5] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<tr>
<td>NRSG 201-008</td>
<td>Nursing Lab Practice III</td>
<td>This course is a continuation of NRSG 201 and provides additional opportunities to develop evidence-informed approaches for safe ethical care. Concepts will align with NRSG 237 intentional learning activities. [3-0-1.5] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<td>NRSG 201-009</td>
<td>Nursing Lab Practice III</td>
<td>This course is a continuation of NRSG 201 and provides additional opportunities to develop evidence-informed approaches for safe ethical care. Concepts will align with NRSG 237 intentional learning activities. [3-0-1.5] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<td>NRSG 201-010</td>
<td>Nursing Lab Practice III</td>
<td>This course is a continuation of NRSG 201 and provides additional opportunities to develop evidence-informed approaches for safe ethical care. Concepts will align with NRSG 237 intentional learning activities. [3-0-1.5] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<td>NRSG 201-011</td>
<td>Nursing Lab Practice III</td>
<td>This course is a continuation of NRSG 201 and provides additional opportunities to develop evidence-informed approaches for safe ethical care. Concepts will align with NRSG 237 intentional learning activities. [3-0-1.5] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<tr>
<td>NRSG 201-012</td>
<td>Nursing Lab Practice III</td>
<td>This course is a continuation of NRSG 201 and provides additional opportunities to develop evidence-informed approaches for safe ethical care. Concepts will align with NRSG 237 intentional learning activities. [3-0-1.5] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<tr>
<td>NRSG 202-001</td>
<td>Pharmacology for Nursing II</td>
<td>Evidence-informed strategies and approaches of relational inquiry to build relational skills and capacity: Socio-cultural constructs in relation to health and healing. Pass/Fail: [1.5-0-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<td>NRSG 202-002</td>
<td>Pharmacology for Nursing II</td>
<td>Evidence-informed strategies and approaches of relational inquiry to build relational skills and capacity: Socio-cultural constructs in relation to health and healing. Pass/Fail: [1.5-0-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<tr>
<td>NRSG 223-001</td>
<td>Relational Practice IV</td>
<td>Evidence-informed strategies and approaches of relational inquiry to build relational skills and capacity: Socio-cultural constructs in relation to health and healing. Pass/Fail: [1.5-0-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<tr>
<td>NRSG 223-002</td>
<td>Relational Practice IV</td>
<td>Evidence-informed strategies and approaches of relational inquiry to build relational skills and capacity: Socio-cultural constructs in relation to health and healing. Pass/Fail: [1.5-0-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<tr>
<td>NRSG 227-001</td>
<td>Health &amp; Healing II</td>
<td>Evidence-informed strategies and approaches of relational inquiry to build relational skills and capacity: Socio-cultural constructs in relation to health and healing. Pass/Fail: [1.5-0-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<td>NRSG 227-002</td>
<td>Health &amp; Healing II</td>
<td>Evidence-informed strategies and approaches of relational inquiry to build relational skills and capacity: Socio-cultural constructs in relation to health and healing. Pass/Fail: [1.5-0-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 220, NRSG 223, NRSG 227, NRSG 237, BIOL 232.</td>
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<td>NRSG_O 228-002</td>
<td>Community Health W2</td>
<td>Lecture</td>
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<td>NRSG_O 229-002</td>
<td>Mental Health in Nursing W2</td>
<td>Lecture</td>
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<td>NRSG_O 237-P01</td>
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<td>NRSG_O 237-P07</td>
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<td>NRSG_O 237-P08</td>
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<td>NRSG_O 237-P11</td>
<td>Nursing Practice III W2</td>
<td>Experiential</td>
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This second acute care practicum is a continuation of NRSG 236. Develops advancing knowledge, skills, and abilities to provide safe ethical nursing care for adults with episodic and chronic health challenges. Intentional learning activities integrate evidence-informed knowledge from NRSG 202 and NRSG 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.

NRSG O 237-P12
NRSG O
P12 Nursing Practice III
W2
Experiential In Person Learning Thu 9:00 a.m. - 3:00 p.m.

This second acute care practicum is a continuation of NRSG 236. Develops advancing knowledge, skills, and abilities to provide safe ethical nursing care for adults with episodic and chronic health challenges. Intentional learning activities integrate evidence-informed knowledge from NRSG 202 and NRSG 227. Pass/Fail. [0-6-0] Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.

NRSG O 237-P13
NRSG O
P13 Nursing Practice III
W2
Experiential In Person Learning Thu 9:00 a.m. - 3:00 p.m.

Practicum in community health nursing develops knowledge, skills, and abilities needed to provide safe ethical nursing care within varied community settings with diverse populations. Students will draw on principles of social justice and the social determinants of health to engage in evidence-informed community assessments, health promotion/illness prevention activities, and health teaching. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133, and Second-Year BSN-O Standing Corequisite: NRSG 238.

NRSG O 238-P11
NRSG O
P11 Nursing Practice in Community
W2
Experiential In Person Learning Tue 8:00 a.m. - 12:00 p.m.

Practicum in community health nursing develops knowledge, skills, and abilities needed to provide safe ethical nursing care within varied community settings with diverse populations. Students will draw on principles of social justice and the social determinants of health to engage in evidence-informed community assessments, health promotion/illness prevention activities, and health teaching. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133, and Second-Year BSN-O Standing Corequisite: NRSG 228.

NRSG O 238-P22
NRSG O
P12 Nursing Practice in Community
W2
Experiential In Person Learning Tue 8:00 a.m. - 12:00 p.m.

Practicum in community health nursing develops knowledge, skills, and abilities needed to provide safe ethical nursing care within varied community settings with diverse populations. Students will draw on principles of social justice and the social determinants of health to engage in evidence-informed community assessments, health promotion/illness prevention activities, and health teaching. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133, and Second-Year BSN-O Standing Corequisite: NRSG 228.

NRSG O 238-P23
NRSG O
P13 Nursing Practice in Community
W2
Experiential In Person Learning Wed 8:00 a.m. - 12:00 p.m.
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<th>Credits</th>
<th>Hours</th>
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<td>Nursing Practice in Community</td>
<td>W2</td>
<td>Exp.</td>
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<td>NRSG 239-P11</td>
<td>Nursing Practice in Mental Health</td>
<td>W2</td>
<td>Exp.</td>
<td>P11</td>
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<td>Nursing Practice in Mental Health</td>
<td>W2</td>
<td>Exp.</td>
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<td>In Person Learning</td>
<td>Tue</td>
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<td>Nursing Practice in Mental Health</td>
<td>W2</td>
<td>Exp.</td>
<td>P13</td>
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<td>Wed</td>
<td>8:00 a.m. - 12:00 p.m.</td>
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<td>Fri</td>
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NRSG 302-002 Seminar In Person Learning Mon 11:00 a.m. - 12:30 p.m. | NRSG 302-003 Seminar In Person Learning Mon 11:00 a.m. - 12:30 p.m. | NRSG 302-005 Seminar In Person Learning Mon 1:00 p.m. - 3:00 p.m. | NRSG 302-006 Seminar In Person Learning Mon 1:00 p.m. - 3:00 p.m.
Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOC 131, BIOC 133, HINT 231, BIOC 232. Corequisite: All of NRSG 327, NRSG 337. Laboratory In Person Learning Mon 3:30 p.m. - 5:30 p.m.

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOC 131, BIOC 133, HINT 231, BIOC 232. Corequisite: All of NRSG 327, NRSG 337. Laboratory In Person Learning Mon 3:30 p.m. - 5:30 p.m.

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOC 131, BIOC 133, HINT 231, BIOC 232. Corequisite: All of NRSG 327, NRSG 337. Laboratory In Person Learning Mon 1:00 p.m. - 3:00 p.m.

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Understanding and respecting the complexities of difference and diversity with clients in nursing practice. A critical exploration of cultural identities and racism from an Indigenous perspective. Facilitates development of evidence-informed practice for culturally safe care for all peoples in a variety of contexts [3-0-0 (over 6 weeks)] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOC 232. Corequisite: All of NRSG 327, NRSG 337. Lecture In Person Learning Tue 11:00 a.m. - 2:00 p.m.

Understanding and respecting the complexities of difference and diversity with clients in nursing practice. A critical exploration of cultural identities and racism from an Indigenous perspective. Facilitates development of evidence-informed practice for culturally safe care for all peoples in a variety of contexts [3-0-0 (over 6 weeks)] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOC 232. Corequisite: All of NRSG 327, NRSG 337. Lecture In Person Learning Thu 11:00 a.m. - 2:00 p.m.

Understanding and respecting the complexities of difference and diversity with clients in nursing practice. A critical exploration of cultural identities and racism from an Indigenous perspective. Facilitates development of evidence-informed practice for culturally safe care for all peoples in a variety of contexts [3-0-0 (over 6 weeks)] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOC 232. Corequisite: All of NRSG 327, NRSG 337. Lecture In Person Learning Wed 11:00 a.m. - 2:00 p.m.

Understanding and respecting the complexities of difference and diversity with clients in nursing practice. A critical exploration of cultural identities and racism from an Indigenous perspective. Facilitates development of evidence-informed practice for culturally safe care for all peoples in a variety of contexts [3-0-0 (over 6 weeks)] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOC 232. Corequisite: All of NRSG 327, NRSG 337. Lecture In Person Learning Fri 11:00 a.m. - 2:00 p.m.

Continuation of NRSG 326. Evidence-informed assessment and management of complex health challenges in both episodic and chronic illness utilizing a case study approach. [3-0-0 (over 6 weeks)] Prerequisite: All of NRSG 301, NRSG 310, NRSG 326, NRSG 336, HINT 311. Corequisite: All of NRSG 302, NRSG 337. Lecture In Person Learning Mon 8:00 a.m. - 11:00 a.m.

Continuation of NRSG 326. Evidence-informed assessment and management of complex health challenges in both episodic and chronic illness utilizing a case study approach. [3-0-0 (over 6 weeks)] Prerequisite: All of NRSG 301, NRSG 310, NRSG 326, NRSG 336, HINT 311. Corequisite: All of NRSG 302, NRSG 337. Lecture In Person Learning Mon 8:00 a.m. - 11:00 a.m.

Nursing within a health promotion framework in both community and acute care settings. Evidence-informed guidelines for care of the childbearing family during pregnancy, labour, birth, and postpartum will be drawn on to inform assessment and management of holistic, ethical care. Concepts will align with NRSG 338. Lecture In Person Learning Mon 8:00 a.m. - 11:00 a.m.

Nursing within a health promotion framework in both community and acute care settings. Evidence-informed guidelines for care of the childbearing family during pregnancy, labour, birth, and postpartum will be drawn on to inform assessment and management of holistic, ethical care. Concepts will align with NRSG 338. Lecture In Person Learning Mon 8:00 a.m. - 11:00 a.m.

Child health nursing within a health promotion framework in both community and acute care settings. Family-centered care and interprofessional collaboration will be examined with a focus on understanding the diversity and unique needs of both children and families to inform holistic, ethical care. Concepts will align with NRSG 339. Lecture In Person Learning Mon 8:00 a.m. - 11:00 a.m.

Child health nursing within a health promotion framework in both community and acute care settings. Family-centered care and interprofessional collaboration will be examined with a focus on understanding the diversity and unique needs of both children and families to inform holistic, ethical care. Concepts will align with NRSG 339. Lecture In Person Learning Mon 8:00 a.m. - 11:00 a.m.
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<tr>
<td>NRSG 337-P26</td>
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<td>P26</td>
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<td>This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision-making framework. Pass/Fail. [0-16-0] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336. Third-year BSN-O Standing. Corequisite: All of NRSG 302, NRSG 327.</td>
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<td>NRSG 338-P18</td>
<td>Wed Fri</td>
<td>7:00 a.m. - 3:00 p.m.</td>
<td>Nursing Practice with Childbearing Families</td>
<td>Experiential</td>
<td>In Person Learning</td>
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<tr>
<td>NRSG 339-P09</td>
<td>Tue</td>
<td>7:00 a.m. - 3:00 p.m.</td>
<td>Nursing Practice in Child Health</td>
<td>Experiential</td>
<td>In Person Learning</td>
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<td>NRSG 339-P10</td>
<td>Wed</td>
<td>7:00 a.m. - 3:00 p.m.</td>
<td>Nursing Practice in Child Health</td>
<td>Experiential</td>
<td>In Person Learning</td>
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<td>NRSG 339-P11</td>
<td>Thu</td>
<td>7:00 a.m. - 3:00 p.m.</td>
<td>Nursing Practice in Child Health</td>
<td>Experiential</td>
<td>In Person Learning</td>
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<tr>
<td>NRSG 339-P12</td>
<td>Fri</td>
<td>8:00 a.m. - 4:00 p.m.</td>
<td>Nursing Practice in Child Health</td>
<td>Experiential</td>
<td>In Person Learning</td>
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<td>NRSG 339-P13</td>
<td>Wed</td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td>Nursing Practice in Child Health</td>
<td>Experiential</td>
<td>In Person Learning</td>
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<td>NRSG 339-P14</td>
<td>Thu</td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td>Nursing Practice in Child Health</td>
<td>Experiential</td>
<td>In Person Learning</td>
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<td>NRSG 339-P15</td>
<td>Thu</td>
<td>7:00 a.m. - 3:00 p.m.</td>
<td>Nursing Practice in Child Health</td>
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<td>In Person Learning</td>
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<td>NRSG 339-P16</td>
<td>Thu</td>
<td>7:00 a.m. - 3:00 p.m.</td>
<td>Nursing Practice in Child Health</td>
<td>Experiential</td>
<td>In Person Learning</td>
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<td>NRSG 339-P17</td>
<td>Thu</td>
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<td>Experiential</td>
<td>In Person Learning</td>
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<tr>
<td>NRSG 339-P18</td>
<td>Fri</td>
<td>7:00 a.m. - 3:00 p.m.</td>
<td>Nursing Practice in Child Health</td>
<td>Experiential</td>
<td>In Person Learning</td>
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<tr>
<td>NRSG 421-002</td>
<td>Thu</td>
<td>Lecture</td>
<td>Capstone Review</td>
<td>In Person Learning</td>
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<td>NRSG 422-002</td>
<td>Wed</td>
<td>Lecture</td>
<td>Leadership</td>
<td>In Person Learning</td>
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<td>NRSG 423-002</td>
<td>Tue Thu</td>
<td>Lecture</td>
<td>Advanced Clinical Reasoning for Care of the Corp</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
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Exploring concepts and frameworks foundational to the role of the primary care nurse in serving diverse populations, reducing health disparities, and promoting equity. Examine competencies including assessment approaches, care planning, and evaluation of care, and build evidence-informed knowledge of disease prevention, health promotion, and management of health conditions across the life span. Interprofessional collaborative care delivery models and modes of care will be examined. Credit will be granted for only one of NRSG 424 or NRSG 524. Prerequisite: Student in final year of a BSN, BScN, or BSNP program in Canada in good standing; or Registered Nurse/Registered Psychiatric Nurse with Baccalaureate Degree in Canada in good standing.

NRSG_424-001  NRSG_001  Primary Care Nursing I  W2  
Theory and research for ethical, evidence-informed practice for mental health nursing. Develops advanced knowledge of the pathophysiology, etiology, manifestations, diagnostics, and intervention to inform care of patients experiencing acute mental health challenges. [3-0-0] Prerequisite: All of NRSG 229, NRSG 239. Fourth-year BSN-O Standing  Lecture  In Person Learning  Thu 2:00 p.m. - 5:00 p.m.

NRSG_427-001  NRSG_001  Advanced Mental Health  W2  
Preceptored practice course consolidates acute clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail: [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432: and the recommendation of practice advising committee. Experimental  In Person Learning  Arranged  Arranged

NRSG_431-P07  NRSG_007  Capstone Acute Care Preceptorship  W2  
Preceptored practice course consolidates acute clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail: [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432: and the recommendation of practice advising committee. Experimental  In Person Learning  Arranged  Arranged

NRSG_431-P08  NRSG_008  Capstone Acute Care Preceptorship  W2  
Preceptored practice course consolidates acute clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail: [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432: and the recommendation of practice advising committee. Experimental  In Person Learning  Arranged  Arranged

NRSG_431-P09  NRSG_009  Capstone Acute Care Preceptorship  W2  
Preceptored practice course consolidates acute clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail: [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432: and the recommendation of practice advising committee. Experimental  In Person Learning  Arranged  Arranged

NRSG_431-P10  NRSG_010  Capstone Acute Care Preceptorship  W2  
Preceptored practice course consolidates acute clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail: [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432: and the recommendation of practice advising committee. Experimental  In Person Learning  Arranged  Arranged

NRSG_431-P11  NRSG_011  Capstone Acute Care Preceptorship  W2  
Preceptored practice course consolidates acute clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail: [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432: and the recommendation of practice advising committee. Experimental  In Person Learning  Arranged  Arranged

NRSG_431-P12  NRSG_012  Capstone Acute Care Preceptorship  W2  
Preceptored practice course consolidates acute clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail: [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432: and the recommendation of practice advising committee. Experimental  In Person Learning  Arranged  Arranged

NRSG_432-P03  NRSG_003  Capstone Community Project  W2  
Preceptored practice course consolidates acute clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail: [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432: and the recommendation of practice advising committee. Experimental  In Person Learning  Mon 11:00 a.m. - 2:00 p.m.

NRSG_432-P04  NRSG_004  Capstone Community Project  W2  
Preceptored practice course consolidates acute clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail: [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432: and the recommendation of practice advising committee. Experimental  In Person Learning  Mon 11:00 a.m. - 2:00 p.m.

NRSG_432-P05  NRSG_005  Capstone Community Project  W2  
Preceptored practice course consolidates acute clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail: [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432: and the recommendation of practice advising committee. Experimental  In Person Learning  Mon 11:00 a.m. - 2:00 p.m.

NRSG_434-B_P08  NRSG_008  Practice Electives  W2  
Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432: a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee. Experimental  In Person Learning  Arranged  Arranged

NRSG_434-B_P09  NRSG_009  Practice Electives  W2  
Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432: a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee. Experimental  In Person Learning  Arranged  Arranged

NRSG_434-B_P10  NRSG_010  Practice Electives  W2  
Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432: a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee. Experimental  In Person Learning  Arranged  Arranged

NRSG_434-B_P11  NRSG_011  Practice Electives  W2  
Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432: a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee. Experimental  In Person Learning  Arranged  Arranged
Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]

NRSG_434_B_P12  NRSG_O  B  B_P12  Practice Electives  W2

Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. 20 hours of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.

Experiential  In Person Learning  Arranged  Arranged

NRSG_437_B_P07  NRSG_O  B  B_P07  Mental Health Preceptorship  W2

Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, NRSG 427.

Experiential  In Person Learning  Arranged  Arranged

NRSG_437_B_P08  NRSG_O  B  B_P08  Mental Health Preceptorship  W2

Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, NRSG 427.

Experiential  In Person Learning  Arranged  Arranged

NRSG_437_B_P09  NRSG_O  B  B_P09  Mental Health Preceptorship  W2

Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, NRSG 427.

Experiential  In Person Learning  Arranged  Arranged

NRSG_437_B_P10  NRSG_O  B  B_P10  Mental Health Preceptorship  W2

Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, NRSG 427.

Experiential  In Person Learning  Arranged  Arranged

NRSG_437_B_P11  NRSG_O  B  B_P11  Mental Health Preceptorship  W2

Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, NRSG 427.

Experiential  In Person Learning  Arranged  Arranged

NRSG_437_B_P12  NRSG_O  B  B_P12  Mental Health Preceptorship  W2

Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, NRSG 427.

Experiential  In Person Learning  Arranged  Arranged

NRSG_438_B_P07  NRSG_O  B  B_P07  Community Health Nursing Preceptorship  W2

Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with individuals, families and populations in the community context*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams. Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]

Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, NRSG 427.

Experiential  In Person Learning  Arranged  Arranged

NRSG_438_B_P08  NRSG_O  B  B_P08  Community Health Nursing Preceptorship  W2

Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with individuals, families and populations in the community context*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams. Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]

Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, NRSG 432.

Experiential  In Person Learning  Arranged  Arranged

NRSG_438_B_P09  NRSG_O  B  B_P09  Community Health Nursing Preceptorship  W2

Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with individuals, families and populations in the community context*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams. Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]

Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, NRSG 432.

Experiential  In Person Learning  Arranged  Arranged

NRSG_438_B_P10  NRSG_O  B  B_P10  Community Health Nursing Preceptorship  W2

Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with individuals, families and populations in the community context*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams. Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]

Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, NRSG 432.

Experiential  In Person Learning  Arranged  Arranged

NRSG_438_B_P11  NRSG_O  B  B_P11  Community Health Nursing Preceptorship  W2

Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with individuals, families and populations in the community context*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams. Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]

Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, NRSG 432.

Experiential  In Person Learning  Arranged  Arranged

NRSG_438_B_P12  NRSG_O  B  B_P12  Community Health Nursing Preceptorship  W2

Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with individuals, families and populations in the community context*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams. Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]

Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, NRSG 432.

Experiential  In Person Learning  Arranged  Arranged

NRSG_439_P03  NRSG_O  B  B_P03  Global Health Practicum  W2

Advanced practicum provides opportunities to engage in an immersive global health experience in a variety of settings. Students will practice in collaboration with global health partners. The focus is on application of global health and cultural safety competencies. Pass/Fail. *Dependent on availability and cost of travel is in addition to course tuition. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432 and one of NRSG 429, HINT 429, and approval of application.

Experiential  In Person Learning  Arranged  Arranged
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<td>Online Learning</td>
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<td>In Person Learning</td>
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<td>Laboratory</td>
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<td>Special Topics in Language Practice and Pedagogy W2</td>
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<td>PHEL_O 111-001</td>
<td>Introduction to Philosophy I</td>
<td>In Person Learning</td>
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<td>PHEL_O 120-001</td>
<td>Introduction to Logic and Critical Thinking</td>
<td>In Person Learning</td>
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Advanced practicum provides opportunities to engage in an immersive global health experience in a variety of settings. Students will participate in collaboration with global health partners. The focus is on application of global health and cultural safety competencies. Pass/Fail. "Dependent on availability and cost of travel in addition to course tuition. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432 and one of NRSG 429, HINT 429, and approval of application.

Preceptor advanced practice course provides the opportunity to engage in research with a faculty supervisor. Application of knowledge, skills, and abilities in nursing and health related research. Pass/Fail. (4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks) Prerequisite: securement of a faculty supervisor and research elective (3/6) as determined by faculty supervisor.

Exploring concepts and frameworks foundational to the role of the primary care nurse in serving diverse populations, reducing health disparities, and promoting equity. Examine competencies including assessment approaches, care planning, and evaluation of care, and build evidence informed knowledge of disease prevention, health promotion, and management of health conditions across the life span. Interprofessional collaborative care delivery models and modes of care will be examined. Credit will be granted for only one of NRSG 424 or NRSG 524. Prerequisite: Student in MN or MSN Program in Canada in good standing.

Develops essential competencies for management in healthcare leadership positions and integrates evidence-based management concepts into the delivery of quality healthcare to improve health outcomes. This course includes a 75-hour practicum component. (3-0-0) Corequisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing.

Research design issues relevant to nursing and health research, including the conduct of interdisciplinary research, issues in quantitative and qualitative research, design and conceptual complexities of mixed methods designs, community-based research. This course is restricted to students in the PhD in Nursing program (PHD-O, NSL) unless permission is given by the program coordinator. Prerequisite: All of NRSG 506, NSL 507. Or equivalent graduate-level quantitative and qualitative methods courses.

Integrative practicum in a student's chosen area of practice. "Dependent on availability, analysis, synthesis, and apply advanced knowledge to promote change and contribute to knowledge development. (6-0-0)

Research design issues relevant to nursing and health research, including the conduct of interdisciplinary research, issues in quantitative and qualitative research, design and conceptual complexities of mixed methods designs, community-based research. This course is restricted to students in the PhD in Nursing program (PHD-O, NSL) unless permission is given by the program coordinator. Prerequisite: All of NRSG 506, NSL 507. Or equivalent graduate-level quantitative and qualitative methods courses.

Course provides the opportunity to engage in a global health experience in diverse settings*. Students will practice in collaboration with global health partners. The focus is on application of global health and cultural safety competencies. Pass/Fail. "Dependent on availability and cost of travel in addition to course tuition. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432 and one of NRSG 429, HINT 429, and approval of application.

Intensive language immersion course to enhance and improve proficiency. Focused on developing knowledge and application of core concepts, methods and statistical procedures related to quantitative research design and data analysis in health disciplines. (3-0-0) Prerequisite: Undergraduate university or graduate university statistics course in the past five years, or approval of the School of Nursing Graduate Coordinator. Corequisite: NSYL 404 or permission of the Graduate Program.

Examines theory, research, and best practices for teaching and learning in the laboratory and nursing practice courses in acute and community settings. (3-0-0) Corequisite: NSYL 504 or permission of the Graduate Program Coordinator, School of Nursing.

Exploring concepts and frameworks foundational to the role of the primary care nurse in serving diverse populations, reducing health disparities, and promoting equity. Examine competencies including assessment approaches, care planning, and evaluation of care, and build evidence informed knowledge of disease prevention, health promotion, and management of health conditions across the life span. Interprofessional collaborative care delivery models and modes of care will be examined. Credit will be granted for only one of NRSG 424 or NRSG 524. Prerequisite: Student in MN or MSN Program in Canada in good standing.

Develops essential competencies for management in healthcare leadership positions and integrates evidence-based management concepts into the delivery of quality healthcare to improve health outcomes. This course includes a 75-hour practicum component. (3-0-0) Corequisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing.

Restricted to students in the M.S.N. program or with permission from the M.S.N. coordinator. Thesis

Language acquisition pedagogies in and through practice. The language of instruction is Nyzlcn. Restricted to students in the Bachelor of Nyzlcn Language Fluency program. (1-0-0) Corequisite: NSYL 311.

Language acquisition pedagogies in and through practice. The language of instruction is Nyzlcn. Restricted to students in the Bachelor of Nyzlcn Language Fluency program. (1-0-0) Corequisite: NSYL 311.

Numeracy and math frameworks from a Syilx perspective towards increased proficiency in functional numeracy. The language of instruction is Nyzlcn. Restricted to students in the Bachelor of Nyzlcn Language Fluency program. (1-0-0) Corequisite: NSYL 311.

Numeracy and math frameworks from a Syilx perspective towards increased proficiency in functional numeracy. The language of instruction is Nyzlcn. Restricted to students in the Bachelor of Nyzlcn Language Fluency program. (1-0-0) Corequisite: NSYL 311.

Language acquisition pedagogies in and through practice. The language of instruction is Nyzlcn. Restricted to students in the Bachelor of Nyzlcn Language Fluency program. (1-0-0) Corequisite: NSYL 311.

Language acquisition pedagogies in and through practice. The language of instruction is Nyzlcn. Restricted to students in the Bachelor of Nyzlcn Language Fluency program. (1-0-0) Corequisite: NSYL 311.

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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 210-101 PHYS_O</td>
<td>Introduction to Social and Political Philosophy</td>
<td>W2</td>
<td>0.5</td>
<td>Introduction to philosophical issues concerning society, its fundamental institutions, and their nature. Lectures will also address philosophical questions concerning legal reasoning. The approach will be mainly systematic, although some reference to the history of certain philosophical views may be included. [3-0-0] Prerequisite: Second-year standing. Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>PHYS 230-101 PHYS_O</td>
<td>Ethics</td>
<td>W2</td>
<td>0.5</td>
<td>Theories of obligation and value; moral reasoning; normative ethics, descriptive ethics, and metaethics. Readings in classic and contemporary texts. [3-0-0] Prerequisite: Second-year standing. Lecture In Person Learning Tue Thu 5:00 p.m. - 6:30 p.m.</td>
</tr>
<tr>
<td>PHYS 233-101 PHYS_O</td>
<td>Biomedical Ethics</td>
<td>W2</td>
<td>0.5</td>
<td>Moral problems arising in the health sciences. Topics may include abortion, death and euthanasia, genetic engineering, behaviour modification, compulsory treatment, experimentation with human beings and animals, and/or the relationship between professionals and their patients, subjects, or clients. Credit will be granted for only one of PHYS 233 or PHIL 433. [3-0-0] Prerequisite: Second-year standing. Lecture In Person Learning Wed Fri 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>PHYS 245-101 PHYS_O</td>
<td>Introduction to Metaphysics</td>
<td>W2</td>
<td>0.5</td>
<td>Familiarizes students with fundamental issues such as time, causality, personal identity, and the mind-body problem. [3-0-0] Prerequisite: Second-year standing and 6 credits of PHYS. Lecture In Person Learning Mon Wed 6:30 p.m. - 8:00 p.m.</td>
</tr>
<tr>
<td>PHYS 310-101 PHYS_O</td>
<td>The Philosophy of Plato</td>
<td>W2</td>
<td>0.5</td>
<td>A study of Plato's writings and his influence on subsequent philosophy. [3-0-0] Prerequisite: Second-year standing and 3 credits of PHIL. Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>PHYS 315-101 PHYS_O</td>
<td>Philosophy in the 18th Century</td>
<td>W2</td>
<td>0.5</td>
<td>Survey of eighteenth-century philosophy from Locke to Kant, including the writings of Berkeley, Rousseau, and Hume. The influence of science and religion on philosophy. [3-0-0] Prerequisite: Second-year standing and 3 credits of PHIL. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>PHYS 331-101 PHYS_O</td>
<td>Computer Ethics</td>
<td>W2</td>
<td>0.5</td>
<td>Ethical and professional issues facing those who work with computers. Privacy, hacking, responsibility, and liability for the use of software; cyberpornography and freedom of information; computerized invasion of privacy; computers in the workplace; the use of artificial intelligence; and expert systems. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL. Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>PHYS 338-101 PHYS_O</td>
<td>Philosophy of Law</td>
<td>W2</td>
<td>0.5</td>
<td>Concepts of law, constitution, and sovereignty; law and morality; natural law theories and legal positivism; obligation, responsibility, and punishment. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL. Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>PHYS 391 F 101 PHYS_O</td>
<td>Topics in Philosophy</td>
<td>W2</td>
<td>0.5</td>
<td>Examination of selected topics in Philosophy. Topics may vary each time the course is offered. Repeatable for up to 6 credits with different topics. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL. Lecture In Person Learning Mon Wed 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>PHYS 391 I 101 PHYS_O</td>
<td>Topics in Philosophy</td>
<td>W2</td>
<td>0.5</td>
<td>Examination of selected topics in Philosophy. Topics may vary each time the course is offered. Repeatable for up to 6 credits with different topics. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL. Lecture In Person Learning Mon Wed 8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>PHYS 418 I 102 PHYS_O</td>
<td>Topics in 20th-Century Philosophy</td>
<td>W2</td>
<td>0.5</td>
<td>Intensive study of a major philosopher such as Wittgenstein, Russell, or Heidegger, or school such as pragmatism or logical empiricism. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL. Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>PHYS 451-101 PHYS_O</td>
<td>Philosophy of Mind</td>
<td>W2</td>
<td>0.5</td>
<td>The nature of the mental and physical; the relation between minds and bodies; the character of psychological explanation. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL. Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>PHYS 460-001 PHYS_O</td>
<td>Philosophy of Science</td>
<td>W2</td>
<td>0.5</td>
<td>Issues common to all sciences. Philosophical questions including the character of scientific laws, theories and revolutions, the nature of scientific confirmation, causality, explanation and prediction, and the use of logic and probability. Difficulties in the interpretation of atomic physics and quantum about relationships between biology and psychology. No philosophical background is assumed. [3-0-0] Prerequisite: Third-year standing in Arts and 3 credits of PHIL, or third-year standing in Science. Lecture In Person Learning Mon Wed 12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>PHYS 121-101 PHYS_O</td>
<td>Introductory Physics for the Physical Sciences II</td>
<td>W2</td>
<td>0.5</td>
<td>Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-0-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103. Lecture In Person Learning Mon Wed 10:00 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>PHYS 121-101 PHYS_O</td>
<td>Introductory Physics for the Physical Sciences II</td>
<td>W2</td>
<td>0.5</td>
<td>Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-0-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103. Lecture In Person Learning Mon 1:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>PHYS 121-102 PHYS_O</td>
<td>Introductory Physics for the Physical Sciences II</td>
<td>W2</td>
<td>0.5</td>
<td>Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-0-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103. Lecture In Person Learning Mon 6:30 p.m. - 9:30 p.m.</td>
</tr>
<tr>
<td>PHYS 121-103 PHYS_O</td>
<td>Introductory Physics for the Physical Sciences II</td>
<td>W2</td>
<td>0.5</td>
<td>Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-0-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103. Lecture In Person Learning Tue 9:30 a.m. - 12:30 p.m.</td>
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</table>
Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112.
Corequisite: One of MATH 101, MATH 103.
Laboratory In Person Learning Tue 10:00 a.m. - 1:00 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112.
Corequisite: One of MATH 101, MATH 103.
Laboratory In Person Learning Tue 2:30 p.m. - 5:30 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112.
Corequisite: One of MATH 101, MATH 103.
Laboratory In Person Learning Tue 6:30 p.m. - 9:30 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112.
Corequisite: One of MATH 101, MATH 103.
Laboratory In Person Learning Wed 1:00 p.m. - 4:00 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112.
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Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112.
Corequisite: One of MATH 101, MATH 103.
Laboratory In Person Learning Thu 9:30 a.m. - 12:30 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112.
Corequisite: One of MATH 101, MATH 103.
Laboratory In Person Learning Thu 2:30 p.m. - 5:30 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112.
Corequisite: One of MATH 101, MATH 103.
Laboratory In Person Learning Thu 6:30 p.m. - 9:30 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112.
Corequisite: One of MATH 101, MATH 103.
Laboratory In Person Learning Fri 11:00 a.m. - 2:00 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112.
Corequisite: One of MATH 101, MATH 103.
Discussion In Person Learning Tue 3:00 p.m. - 4:00 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112.
Corequisite: One of MATH 101, MATH 103.
Discussion In Person Learning Wed 1:00 p.m. - 2:00 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112.
Corequisite: One of MATH 101, MATH 103.
Discussion In Person Learning Fri 8:00 a.m. - 9:00 a.m.
PHYS 121-T2D  PHYS_O  T2D  Introductory Physics for the Physical Sciences II: W2

PHYS 121-T2E  PHYS_O  T2E  Introductory Physics for the Physical Sciences II: W2

PHYS 121-XM1  PHYS_O  XM1  Introductory Physics for the Physical Sciences II: W2

PHYS 121-XM2  PHYS_O  XM2  Introductory Physics for the Physical Sciences II: W2

PHYS 122-101  PHYS_O  101  Introductory Physics for the Life Sciences II: W2

PHYS 122-102  PHYS_O  102  Introductory Physics for the Life Sciences II: W2

PHYS 122-103  PHYS_O  103  Introductory Physics for the Life Sciences II: W2

PHYS 122-104  PHYS_O  104  Introductory Physics for the Life Sciences II: W2

PHYS 122-105  PHYS_O  105  Introductory Physics for the Life Sciences II: W2

PHYS 122-106  PHYS_O  106  Introductory Physics for the Life Sciences II: W2

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.

Discussion  In Person Learning  Mon  2:00 p.m. - 3:00 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.

Discussion  In Person Learning  Mon  1:00 p.m. - 2:00 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.

Laboratory  In Person Learning  Arranged  Arranged

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.

Discussion  In Person Learning  Arranged  Arranged

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.

Lecture  In Person Learning  Wed Mon  12:30 p.m. - 2:00 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.

Lecture  In Person Learning  Mon Wed  5:00 p.m. - 6:30 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.

Laboratory  In Person Learning  Mon  2:30 p.m. - 5:30 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.

Laboratory  In Person Learning  Mon  6:30 p.m. - 9:30 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.

Laboratory  In Person Learning  Tue  9:30 a.m. - 12:30 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.

Laboratory  In Person Learning  Tue  2:30 p.m. - 5:30 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.

Laboratory  In Person Learning  Tue  6:30 p.m. - 9:30 p.m.

Physics primarily for students majoring in the physical sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with applications to the physical sciences. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Corequisite: One of MATH 101, MATH 103.
Physics primarily for students majoring in the life sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with biological applications. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. \([3-3]\) Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Consequence: One of MATH 101, MATH 103.

Laboratory In Person Learning Wed 2:30 p.m. - 5:30 p.m.

Physics primarily for students majoring in the life sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with biological applications. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. \([3-3]\) Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Consequence: One of MATH 101, MATH 103.

Laboratory In Person Learning Thu 9:30 a.m. - 12:30 p.m.

Physics primarily for students majoring in the life sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with biological applications. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. \([3-3]\) Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Consequence: One of MATH 101, MATH 103.

Laboratory In Person Learning Thu 2:30 p.m. - 5:30 p.m.

Physics primarily for students majoring in the life sciences. Simple harmonic motion, sound, physical and wave optics, electricity, electric circuits, and magnetism with biological applications. Experimental laboratory investigations in electricity, magnetism, waves and optics. Credit will be granted for only one of PHYS 121 and PHYS 122. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. \([3-3]\) Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Consequence: One of MATH 101, MATH 103.

Laboratory In Person Learning Thu 6:30 p.m. - 9:30 p.m.
<table>
<thead>
<tr>
<th>Time</th>
<th>Day</th>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>9:00 a.m.</td>
<td>Mon</td>
<td>PHYS 122</td>
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**PHYS 122-TDB**
In Person Learning
Fri
4:00 p.m. - 5:00 p.m.

**PHYS 122-TDC**
In Person Learning
Fri
9:00 a.m. - 10:00 a.m.

**PHYS 122-TDD**
In Person Learning
Thu
1:00 p.m. - 2:00 p.m.

**PHYS 122-TDE**
In Person Learning
Mon
11:00 a.m. - 12:00 p.m.

**PHYS 122-TDF**
In Person Learning
Tue
4:00 p.m. - 5:00 p.m.

**PHYS 122-TDG**
In Person Learning
Tue
2:00 p.m. - 3:00 p.m.

**PHYS 122-TDH**
In Person Learning
Fri
4:00 p.m. - 5:00 p.m.

**PHYS 122-XM1**
Laboratory
In Person Learning
Arranged
Arranged

**PHYS 122-XM2**
Laboratory
In Person Learning
Arranged
Arranged

**PHYS 120**

**PHYS 200-001**

**PHYS 200-501**

**PHYS 216-101**

**PHYS 216-501**

**PHYS 232-101**

**PHYS 232-201**

**PHYS 232-301**

Relativity and Quanta

Relativity and Quanta

Mechanics I

Mechanics I

Modern Physics Laboratory

Modern Physics Laboratory

Modern Physics Laboratory


discussion

- Lorentz transformation, dynamics, and conservation laws.
- Quantum physics: the experimental evidence for quantization; a qualitative discussion of the concepts of quantum mechanics and their application to simple systems of atoms and nuclei.

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- Review of kinematics, Newton's laws, angular momentum, and fixed axis rotation. Rigid body motion, central forces, non-inertial frames of reference.

- Review of kinematics, Newton's laws, angular momentum, and fixed axis rotation. Rigid body motion, central forces, non-inertial frames of reference.

- Selected experiments in relativity, quantum mechanics, thermodynamics, particle physics or nuclear physics.

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- Quantitative analysis of data, methods of measurement, formal presentation of laboratory results.

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- One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122.

- One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122.
PHYS_O 232-L02  PHYS_O  L02  Modern Physics Laboratory  W2
Selected experiments in relativity, quantum mechanics, thermodynamics, particle physics or nuclear physics. Quantitative analysis of data, methods of measurement, formal presentation of laboratory results. [2-3-0]
Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122. Laboratory  In Person Learning  Wed  11.00 a.m. - 2.00 p.m.

PHYS_O 305-T01  PHYS_O  T01  Introduction to Biophysics  W3
Analysis of biological systems from a physicist's perspective. Introduction to physics underlying biological phenomena, and range of applicability of simple physical principles. Form and size in animals, strength and energy storage in structural elements, thermal regulation, fluid motion within organisms, life in fluids, and molecular physics topics. [3-0-0]
Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122.
Third-year standing in Science or in a 200-level PHYS course taken concurrently.
Lecture  In Person Learning  Wed Fri  3:30 p.m. - 5:00 p.m.

PHYS_O 328-T01  PHYS_O  T01  Advanced Mechanics  W2
Variational calculus, the Lagrangian Method applied to a variety of problems, weak anharmonic perturbations of normal-mode systems, Hamilton’s equations of motion, phase space, Liouville's theorem, chaos in Hamiltonian systems, rigid-body rotations in three dimensions, Lagrangian formulation of relativistic mechanics, and the Virial theorem. [3-0-0]
Prerequisite: All of MATH 200, MATH 221, MATH 225, PHYS 216. Lecture  In Person Learning  Tue Thu  12.30 p.m. - 2.00 p.m.

PHYS_O 400-001  PHYS_O  001  Introduction to Elementary Particles  W2
Standard model, classification of elementary particles and forces of nature, symmetries, conservation laws, quark model, quantum electrodynamics, quantum chromodynamics, and the theory of weak interactions. [3-0-0]
Prerequisite: PHYS 304. Lecture  In Person Learning  Wed Fri  12.30 p.m. - 2.00 p.m.

PHYS_O 401-T01  PHYS_O  T01  Electromagnetic Theory  W2
The application of Maxwell’s theory to the propagation of electromagnetic waves. [3-0-0]
Prerequisite: PHYS 301. Lecture  In Person Learning  Wed Fri  9:30 a.m. - 11.00 a.m.

PHYS_O 441-T01  PHYS_O  T01  Experimental Physics II  W2
Student designs and constructs a single experiment in solid-state physics, fluid dynamics, particle physics, astrophysics, optics or electromagnetism. Emphasis on experimental design, construction, and formal presentation of results. [0-3-1.5]
Prerequisite: PHYS 331. Lecture  In Person Learning  Thu  11.00 a.m. - 12.30 p.m.

PHYS_O 441-T02  PHYS_O  T02  Experimental Physics II  W2
Student designs and constructs a single experiment in solid-state physics, fluid dynamics, particle physics, astrophysics, optics or electromagnetism. Emphasis on experimental design, construction, and formal presentation of results. [0-3-1.5]
Prerequisite: PHYS 331. Laboratory  In Person Learning  Mon  11.00 a.m. - 2.00 p.m.

PHYS_O 448-A_101  PHYS_O  A_101  Directed Studies in Physics  W2
The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration Independent Study  In Person Learning  Arranged  Arranged

PHYS_O 448-A_102  PHYS_O  A_102  Directed Studies in Physics  W2
The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration Independent Study  In Person Learning  Arranged  Arranged

PHYS_O 448-C_101  PHYS_O  C_101  Directed Studies in Physics  W2
The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration Independent Study  In Person Learning  Arranged  Arranged

PHYS_O 448-C_102  PHYS_O  C_102  Directed Studies in Physics  W2
The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration Independent Study  In Person Learning  Arranged  Arranged

PHYS_O 535-T01  PHYS_O  T01  Radiotherapy Physics II  W2
A continuation of PHYSICS 534. Covers the physics and applied dosimetry of current external and internal irradiation treatment techniques. Photon and electron beam radiation treatment planning. Brachytherapy and special techniques. Errors in radiation therapy. Prerequisite: PHYS 534. Lecture  In Person Learning  Wed Fri  11.00 a.m. - 12.30 p.m.

PHYS_O 539-T01  PHYS_O  T01  Radiation Dosimetry  W2
The fundamentals of radiation dosimetry, ionisation cavity theories, and radiation dosimetry protocols. A variety of absolute and relative dosimetry techniques are also covered, with hands-on experience provided through a series of lab exercises on medical linear accelerators. Monte Carlo simulation of radiation transport for dosimetry applications is introduced. Lecture  In Person Learning  Wed Fri  9:30 a.m. - 11.00 a.m.

PHYS_O 544-001  PHYS_O  001  Radiation Biophysics  W2
Topics in radiation biology including DNA strand breaks, cell survival curves, fractionation and dose rate effects, oxygen effect, relative biological effectiveness, tumour radiobiology, radiation pathology, radiobiological modelling, stochastic and deterministic effects, and molecular techniques in radiobiology. Lecture  In Person Learning  Tue Thu  2:00 p.m. - 3.30 p.m.

PHYS_O 549-T101  PHYS_O  T101  Master’s Thesis  W2
Pass/Fail. Thesis  In Person Learning  Arranged  Arranged

PHYS_O 569-T101  PHYS_O  T101  Doctoral Dissertation  W2
Pass/Fail. Thesis  In Person Learning  Arranged  Arranged

POLI_O 100-101  POLI_O  101  Introduction to Politics  W2
Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [3-0-1.5]
Prerequisite: POLI 220 or POLI 210. [3-0-0]
Equivalency: POLI 220. Lecture  In Person Learning  Fri  11.00 a.m. - 12.30 p.m.

POLI_O 100-T2A  POLI_O  T2A  Introduction to Politics  W2
Discussion  In Person Learning  Thu  12.30 p.m. - 2.00 p.m.

POLI_O 100-T2B  POLI_O  T2B  Introduction to Politics  W2
Discussion  In Person Learning  Thu  11.00 a.m. - 12.30 p.m.

POLI_O 100-T2C  POLI_O  T2C  Introduction to Politics  W2
Discussion  In Person Learning  Mon  8:00 a.m. - 9:30 a.m.

POLI_O 100-T2D  POLI_O  T2D  Introduction to Politics  W2
Discussion  In Person Learning  Wed  5:00 p.m. - 6:30 p.m.

POLI_O 100-T2E  POLI_O  T2E  Introduction to Politics  W2
Discussion  In Person Learning  Wed  8:00 a.m. - 9:30 a.m.

POLI_O 210-101  POLI_O  101  Introduction to Comparative Politics  W2
Comparative analysis of domestic politics and institutions of foreign countries. Specific countries to be covered will vary according to section. Credit will be granted for only one of POLI 220 or POLI 210. [3-0-0]
Equivalency: POLI 220. Lecture  In Person Learning  Wed Fri  3:30 p.m. - 5.00 p.m.
Introduction to Canadian Politics - W2

Lecture: 5:00 p.m. - 6:30 p.m.

In Person Learning: Thu

Introduction to International Relations - W2

Study of the emergence and organization of the modern international system of states, including an examination of the ends and means of interstate relations. Credit will be granted for only one of POLI 221 or POLI 270. Equivalency: POLI 221. [3-0-0]

Lecture: In Person Learning

Tue Thu

Politics of South America - W2

Analysis of politics in South America. [3-0-0] Prerequisite: One of POLI 210 or POLI 220.

Lecture: In Person Learning

Fri

Comparative Law and Politics - W2

Examination of how different societies structure courts and the legal system. Topics include legal traditions, judicial review, and judicial decision-making. Credit will be granted for only one of POLI 484 or POLI 527 when the subject matter is of the same nature. [3-0-0] Prerequisite: POLI 203 and one of POLI 210 or POLI 220.

Lecture: In Person Learning

Tue

International Development - W2

Perspectives, arguments, and questions at the intersection of political and religious thought and practice. Works in various religious and political/philosophical traditions will be considered. [3-0-0] Prerequisite: One of POLI 240 or POLI 250.

Lecture: In Person Learning

Tue Thu

Introduction to Psychology: Personal Functioning - W3

Examination of the role of myth, philosophy, and history in the founding of new political units. [3-0-0] Prerequisite: One of POLI 240 or POLI 250.

Lecture: In Person Learning

Mon Wed

Politics and Religion - W2

Examination of various genres of pop culture in relationship to the political and philosphic messages that are contained within. This course will also look at critics of pop culture and philosphic arguments for the place of art and beauty in democratic life. [3-0-0] Prerequisites: One of POLI 240 or POLI 250.

Lecture: In Person Learning

Mon

In Person Learning: Tue Thu

Introduction to Social Psychology - W2

Survey of topics in psychology which relate to professional functioning. Methods and statistics, motivation and emotion, life span development, social processes, personality, psychopathology, and psychotherapy. [3-0-0] Prerequisite: PSYO 111.

Lecture: Online Learning

Tue Thu

Introduction to the field of lifespan developmental psychology. Examination of the physical, cognitive, and psychosocial development of the individual from conception through later adulthood. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121, or PSYC 102, or PSYC 100.

Lecture: In Person Learning

Wed Fri

Biopsychology of Behaviour - W2

Survey of topics in psychology which relate to professional functioning. Methods and statistics, motivation and emotion, life span development, social processes, personality, psychopathology, and psychotherapy. [3-0-0] Prerequisite: PSYO 111.

Lecture: In Person Learning

Fri

Advancement of Psychological Research - W2

Methods of research and critical analysis of theoretical foundations and research. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121, or all of PSYC 101, PSYC 102, or PSYC 100.

Lecture: In Person Learning

Thu

Personality - W2

Survey of topics in psychology which relate to professional functioning. Methods and statistics, motivation and emotion, life span development, social processes, personality, psychopathology, and psychotherapy. [3-0-0] Prerequisite: PSYO 111.

Lecture: In Person Learning

Fri

Introduction to Social Psychology - W2

Introduction to social psychology. Attitudes, opinions and beliefs, persuasion, mass communication, group processes, prejudice, interpersonal attraction, conformity, aggression, and conflict. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.

Lecture: Online Learning

Tue

Introduction to Data Analysis - W2

Introduction to behavioral data analysis focusing on the use of inferential statistics in psychology and the conceptual interpretation of data as related to basic experimental designs (laboratory, field research methods). A required course for students majoring in Psychology: restricted to students majoring in Psychology. [3-2-0] Prerequisite: PSYO 270.

Lecture: In Person Learning

Thu

Introduction to the logic of quantitative research designs in political science: theory and practical applications. Students will pursue their research interests using the methodology learned in class. Credit will be granted for only one of POLI 441 or POLI 400. [3-0-0] Prerequisite: Third-year standing. Equivalency: POLI 441.

Lecture: In Person Learning

Fri

Advanced International Relations Theory - W3

Seminar examining the politics of Canadian civil liberties and the Canadian Charter of Rights and Freedoms. [3-0-0] Prerequisite: One of POLI 221 or POLI 270.

Seminar: In Person Learning

Thu

Seminar on major theoretical approaches to the study of international relations. Credit will be granted for only one of POLI 462 or POLI 470. [3-0-0] Prerequisite: POLI 370.

Seminar: In Person Learning

Tue

Introduction to Psychology: Basic Processes - W2

Survey of topics in psychology which relate to basic processes. Methods and statistics, the nervous system and physiological processes, sensation and perception, learning, cognition and memory. [3-0-0]

Lecture: In Person Learning

Mon Wed

Introduction to the field of lifespan developmental psychology. Examination of the physical, cognitive, and psychosocial development of the individual from conception through later adulthood. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121, or PSYC 102, or PSYC 100.

Lecture: In Person Learning

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Lecture: In Person Learning

Tue Thu

Introduction to the logic of quantitative research designs in political science: theory and practical applications. Students will pursue their research interests using the methodology learned in class. Credit will be granted for only one of POLI 441 or POLI 400. [3-0-0] Prerequisite: Third-year standing. Equivalency: POLI 441.

Lecture: In Person Learning

Fri

In Person Learning: Mon Wed

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Introduction to social psychology. Attitudes, opinions and beliefs, persuasion, mass communication, group processes, prejudice, interpersonal attraction, conformity, aggression, and conflict. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.

Lecture: Online Learning

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Lecture: In Person Learning

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Introduction to Social Psychology - W2

Introduction to social psychology. Attitudes, opinions and beliefs, persuasion, mass communication, group processes, prejudice, interpersonal attraction, conformity, aggression, and conflict. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.

Lecture: Online Learning

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Lecture: In Person Learning

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Lecture: In Person Learning

Tue
Psychology of Humour

In Person Learning
Mon Wed
W2
Lecture
001

Neuroscience of Cognition
11:00 a.m. - 12:30 p.m.
8:00 a.m. - 11:00 a.m.
A_101

Psychological Aspects of Human Sexuality II
Tue Thu
3:30 p.m. - 5:00 p.m.
Online Learning

Advanced Research Methods and Statistics
Thu
In Person Learning
Lecture
W2
W2
Lecture
101

Child Development
W2
In Person Learning
Lecture
001

Advanced Topics
Wed Fri
In Person Learning
Lecture
W2

Advances in special topics in psychology. May be repeated on a different
topic for a maximum of 9 credits during complete program of study. [1-9 hours/week lecture] Prerequisite:

Glancing for vision is our primary source of information, we have several other well-developed perceptual
sensory. This course examines the research behind our understanding of the processing that allows us to hear,
feel, touch, smell, and taste. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 6 credits of 200-level Psychology.

Survey of developmental psychology, focusing on the childhood segment of the lifespan. Examines the physical,
cognitive, and psychosocial development of children from conception through the school years. [3-0-0] Prerequisite: PSYO 220 and one of PSYO 219, PSYO 220, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 3 credits of 200-level Psychology.

Modern imaging techniques provide new insights into where and how thinking occurs in the brain. This course
examines how these techniques have led to a new understanding of topics such as memory, language, decision making, evolution, and cerebral lateralization. Discussion will include a consideration of specific phenomena such as false memories and reading impairment. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 6 credits of 200-level Psychology.

Surveys topics related to the effects of drugs on behaviour. Cellular mechanisms of action, drug absorption,
tolerance, addiction, withdrawal, and placebo effects. Classes of drugs studied will include alcohol,
transquilizers, nicotine, stimulants, opiates, marijuana, hallucinogens, antidepressants, and antipsychotics. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 3 credits of 200-level Psychology.

Critical survey of research and theory on relation between psychological factors (behaviour, emotion,
cognition, personality, and interpersonal relationships) and health. Topics include: stress and health, coping
with stress, social support, health behaviours (e.g., physical activity), and psychosocial aspects of chronic
illness. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 6 credits of 200-level Psychology.

The psychology of happiness and well-being. Current research designs, techniques, empirical findings, and
theories in positive psychology. Practical experience with some of the interventions and strategies used in
positive psychology. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 6 credits of 200-level Psychology.

Academic overview of human sexuality from a biological, psychological, and behavioral perspective. Sexual
behaviour, sexual complications and their treatment, attraction and love, sexual orientation, and problematic
sexual behaviour. [3-0-0] Prerequisite: PSYO 335.

Implications of theory and research in psychology for the criminal justice system. Role played by psychologists in
the criminal justice system; assessment and treatment of offenders, victims, and survivors. [3-0-0] Prerequisite:
PSYO 555.

Cognitive, social, and biological perspectives on humour and comedy. Applications of humour research in
educational, business, and clinical settings, as well as in everyday life. Prerequisite: All of PSYO 111, PSYO 121.
and third-year standing.

Addresses selected issues on the validity and quality of research, complex research designs, and associated
statistical analyses. Students will gain additional experience in the use of standard statistical computer
programs. [3-0-0] Prerequisite: A score of 76% or higher in PSYO 372, and permission of the department head.

Addresses selected issues on the validity and quality of research, complex research designs, and associated
statistical analyses. Students will gain additional experience in the use of standard statistical computer
programs. [3-0-0] Prerequisite: A score of 76% or higher in PSYO 372, and permission of the department head.

Intensive examination of selected topics and issues in Developmental Psychology. This course will not be
offered each term; check list of current offerings. May be repeated on a different topic for a maximum of 6
credits during complete program of study. [1-6 hours/week class time] Prerequisite: One of PSYO 321, PSYO 322, PSYO 323.

Intensive examination of selected topics in psychology. May be repeated on a different
topic for a maximum of 9 credits during complete program of study. [1-9 hours/week lecture] Prerequisite:
Third-year standing and permission of the department head.

Intensive examination of selected advanced topics and issues in psychology. May be repeated on a different
topic for a maximum of 9 credits during complete program of study. [1-9 hours/week lecture] Prerequisite:
Third-year standing and permission of the department head.

Statistical analyses. Students will gain additional experience in the use of standard statistical computer
programs. [3-0-0] Prerequisite: A score of 76% or higher in PSY 372, and permission of the department head.

Intensive examination of selected topics and issues in Developmental Psychology. This course will not be
offered each term; check list of current offerings. May be repeated on a different topic for a maximum of 6
credits during complete program of study. [1-6 hours/week class time] Prerequisite: One of PSY 321, PSY 322, PSY 323.

Intensive examination of selected advanced topics and issues in psychology. May be repeated on a different
topic for a maximum of 9 credits during complete program of study. [1-9 hours/week lecture] Prerequisite:
Third-year standing and permission of the department head.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Format</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYO 511-101</td>
<td>Advanced Clinical Diagnostics</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>In-Person Learning Wed 2:00 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>PSYO 515-101</td>
<td>Psychological Assessment II</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>In-Person Learning Thu 8:00 a.m. - 11:00 a.m.</td>
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<tr>
<td>PSYO 517-101</td>
<td>Psychological Intervention II: Advanced Topics</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>In-Person Learning Tue 8:00 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>PSYO 599-101</td>
<td>Master's Thesis</td>
<td>Pass/Fail</td>
<td>Thesis</td>
<td>In-Person Learning Arranged Arranged</td>
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<tr>
<td>PSYO 699-101</td>
<td>Doctoral Dissertation</td>
<td>Pass/Fail</td>
<td>Thesis</td>
<td>In-Person Learning Arranged Arranged</td>
</tr>
<tr>
<td>SOCI 011-101</td>
<td>Integration to Sociology</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>Online Learning Mon Wed 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>SOCI 011-102</td>
<td>Introduction to Sociology</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>In-Person Learning Mon Wed Fri 2:00 p.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>SOCI 209-101</td>
<td>Foundations of Sociological Thought</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>In-Person Learning Thu 11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>SOCI 216-101</td>
<td>Media and Society</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>In-Person Learning Thu 12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>SOCI 246-101</td>
<td>Sociology of Sports</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>In-Person Learning Fri 11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>SOCI 249-101</td>
<td>Crime and Society</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>In-Person Learning Wed Fri 11:30 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>SOCI 263-101</td>
<td>Political Sociology</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>In-Person Learning Thu 2:00 p.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>SOCI 305-101</td>
<td>Sociology of Families</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>In-Person Learning Mon Wed 12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>SOCI 362 B 101</td>
<td>Social Inequality</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>In-Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>SOCI 371 B 101</td>
<td>Deviance and Social Control</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>In-Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>SOCI 377-101</td>
<td>Contemporary Sociological Theory</td>
<td>3-0-0</td>
<td>Lecture</td>
<td>In-Person Learning Fri 8:00 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>SOCI 411 C 101</td>
<td>Special Studies in Canadian Society</td>
<td>3-0-0</td>
<td>Seminar</td>
<td>In-Person Learning Mon 6:30 p.m. - 9:30 p.m.</td>
</tr>
<tr>
<td>SOCI 415-101</td>
<td>Feminist Theory</td>
<td>3-0-0</td>
<td>Seminar</td>
<td>In-Person Learning Fri 2:00 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>SOCI 465-101</td>
<td>Nations and Nationalisms</td>
<td>3-0-0</td>
<td>Seminar</td>
<td>In-Person Learning Mon 11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>SOCI 496 B 101</td>
<td>Advanced Studies in Sociology</td>
<td>3-0-0</td>
<td>Seminar</td>
<td>In-Person Learning Fri 6:30 p.m. - 9:30 p.m.</td>
</tr>
<tr>
<td>SOCW 053-001</td>
<td>Assessment Skills for Clinical Social Work</td>
<td>3-0-0</td>
<td>Seminar</td>
<td>In-Person Learning Wed 2:00 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>SOCW 053-002</td>
<td>Assessment Skills for Clinical Social Work</td>
<td>3-0-0</td>
<td>Seminar</td>
<td>In-Person Learning Mon 5:00 p.m. - 8:00 p.m.</td>
</tr>
<tr>
<td>SOCW 051-001</td>
<td>Social Welfare Policy in Canada</td>
<td>3-0-0</td>
<td>Seminar</td>
<td>In-Person Learning Mon 11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>SOCW 058-001</td>
<td>Integrative Seminar for Field Education</td>
<td>3-0-0</td>
<td>Seminar</td>
<td>In-Person Learning Fri (Alternate weeks) 11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>SOCW 058-002</td>
<td>Integrative Seminar for Field Education</td>
<td>3-0-0</td>
<td>Seminar</td>
<td>In-Person Learning Fri (Alternate weeks) 11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>SOCW 052-001</td>
<td>Human Development for Clinical Social Work</td>
<td>3-0-0</td>
<td>Seminar</td>
<td>In-Person Learning Wed 11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>SOCW 053-001</td>
<td>Anti-Racist and Anti-Oppressive Clinical Practice</td>
<td>3-0-0</td>
<td>Seminar</td>
<td>In-Person Learning Mon 11:00 a.m. - 2:00 p.m.</td>
</tr>
</tbody>
</table>
STAT 0 560-001  STAT 0 001 Probability and Stochastic Processes W2
Lecture In Person-Learning Mon Wed 3:30 p.m. - 5:00 p.m.

SUST 0 100-101  SUST 0 101 Sustainability: People, Place, and Process W2
The concept of sustainability and its relationship to people and communities, the management and conservation of natural resources, land and food systems, and the built environment. Guest speakers and in-class discussions covering topics which address local and global contexts. May include community service learning project. [3-0-0]
Lecture In Person-Learning Tue Thu 8:00 a.m. - 9:30 a.m.

SUST 0 204-001  SUST 0 001 Creative Communication and Engagement W2
Living experiential and collaborative learning, students of sustainability improve their communication skills as speakers, listeners, collaborators, leaders and problem solvers. Credit will be granted for only one of SUST 204 or THTR 204. [3-0-0] Prerequisite: SUST 104 recommended. Equivalency: THTR 204
Studio In Person-Learning Tue 5:00 p.m. - 6:00 p.m.

SUST 0 205-001  SUST 0 001 Sustainability Economics W2
Explores and contrasts approaches and tools from mainstream economics and heterodox economics that may contribute to sustainability decision making. Identification and evaluation of trade-offs associated with choices made in the name of sustainability. Restricted to students in the Bachelor of Sustainability program. [3-0-0] Prerequisite: SUST 200 recommended.
Lecture In Person-Learning Wed Fri 9:30 a.m. - 11:00 a.m.

SUST 0 300-101  SUST 0 101 Achieving Sustainability at the Regional Scale W2
Advanced analysis of regional-scale challenges and solutions to sustainability in developed and developing nations. Ecosystem services and relationships to human well-being. Social and ecological resilience of landscapes. [3-0-0] Prerequisite: SUST 200.
Lecture In Person-Learning Tue Thu 2:00 p.m. - 3:30 p.m.

THTR 0 103-101  THTR 0 101 Acting for Stage and Screen W2
An introduction to acting techniques pertaining to the style of psychological realism for stage and screen. Credit will be granted for only one of THTR 103 or FILM 103. [3 hours/week studio] Equivalency: FILM 103
Studio In Person-Learning Mon 2:00 p.m. - 5:00 p.m.

THTR 0 104-101  THTR 0 101 The Art of Public Speaking W2
Verbal and nonverbal communication skills as well as knowledge of basic communications technologies. Well-suited to students who wish to build skill and confidence in public presentation.
Studio In Person-Learning Fri 2:00 p.m. - 5:00 p.m.

THTR 0 204-001  THTR 0 001 Creative Communication and Engagement W2
Living experiential and collaborative learning, students of sustainability improve their communication skills as speakers, listeners, collaborators, leaders and problem solvers. Credit will be granted for only one of THTR 204 or SUST 204. Prerequisite: SUST 304 recommended. Equivalency: SUST 204
Studio In Person-Learning Tue 5:00 p.m. - 8:00 p.m.

THTR 0 212-101  THTR 0 101 Creativity as Source & Resource W2
Process-oriented exploration of creativity as a source of personal growth and expressive freedom, and a resource for the cultivation of self-confidence, resilience, and well-being. Prerequisite: Second-year standing.
Studio In Person-Learning Wed 2:00 p.m. - 5:00 p.m.

THTR 0 304-001  THTR 0 101 World Theatre and Cultural Performance W2
Explores world theatre and cultural performance traditions and practices from South, Southeast Asia; Oceania; Sub-Saharan Africa; the Middle East; and the Americas; includes Indigenous theatre. Credit will be granted for only one of THTR 304 or WRUL 304. Prerequisite: Third-year standing. Equivalency: WRUL 304
Lecture In Person-Learning Fri 11:00 a.m. - 2:00 p.m.

THTR 0 384-101  THTR 0 101 Spoken Word W2
Advanced workshop in writing and performing Spoken Word texts. Credit will be granted for only one of THTR 384 or CRWR 384, CULT 384 or CULT 308. [3-0-0] Prerequisite: 6 credits of Creative Writing and/or Theatre. Third-year standing. Equivalency: CRWR 384, CULT 384
Studio In Person-Learning Wed 11:00 a.m. - 2:00 p.m.

VGRS 0 559-002  VGRS 0 002 Visiting Graduate Research Students W2
Visiting Graduate Research Students
Independent Study In Person-Learning Arranged Arranged

VISA 0 090-010  VISA 0 010 Safety Training W3
Pau/Fac.
Lecture In Person-Learning Mon Wed 9:00 a.m. - 1:00 p.m.

VISA 0 103-001  VISA 0 001 Drawing and Two-Dimensional Art Practices II W2
Continuation of VISA 102. [2-2-0] Prerequisite: VISA 102.
Studio In Person-Learning Tue 2:00 p.m. - 6:00 p.m.

VISA 0 103-101  VISA 0 001 Drawing and Two-Dimensional Art Practices II W2
Continuation of VISA 102. [2-2-0] Prerequisite: VISA 102.
Studio In Person-Learning Thu 2:00 p.m. - 6:00 p.m.

VISA 0 105-001  VISA 0 001 Three-Dimensional Art Practices II W2
Continuation of VISA 104. [2-2-0] Prerequisite: VISA 104.
Studio In Person-Learning Wed 9:00 a.m. - 1:00 p.m.

VISA 0 105-002  VISA 0 002 Three-Dimensional Art Practices II W2
Continuation of VISA 104. [2-2-0] Prerequisite: VISA 104.
Studio In Person-Learning Fri 9:00 a.m. - 1:00 p.m.

VISA 0 108-001  VISA 0 001 Introduction to Digital Media II W2
Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0] Prerequisite: VISA 106.
Lecture In Person-Learning Thu 8:30 a.m. - 9:30 a.m.

VISA 0 108-101  VISA 0 101 Introduction to Digital Media II W2
Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0] Prerequisite: VISA 106.
Laboratory In Person-Learning Wed 2:00 p.m. - 5:00 p.m.

VISA 0 108-102  VISA 0 102 Introduction to Digital Media II W2
Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0] Prerequisite: VISA 106.
Laboratory In Person-Learning Mon 8:00 a.m. - 11:00 a.m.

VISA 0 108-103  VISA 0 103 Introduction to Digital Media II W2
Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0] Prerequisite: VISA 106.
Laboratory In Person-Learning Thu 5:00 p.m. - 8:00 p.m.

VISA 0 225-001  VISA 0 001 Painting II W2
Continuation of VISA 215. [2-2-0] Prerequisite: VISA 215.
Studio In Person-Learning Fri 2:00 p.m. - 6:00 p.m.

VISA 0 245-001  VISA 0 001 Sculpture II W2
For the student who wishes to specialize in sculpture. Students will work with the concepts of space and materials to create personal solutions to problems set by the instructor. [2-2-0] Prerequisite: VISA 255.
Studio In Person-Learning Tue 12:30 p.m. - 4:30 p.m.

VISA 0 253-001  VISA 0 001 Printmaking: Screenprinting II W2
Lecture In Person-Learning Wed 4:30 p.m. - 6:30 p.m.

VISA 0 254-001  VISA 0 001 Introduction to Printmaking: Etching and Lithogr W3
Introduction to drawing based printmaking processes - line etching and stone lithography. Focus is on gaining familiarity with these processes and on personal imagery. Basic drawing skills are an asset. [2-2-0] Prerequisite: Either (a) VISA 103 or (b) VISA 147 or permission of the instructor.
Studio In Person-Learning Thu 2:00 p.m. - 6:00 p.m.

VISA 0 256-001  VISA 0 001 Photography II W2
A further refinement of photographic and darkroom processing skills emphasizing creative, conceptual, and experimental approaches. A 35mm SLR film camera and tripod are required. [2-2-0] Prerequisite: VISA 244.
Studio In Person-Learning Wed 2:00 p.m. - 6:00 p.m.

VISA 0 266-001  VISA 0 002 2D Animation W2
Introduces core principles and techniques required for the creation of two-dimensional digital animation projects. [1-3-0] Prerequisite: VISA 108.
Studio In Person-Learning Mon 1:00 p.m. - 5:00 p.m.

VISA 0 266-002  VISA 0 002 2D Animation W2
Introduces core principles and techniques required for the creation of two-dimensional digital animation projects. [1-3-0] Prerequisite: VISA 108.
Studio In Person-Learning Wed 8:00 a.m. - 12:00 p.m.

VISA 0 269-001  VISA 0 001 Strategies in Digital Art: Virtual Worlds W2
Critical understanding and research-creation of virtual environments employing non-linear storytelling, media aesthetics, modelling, animation, interaction design and coding using 3D modelling software. [1-3-0] Prerequisite: VISA 108.
Studio In Person-Learning Fri 8:00 a.m. - 12:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Instructor</th>
<th>Credit Hours</th>
<th>Prerequisites</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>VISA_O 271-101</td>
<td>VISA_O 101 Video II</td>
<td>W2</td>
<td>Continuation of VISA 261. Further work on organizational, technical, creative, and critical skills required in video production. Provides experience in all stages of the production process, including pre-production, production, and post-production. Considers a variety of approaches to video, such as artist videos, music videos, and television productions. Credit will be granted for only one of VISA 271 or FILM 271. [2-2-0] Prerequisite: One of VISA 261, FILM 261. Equivalency: FILM 271.</td>
<td>Studio</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>VISA_O 283-001</td>
<td>VISA_O 001 Drawing IV</td>
<td>W2</td>
<td>Continuation of VISA 282. Extended exploration of various drawing approaches, material applications, and image manipulation practices. [2-2-0] Prerequisite: VISA 282.</td>
<td>Studio</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>VISA_O 300-X_101</td>
<td>VISA_O X X_101 Advanced Practice in Drawing</td>
<td>W2</td>
<td>To extend students' abilities in mark making, image production, and expression of meaning through drawing. Emphasis on developing personal visual languages. [2-2-0] Prerequisite: VISA 283.</td>
<td>Studio</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>VISA_O 313_C_101</td>
<td>VISA_O C C_101 Advanced Practice in Painting</td>
<td>W2</td>
<td>Advanced studio course to increase the student's exploration and understanding of painting. [2-2-0] Prerequisite: VISA 225.</td>
<td>Studio</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>VISA_O 312_D_101</td>
<td>VISA_O D D_101 Advanced Practice in Painting</td>
<td>W2</td>
<td>Advanced studio course to increase the student's exploration and understanding of painting. [2-2-0] Prerequisite: VISA 225.</td>
<td>Studio</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>VISA_O 322_C_101</td>
<td>VISA_O C C_101 Advanced Practice in Sculpture</td>
<td>W2</td>
<td>Advanced studio course to explore contemporary practices in sculpture. [2-2-0] Prerequisite: VISA 245.</td>
<td>Studio</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>VISA_O 336_C_101</td>
<td>VISA_O C C_101 Advanced Practice in Printmaking</td>
<td>W3</td>
<td>Opportunity for students to continue their exploration of select media in printmaking (intaglio, relief, lithography, and screenprinting) within the context of contemporary art practice. Interdisciplinary crossover, evolving processes, and new materials will be encouraged. [2-2-0] Prerequisite: One of VISA 253, VISA 254, VISA 255.</td>
<td>Studio</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>VISA_O 362_X_001</td>
<td>VISA_O X X_001 Advanced Practice in Photography</td>
<td>W2</td>
<td>Advanced interdisciplinary course addressing the importance of technology-based approaches in contemporary art with emphasis placed upon the formation of an idea and the media most appropriate to its expression. No more than 12 credits in total will be granted for VISA 382, CLT 382, or any combination thereof. Prerequisite: One of VISA 261, VISA 262, VISA 266, VISA 269, VISA 261, or the permission of the instructor. Equivalency: CLT382</td>
<td>Studio</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>VISA_O 382-A_101</td>
<td>VISA_O A A_101 Advanced Practice in Media Arts</td>
<td>W2</td>
<td>Advanced interdisciplinary course addressing the importance of technology-based approaches in contemporary art with emphasis placed upon the formation of an idea and the media most appropriate to its expression. No more than 12 credits in total will be granted for VISA 382, CLT 382, or any combination thereof. Prerequisite: One of VISA 261, VISA 262, VISA 266, VISA 269, VISA 261, or the permission of the instructor. Equivalency: CLT 382.</td>
<td>Studio</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>VISA_O 382-X_001</td>
<td>VISA_O X X_001 Advanced Practice in Media Arts</td>
<td>W2</td>
<td>Continuation of VISA 482. As part of the course requirements, students must participate in a graduating exhibition. [2-4-0] Prerequisite: VISA 482.</td>
<td>Studio</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>VURS_O 499-002</td>
<td>VURS_O 002 Visiting Undergraduate Research Students</td>
<td>W2</td>
<td>Visiting Undergraduate Research Students</td>
<td>In Person Learning</td>
<td>Arranged</td>
</tr>
<tr>
<td>WRLD_O 150-101</td>
<td>WRLD_O 101 Introduction to Intercultural Communication</td>
<td>W2</td>
<td>Current intercultural communication theories and their critiques. Key concepts are applied to popular culture texts from around the world, providing a context for practice with a variety of intercultural communication skills, development tools, and self-reflective writing techniques.</td>
<td>Lecture</td>
<td>Online Learning</td>
</tr>
<tr>
<td>WRLD_O 158-101</td>
<td>WRLD_O 101 Introduction to Language and Culture: Modern I</td>
<td>W2</td>
<td>Introduction to basic Japanese language and key intercultural and sociolinguistic concepts in Japanese-speaking environments. Not available to students with a CEFIR level (or equivalent) of A1 or higher.</td>
<td>Lecture</td>
<td>Online Learning</td>
</tr>
<tr>
<td>WRLD_O 200-001</td>
<td>WRLD_O 001 Introduction to World Literatures</td>
<td>W2</td>
<td>A thematically organized introduction to world literatures, interconnecting a range of cultures and historical periods. Texts will be studied in English translations. [3-0-0] Prerequisite: 3 credits of first year English.</td>
<td>Lecture</td>
<td>Online Learning</td>
</tr>
<tr>
<td>WRLD_O 304-001</td>
<td>WRLD_O 101 World Theatre and Cultural Performance</td>
<td>W2</td>
<td>Explorations of world theatre and cultural performance traditions and practices from South, Southeast and East Asia; Oceanic; Sub-Saharan Africa; the Middle East; and the Americas; with a special emphasis on Indigenous theatre. Credit will be granted for only one of THTR 304 or WRLD 304. Prerequisite: Third-year standing. Equivalency: THTR 304.</td>
<td>Lecture</td>
<td>Online Learning</td>
</tr>
<tr>
<td>WRLD_O 310-001</td>
<td>WRLD_O 001 Mythologies in Motion</td>
<td>W2</td>
<td>Literary study of a selection of transcultural myths and their influence across time. [3-0-0] Prerequisite: Third-year standing.</td>
<td>Lecture</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>WRLD_O 375-001</td>
<td>WRLD_O 001 Encountering India: The Age of the Mughals</td>
<td>W2</td>
<td>An introduction to the Mughal Empire, the role of the Mughals in the development of Indian society, and the role of religion and politics in the Mughal Empire.</td>
<td>Lecture</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>WRLD_O 382-001</td>
<td>WRLD_O 101 Cross-cultural Travel Narratives</td>
<td>W2</td>
<td>Experiential learning course combining introduction to intercultural communication theory and the literary study of cross-cultural migration narratives. Prerequisite: Third-year standing.</td>
<td>Lecture</td>
<td>Online Learning</td>
</tr>
<tr>
<td>WRLD_O 428-101</td>
<td>WRLD_O 101 Anti-Semitism: Then and Now</td>
<td>W2</td>
<td>An overview of social and cultural anthropology, its origins, its distinctive methods and concepts, and its place in the contemporary world. A critical examination of human diversity and how social and cultural differences are produced and shaped by local and global contexts. [2-2-0] Prerequisite: Third-year standing.</td>
<td>Lecture</td>
<td>Online Learning</td>
</tr>
<tr>
<td>ANTH_O 100-001</td>
<td>ANTH_O 001 Introduction to Cultural Anthropology</td>
<td>W1</td>
<td>ANTH 100-001</td>
<td>Lecture</td>
<td>Online Learning</td>
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<tr>
<td>ANTH_O 100-002</td>
<td>ANTH_O 002 Introduction to Cultural Anthropology</td>
<td>W1</td>
<td>ANTH 100-002</td>
<td>Lecture</td>
<td>Online Learning</td>
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<tr>
<td>ANTH_O 100-003</td>
<td>ANTH_O 003 Introduction to Cultural Anthropology</td>
<td>W1</td>
<td>ANTH 100-003</td>
<td>Lecture</td>
<td>Online Learning</td>
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<tr>
<td>ANTH_O 103-001</td>
<td>ANTH_O 001 Introduction to World Archaeology</td>
<td>W1</td>
<td>ANTH 103-001</td>
<td>Lecture</td>
<td>Online Learning</td>
</tr>
<tr>
<td>ANTH_O 170-001</td>
<td>ANTH_O 001 Introduction to Linguistic Anthropology</td>
<td>W1</td>
<td>ANTH 170-001</td>
<td>Lecture</td>
<td>Online Learning</td>
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</tbody>
</table>
ANTH_O 210-001 ANTH_O 001 Archaeological Inquiry and Practice W1

Examines challenges and opportunities for archaeologists in the 21st century, including tensions in the discipline, the composition and differing interests of the archaeological community, the impact of the digitization of archaeology and ownership of the past and historical perspectives in archaeological thinking. [3-0-0] Prerequisite: ANTH 103.

Lecture In Person Learning Mon Wed 2:00 p.m. - 3:30 p.m.

ANTH_O 218-001 ANTH_O 001 Tourism, Desire and Difference W1

Anthropological approaches to tourism, the politics of cultural encounters, and how the desire for difference shapes peoples' everyday lives and pleasure travel. [3-0-0] Prerequisite: Second-year standing.

Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

ANTH_O 227-001 ANTH_O 001 Introduction to Medical Anthropology W1

Overviews of how social, cultural, historical, biological, and political-economic forces intersect to affect human health and disease. Biomedicine will be treated as only one among many efficacious systems of medical knowledge and how it is embedded in local and global forms of social inequalities will be explored in depth. [3-0-0] Prerequisite: Second-year standing.

Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

ANTH_O 245-001 ANTH_O 001 Culture and Environment W1

Introduction to environmental anthropology with an emphasis on the relationship of cultural systems to contemporary environmental issues. Includes material from the Okanagan region and diverse societies around the world. May include one or more local field trips. [3-0-0] Prerequisite: One of ANTH 100, SUST 104.

Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

ANTH_O 252-001 ANTH_O 001 Visual Anthropology and New Media W1

Provides an introduction to visual anthropology and the history of film in anthropological research. Students critically evaluate how anthropologists and documentary filmmakers represent other peoples and cultures through film and new media. [3-0-0]

Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

ANTH_O 270-001 ANTH_O 001 Phonology W1

Cross-cultural exploration of how sounds of language are produced (articulatory phonetics) and organized into the sound systems of individual languages (phonemics), the history of phonological theory, and the method for discovering the phonemic system of individual languages (phonological analysis). [3-0-0] Prerequisite: ANTH 100.

Lecture In Person Learning Wed Thu 10:30 a.m. - 2:00 p.m.

ANTH_O 307-001 ANTH_O 001 Ethnographic Methods: Acquiring Research Skills W1

What are ethnographic methods and how is anthropological research conducted? Topics include research design, relationships with study participants, field techniques, ethical debates, data analysis and presentation. The emphasis is on interactive, workshop-style group learning. Credit will be granted for only one of ANTH 307 or ANTH 407. [3-0-0] Prerequisite: One of ANTH 100, ANTH 170, ANTH 227. Third-year standing.

Lecture In Person Learning Mon Wed 10:30 a.m. - 2:00 p.m.

ANTH_O 313-001 ANTH_O 001 Anthropology of Gender W1

Nature of gender relations, their social and cultural expression, and theories of gender inequality drawn from anthropological research. [3-0-0] Prerequisite: ANTH 100.

Lecture Online Learning Tue Thu 3:30 p.m. - 5:00 p.m.

ANTH_O 345-001 ANTH_O 001 Living in the Anthropocene W1

The human impact on the environment is now so far-reaching that the term Anthropocene is being used to refer to the current time period and its implications for future engagements of humans with more-than-human worlds. Credit will be granted for only one of ANTH 345 or ANTH 4940H. [3-0-0] Prerequisite: One of ANTH 100, SUST 104. Third-year standing.

Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

ANTH_O 373-001 ANTH_O 001 The Acquisition of Language and Cultural Practices W1

Foundations, theories, and methods of language socialization. The cultural basis of language learning across the human lifespan with emphasis on the role of family, schooling, heritage, and endangerment. Prerequisite: One of ANTH 100, ANTH 170. Third-year standing. ANTH 170 is preferred.

Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

ANTH_O 400-001 ANTH_O 001 History of Anthropology W1

Review of anthropological theory and practice beginning with the origin of the discipline in the late nineteenth century and ending with the contemporary period. [3-0-0] Prerequisite: ANTH 100. and third-year standing.

Lecture In Person Learning Fri 11:00 a.m. - 2:00 p.m.

ANTH_O 409-D_001 ANTH_O D D_001 Topics in Applied Anthropology W1

Advanced study of the theory and practice of applied, action, and consultancy anthropology; application of anthropology to questions of Aboriginal rights and title, education, medicine, development, women and development, tourism, and other social issues. [3-0-0] Prerequisite: ANTH 100: and third-year standing.

Lecture Multi-access Learning Tue 6:30 p.m. - 9:30 p.m.

ANTH_O 429-001 ANTH_O 001 Global Health and International Development W1

Global health and international development from the perspective of critical medical anthropology. Consideration of ethnographic critiques of contemporary global health and development as humanitarian, security, and political-economic projects, as well as how applied medical anthropologists work to translate public health knowledge and policy into effective action in specific social and cultural contexts. ANTH 227 is strongly recommended. [3-0-0] Prerequisite: ANTH 100. and third-year standing.

Lecture Online Learning Tue Thu 12:30 p.m. - 2:00 p.m.

ANTH_O 445-010 ANTH_O 011 Political Ecology W2

Study of the ways in which political processes shape the relationships of human societies to other species and the physical environment. Resource conflict, environmental degradation, inequality, marginalization, environmental movements, environmental discourse and other topics are analyzed using a combination of ethnographic case studies and theoretical materials. Credit will be granted for only one of ANTH 445 or GEOG 445. [3-0-0] Prerequisite: One of ANTH 100, GEOG 128, GEOG 129, SUST 104. Third-year standing.

Lecture In Person Learning Thu 10:30 a.m. - 12:30 p.m.

ANTH_O 473-001 ANTH_O 001 Endangered Language Documentation and Revital W1

Study of language shift, including local and global influences of historical, social, cultural, political, and economic factors impacting on language loss, endangerment, retention, and revival. Practical strategies for sustaining and reviving languages, including language documentation and revitalization. Credit will only be granted for one of ANTH 473 and INGL 48B. [3-0-0] Prerequisite: Either (a) ANTH 100 or (b) ANTH 170. And 6 credits of ANTH at the 300 or 400-level required. ANTH 170 is preferred.

Lecture Multi-access Learning Thu 5:00 p.m. - 8:00 p.m.

APSC_O 107-001 APSC_O 001 Introduction to Applied Science Co-op W1-2

Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 107.

Workshop In Person Learning Arranged Arranged

APSC_O 110-71C APSC_O 71C Co-operative Education Work Term I W1

Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 107.

Experiential In Person Learning Arranged Arranged

APSC_O 110-71E APSC_O 71E Co-operative Education Work Term I W1

Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 107.

Experiential In Person Learning Arranged Arranged
Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 107.

**APSC 110-71F** APSC_O 71F Co-operative Education Work Term I W1 Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 107.

**APSC 110-71M** APSC_O 71M Co-operative Education Work Term I W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 169-201** APSC_O 201 Fundamentals of Sustainable Engineering Design W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 169-202** APSC_O 202 Fundamentals of Sustainable Engineering Design W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 169-2LA** APSC_O 2LA Fundamentals of Sustainable Engineering Design W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 169-2LB** APSC_O 2LB Fundamentals of Sustainable Engineering Design W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 169-2LC** APSC_O 2LC Fundamentals of Sustainable Engineering Design W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 169-2LD** APSC_O 2LD Fundamentals of Sustainable Engineering Design W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 169-2LE** APSC_O 2LE Fundamentals of Sustainable Engineering Design W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 169-2LF** APSC_O 2LF Fundamentals of Sustainable Engineering Design W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 169-2LG** APSC_O 2LG Fundamentals of Sustainable Engineering Design W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 169-2LH** APSC_O 2LH Fundamentals of Sustainable Engineering Design W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 169-2LI** APSC_O 2LI Fundamentals of Sustainable Engineering Design W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 169-2LJ** APSC_O 2LJ Fundamentals of Sustainable Engineering Design W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 169-2LK** APSC_O 2LK Fundamentals of Sustainable Engineering Design W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 169-2LL** APSC_O 2LL Fundamentals of Sustainable Engineering Design W1 Theory and practice of sustainable engineering. Awareness and risk analysis of potential impacts on society and the environment over the lifecycle of engineering projects. Engineering design process, project lifecycle, and professional responsibility. Team-based design project. [3-2-0]

**APSC 172-201** APSC_O 201 Engineering Analysis I W1 Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Lecture In Person Learning Tue 10:00 a.m. - 12:00 p.m.

**APSC 172-202** APSC_O 202 Engineering Analysis I W1 Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Lecture In Person Learning Wed Thu 6:30 p.m. - 8:00 p.m.

**APSC 172-21A** APSC_O 21A Engineering Analysis I W1 Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Lecture In Person Learning Fri 12:30 p.m. - 2:00 p.m.

**APSC 172-21B** APSC_O 21B Engineering Analysis I W1 Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Lecture In Person Learning Tue 4:00 p.m. - 5:00 p.m.

**APSC 172-21C** APSC_O 21C Engineering Analysis I W1 Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Lecture In Person Learning Thu 11:00 a.m. - 12:00 p.m.

**APSC 172-21D** APSC_O 21D Engineering Analysis I W1 Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Discussion In Person Learning Wed 2:00 p.m. - 3:00 p.m.

**APSC 172-21E** APSC_O 21E Engineering Analysis I W1 Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Discussion In Person Learning Mon 12:00 p.m. - 1:00 p.m.

**APSC 172-21F** APSC_O 21F Engineering Analysis I W1 Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Discussion In Person Learning Mon 4:00 p.m. - 5:00 p.m.

**APSC 172-21G** APSC_O 21G Engineering Analysis I W1 Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Discussion In Person Learning Tue 4:00 p.m. - 5:00 p.m.

**APSC 172-21H** APSC_O 21H Engineering Analysis I W1 Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Discussion In Person Learning Mon 9:00 a.m. - 10:00 a.m.

**APSC 172-21I** APSC_O 21I Engineering Analysis I W1 Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Discussion In Person Learning Fri 8:00 a.m. - 9:00 a.m.

**APSC 176-201** APSC_O 201 Engineering Communication W1 Written and oral presentations, formal and informal. Purpose, audience, content, format, and tone are studied, as are team-based report writings and presentations. [3-0-0] Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

**APSC 176-202** APSC_O 202 Engineering Communication W1 Written and oral presentations, formal and informal. Purpose, audience, content, format, and tone are studied, as are team-based report writings and presentations. [3-0-0] Lecture In Person Learning Thu 2:00 p.m. - 3:30 p.m.
In Person Learning
W1  2:00 p.m. - 4:00 p.m.

Statics
Lecture
11:00 a.m. - 12:30 p.m.

In Person Learning
W1
12:00 p.m. - 2:00 p.m.

Statics
Discussion
3:30 p.m. - 5:00 p.m.

In Person Learning
Wed Fri
8:00 a.m. - 9:30 a.m.

Linear Algebra for Engineers
Discussion
10:00 a.m. - 12:00 p.m.

In Person Learning
11:00 a.m. - 12:30 p.m.

Linear Algebra for Engineers
Lecture
104
8:00 a.m. - 9:30 a.m.

In Person Learning
Lecture
110
9:30 a.m. - 11:00 a.m.

In Person Learning
Lecture
112
11:00 a.m. - 12:30 p.m.

In Person Learning
Lecture
114
1:00 p.m. - 2:00 p.m.

In Person Learning
Lecture
116
2:00 p.m. - 4:00 p.m.

In Person Learning
Lecture
118
3:30 p.m. - 5:00 p.m.

In Person Learning
Lecture
120
5:00 p.m. - 7:00 p.m.

In Person Learning
Lecture
122
7:00 p.m. - 9:00 p.m.

In Person Learning
Lecture
124
9:00 p.m. - 11:00 p.m.

In Person Learning
Lecture
126
11:00 p.m. - 1:00 a.m.

In Person Learning
Lecture
128
1:00 a.m. - 3:00 a.m.
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<th>Course Title</th>
<th>Unit</th>
<th>Type</th>
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<td>APSC 182-T1K</td>
<td>APSC 182-T1K</td>
<td>3.0</td>
<td>Statics</td>
<td>Force vectors, Cartesian coordinate system, free body diagram, dot and cross products, forces, equilibrium of particles, force and moment equilibrium of rigid bodies, analysis of trusses, frames and machines, friction, wedges, pulleys, and belts. Applications of linear algebra in statics. [3-0-2] Corequisite: APSC 179. Discussion In Person Learning Tue 4:00 p.m. - 6:00 p.m.</td>
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<td>APSC 182-T1I</td>
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<td>Matter and Energy I</td>
<td>Thermometry, states of matter and phase change, ideal and real gases, 1st law of thermodynamics, 2nd law of thermodynamics, liquids, solutions, solid crystals, atomic structures and bonding. [2-2*-2*] Lecture In Person Learning Tue Thu 10:00 a.m. - 11:00 a.m.</td>
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<tr>
<td>APSC 210-T1C</td>
<td>APSC 210-T1C</td>
<td>3.0</td>
<td>Co-operative Education Work Term II</td>
<td>Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 110. Experiential In Person Learning Arranged Arranged</td>
</tr>
</tbody>
</table>
APSC 210-T1E APSC 246-T1A
101 Co-operative Education Work Term II T1E System Dynamics W1

Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: APSC 173, APSC 179, APSC 181. Lecture

Discussion In Person Learning Wed 1:00 p.m. - 2:00 p.m.

APSC 210-T1F APSC 246-T1B
102 Co-operative Education Work Term II T1B System Dynamics W1

Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: APSC 173, APSC 179, APSC 181. Lecture

Discussion In Person Learning Fri 10:00 a.m. - 11:00 a.m.

APSC 210-T1M APSC 246-T1C
71M Co-operative Education Work Term II T1C System Dynamics W1

Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: APSC 173, APSC 179, APSC 181. Lecture

Discussion In Person Learning Fri 11:00 a.m. - 12:00 p.m.

APSC 210-T1G APSC 246-T1D
101 Co-operative Education Work Term II T1D System Dynamics W1

Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: APSC 173, APSC 179, APSC 181. Lecture

Discussion In Person Learning Thu 10:00 a.m. - 11:00 a.m.

APSC 210-T1H APSC 246-T1E
102 Co-operative Education Work Term II T1E System Dynamics W1

Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: APSC 173, APSC 179, APSC 181. Lecture

Discussion In Person Learning Wed 5:00 p.m. - 6:00 p.m.

APSC 210-T1I APSC 246-T1F
102 Co-operative Education Work Term II T1F System Dynamics W1

Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: APSC 173, APSC 179, APSC 181. Lecture

Discussion In Person Learning Fri 9:00 a.m. - 10:00 a.m.

APSC 210-T1J APSC 246-T1G
101 Co-operative Education Work Term II T1G System Dynamics W1

Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: APSC 173, APSC 179, APSC 181. Lecture

Discussion In Person Learning Tue 10:00 a.m. - 11:00 a.m.

APSC 210-T1K APSC 246-T1H
101 Co-operative Education Work Term II T1H System Dynamics W1

Introduction to the Fourier series. Linear time invariant system, impulse response function, operator, convolution, system characterization, complex numbers, solution of linear ordinary differential equations, Laplace transform and its applications, transfer function, frequency response, solution to system of linear differential equations. Fourier series and transform. [3-0-1] Prerequisite: APSC 173, APSC 179, APSC 181. Lecture

Discussion In Person Learning Wed 11:00 a.m. - 12:00 p.m.

APSC 210-T1L APSC 246-T1I
102 Co-operative Education Work Term II T1I System Dynamics W1

Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorems; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173. Lecture

Discussion In Person Learning Mon 11:00 a.m. - 12:00 p.m.

APSC 210-T1M APSC 246-101
102 Co-operative Education Work Term II T1M System Dynamics W1

Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorems; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173. Lecture

Discussion In Person Learning Mon 8:00 a.m. - 9:00 a.m.
Prerequisite: All of APSC 173, APSC 178.

### Instrumentation and Data Analysis

Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorems; engineering applications of vector field theory; introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.

Discussion In Person Learning Fri 12:00 p.m. - 1:00 p.m.

### Prerequisite: All of APSC 173, APSC 178.

### Thermodynamics

First and second laws of thermodynamics. Applications to simple thermodynamic processes and cycles. Introduction to heat transfer modes. [3-0-1] Prerequisite: All of APSC 173, APSC 182.

Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

### Prerequisite: All of APSC 173, APSC 178.

### Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorems; engineering applications of vector field theory; introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.

Discussion In Person Learning Wed 5:00 p.m. - 6:00 p.m.

### Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorems; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.

Discussion In Person Learning Fri 10:00 a.m. - 11:00 a.m.

### Prerequisite: All of APSC 173, APSC 182.

### Heat transfer modes. [3-0-1] Prerequisite: All of APSC 173, APSC 182.

In Person Learning Mon 5:00 p.m. - 6:00 p.m.

### Introduction to heat transfer modes. [3-0-1] Prerequisite: All of APSC 173, APSC 182.

In Person Learning Mon 5:00 p.m. - 6:00 p.m.

### First and second laws of thermodynamics. Applications to simple thermodynamic processes and cycles. Introduction to heat transfer modes. [3-0-1] Prerequisite: All of APSC 173, APSC 182.

Discussion In Person Learning Fri 11:00 a.m. - 12:00 p.m.

### First and second laws of thermodynamics. Applications to simple thermodynamic processes and cycles. Introduction to heat transfer modes. [3-0-1] Prerequisite: All of APSC 173, APSC 182.

In Person Learning Wed 8:00 a.m. - 10:00 a.m.

### First and second laws of thermodynamics. Applications to simple thermodynamic processes and cycles. Introduction to heat transfer modes. [3-0-1] Prerequisite: All of APSC 173, APSC 182.

Discussion In Person Learning Thu 10:00 a.m. - 11:00 a.m.

### First and second laws of thermodynamics. Applications to simple thermodynamic processes and cycles. Introduction to heat transfer modes. [3-0-1] Prerequisite: All of APSC 173, APSC 182.

Discussion In Person Learning Wed 8:00 a.m. - 10:00 a.m.

### First and second laws of thermodynamics. Applications to simple thermodynamic processes and cycles. Introduction to heat transfer modes. [3-0-1] Prerequisite: All of APSC 173, APSC 182.

Discussion In Person Learning Mon 8:00 a.m. - 10:00 a.m.

### First and second laws of thermodynamics. Applications to simple thermodynamic processes and cycles. Introduction to heat transfer modes. [3-0-1] Prerequisite: All of APSC 173, APSC 182.

Discussion In Person Learning Mon 5:00 p.m. - 6:00 p.m.

### Introduction to heat transfer modes. [3-0-1] Prerequisite: All of APSC 173, APSC 182.

Discussion In Person Learning Mon 5:00 p.m. - 6:00 p.m.

### Introduction to heat transfer modes. [3-0-1] Prerequisite: All of APSC 173, APSC 182.

Discussion In Person Learning Wed 8:00 a.m. - 10:00 a.m.

### Introduction to heat transfer modes. [3-0-1] Prerequisite: All of APSC 173, APSC 182.

Discussion In Person Learning Fri 8:00 a.m. - 10:00 a.m.

### Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1]

Lecture In Person Learning Tue Thu 8:00 a.m. - 11:00 a.m.

### First and second laws of thermodynamics. Applications to simple thermodynamic processes and cycles. Introduction to heat transfer modes. [3-0-1] Prerequisite: All of APSC 173, APSC 182.

Discussion In Person Learning Fri 8:00 a.m. - 10:00 a.m.

### Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1]

Laboratory In Person Learning Mon (Alternate weeks) 12:00 p.m. - 2:00 p.m.

### Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1]

Laboratory In Person Learning Thu 3:00 p.m. - 5:00 p.m.

### Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1]

Laboratory In Person Learning Mon (Alternate weeks) 10:00 a.m. - 12:00 p.m.

### Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1]

Laboratory In Person Learning Mon (Alternate weeks) 10:00 a.m. - 12:00 p.m.

### Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1]

Laboratory In Person Learning Mon 10:00 a.m. - 12:00 p.m.

### Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorems; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.

Discussion In Person Learning Mon 8:00 a.m. - 9:00 a.m.

### Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorems; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.

Discussion In Person Learning Mon 8:00 a.m. - 9:00 a.m.

### Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorems; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.

Discussion In Person Learning Fri 10:00 a.m. - 11:00 a.m.
APSC O 254-L1L APSC_O L1L Instrumentation and Data Analysis WS Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1] Prerequisite: All of APSC 173, APSC 178. Laboratory In Person Learning Fri (Alternate weeks) 8:00 a.m. - 10:00 a.m.

APSC O 254-L1K APSC_O L1K Instrumentation and Data Analysis WS Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1] Prerequisite: All of APSC 173, APSC 178. Laboratory In Person Learning Wed (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC O 254-L1L APSC_O L1L Instrumentation and Data Analysis WS Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1] Prerequisite: All of APSC 173, APSC 178. Laboratory In Person Learning Wed (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC O 254-L1M APSC_O L1M Instrumentation and Data Analysis WS Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1] Prerequisite: All of APSC 173, APSC 178. Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.

APSC O 254-L1N APSC_O L1N Instrumentation and Data Analysis WS Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1] Prerequisite: All of APSC 173, APSC 178. Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.

APSC O 254-T2A APSC_O T2A Instrumentation and Data Analysis WS Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1] Prerequisite: All of APSC 173, APSC 178. Discussion In Person Learning Wed 5:00 p.m. - 6:00 p.m.

APSC O 254-T2B APSC_O T2B Instrumentation and Data Analysis WS Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1] Prerequisite: All of APSC 173, APSC 178. Discussion In Person Learning Fri 8:00 a.m. - 9:00 a.m.

APSC O 254-T2C APSC_O T2C Instrumentation and Data Analysis WS Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1] Prerequisite: All of APSC 173, APSC 178. Discussion In Person Learning Mon 1:00 p.m. - 2:00 p.m.

APSC O 254-T2D APSC_O T2D Instrumentation and Data Analysis WS Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1] Prerequisite: All of APSC 173, APSC 178. Discussion In Person Learning Fri 2:00 p.m. - 3:00 p.m.

APSC O 254-T2E APSC_O T2E Instrumentation and Data Analysis WS Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1] Prerequisite: All of APSC 173, APSC 178. Discussion In Person Learning Wed 11:00 a.m. - 12:00 p.m.

APSC O 254-T2F APSC_O T2F Instrumentation and Data Analysis WS Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1] Prerequisite: All of APSC 173, APSC 178. Discussion In Person Learning Thu 10:00 a.m. - 11:00 a.m.

APSC O 254-T2G APSC_O T2G Instrumentation and Data Analysis WS Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1] Prerequisite: All of APSC 173, APSC 178. Discussion In Person Learning Fri 2:00 p.m. - 3:00 p.m.

APSC O 254-T2H APSC_O T2H Instrumentation and Data Analysis WS Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1] Prerequisite: All of APSC 173, APSC 178. Discussion In Person Learning Tue 10:00 a.m. - 11:00 a.m.

APSC O 254-T2I APSC_O T2I Instrumentation and Data Analysis WS Data acquisition, sensors, instrumentation, measurement techniques and their limitations, experimental design, and data analysis; statistics; basic probability; application of statistics to data analysis. [3-2*-1] Prerequisite: All of APSC 173, APSC 178. Discussion In Person Learning Fri 3:00 p.m. - 4:00 p.m.

APSC O 256-101 APSC_O 101 Numerical Methods for Analysis WS Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179. Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.

APSC O 256-102 APSC_O 102 Numerical Methods for Analysis WS Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179. Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.

APSC O 256-11A APSC_O 11A Numerical Methods for Analysis WS Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179. Laboratory In Person Learning Tue 10:00 a.m. - 11:00 a.m.

APSC O 256-11B APSC_O 11B Numerical Methods for Analysis WS Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179. Laboratory In Person Learning Mon 5:00 p.m. - 6:00 p.m.

APSC_O 256-11C APSC_O 11C Numerical Methods for Analysis WS Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179. Laboratory In Person Learning Thu 10:00 a.m. - 11:00 a.m.

APSC_O 256-11D APSC_O 11D Numerical Methods for Analysis WS Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179. Laboratory In Person Learning Fri 4:00 p.m. - 5:00 p.m.

APSC_O 256-11E APSC_O 11E Numerical Methods for Analysis WS Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179. Laboratory In Person Learning Wed 8:00 a.m. - 9:00 a.m.

APSC_O 256-11F APSC_O 11F Numerical Methods for Analysis WS Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179. Laboratory In Person Learning Fri 1:00 p.m. - 2:00 p.m.
<table>
<thead>
<tr>
<th>Course</th>
<th>Code</th>
<th>Term</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
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<tbody>
<tr>
<td>APSC 256-L1G</td>
<td>APSC_O</td>
<td>L1G</td>
<td>Numerical Methods for Analysis</td>
<td>WS</td>
<td>Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179.</td>
</tr>
<tr>
<td>APSC 256-L1H</td>
<td>APSC_O</td>
<td>L1H</td>
<td>Numerical Methods for Analysis</td>
<td>WS</td>
<td>Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179.</td>
</tr>
<tr>
<td>APSC 256-L1I</td>
<td>APSC_O</td>
<td>L1I</td>
<td>Numerical Methods for Analysis</td>
<td>WS</td>
<td>Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179.</td>
</tr>
<tr>
<td>APSC 256-L1J</td>
<td>APSC_O</td>
<td>L1J</td>
<td>Numerical Methods for Analysis</td>
<td>WS</td>
<td>Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179.</td>
</tr>
<tr>
<td>APSC 256-L1K</td>
<td>APSC_O</td>
<td>L1K</td>
<td>Numerical Methods for Analysis</td>
<td>WS</td>
<td>Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179.</td>
</tr>
<tr>
<td>APSC 256-L1L</td>
<td>APSC_O</td>
<td>L1L</td>
<td>Numerical Methods for Analysis</td>
<td>WS</td>
<td>Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179.</td>
</tr>
<tr>
<td>APSC 256-L1M</td>
<td>APSC_O</td>
<td>L1M</td>
<td>Numerical Methods for Analysis</td>
<td>WS</td>
<td>Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179.</td>
</tr>
<tr>
<td>APSC 256-L1N</td>
<td>APSC_O</td>
<td>L1N</td>
<td>Numerical Methods for Analysis</td>
<td>WS</td>
<td>Introduction to numerical modelling and numerical methods for root finding, linear systems, differentiation, integration, and ordinary and partial differential equations. Applications to engineering problems. [3-1-0] Prerequisite: All of APSC 173, APSC 177, APSC 179.</td>
</tr>
<tr>
<td>APSC 259-201</td>
<td>APSC_O</td>
<td>201</td>
<td>Materials Science I</td>
<td>WS</td>
<td>Atomic bonding, crystallographic characteristics of materials, stress-strain curve, strengthening mechanisms, failure of materials, Eutectic and Eutectoid phase transformations, Fe-C phase diagram, composite materials, corrosion, electrical properties of materials. [3-2*-0] Prerequisite: All of APSC 182, APSC 183.</td>
</tr>
<tr>
<td>APSC 259-202</td>
<td>APSC_O</td>
<td>202</td>
<td>Materials Science I</td>
<td>WS</td>
<td>Atomic bonding, crystallographic characteristics of materials, stress-strain curve, strengthening mechanisms, failure of materials, Eutectic and Eutectoid phase transformations, Fe-C phase diagram, composite materials, corrosion, electrical properties of materials. [3-2*-0] Prerequisite: All of APSC 182, APSC 183.</td>
</tr>
<tr>
<td>APSC 259-203</td>
<td>APSC_O</td>
<td>203</td>
<td>Materials Science I</td>
<td>WS</td>
<td>Atomic bonding, crystallographic characteristics of materials, stress-strain curve, strengthening mechanisms, failure of materials, Eutectic and Eutectoid phase transformations, Fe-C phase diagram, composite materials, corrosion, electrical properties of materials. [3-2*-0] Prerequisite: All of APSC 182, APSC 183.</td>
</tr>
<tr>
<td>APSC 259-204</td>
<td>APSC_O</td>
<td>204</td>
<td>Materials Science I</td>
<td>WS</td>
<td>Atomic bonding, crystallographic characteristics of materials, stress-strain curve, strengthening mechanisms, failure of materials, Eutectic and Eutectoid phase transformations, Fe-C phase diagram, composite materials, corrosion, electrical properties of materials. [3-2*-0] Prerequisite: All of APSC 182, APSC 183.</td>
</tr>
<tr>
<td>APSC 259-205</td>
<td>APSC_O</td>
<td>205</td>
<td>Materials Science I</td>
<td>WS</td>
<td>Atomic bonding, crystallographic characteristics of materials, stress-strain curve, strengthening mechanisms, failure of materials, Eutectic and Eutectoid phase transformations, Fe-C phase diagram, composite materials, corrosion, electrical properties of materials. [3-2*-0] Prerequisite: All of APSC 182, APSC 183.</td>
</tr>
<tr>
<td>APSC 259-206</td>
<td>APSC_O</td>
<td>206</td>
<td>Materials Science I</td>
<td>WS</td>
<td>Atomic bonding, crystallographic characteristics of materials, stress-strain curve, strengthening mechanisms, failure of materials, Eutectic and Eutectoid phase transformations, Fe-C phase diagram, composite materials, corrosion, electrical properties of materials. [3-2*-0] Prerequisite: All of APSC 182, APSC 183.</td>
</tr>
<tr>
<td>APSC 259-207</td>
<td>APSC_O</td>
<td>207</td>
<td>Materials Science I</td>
<td>WS</td>
<td>Atomic bonding, crystallographic characteristics of materials, stress-strain curve, strengthening mechanisms, failure of materials, Eutectic and Eutectoid phase transformations, Fe-C phase diagram, composite materials, corrosion, electrical properties of materials. [3-2*-0] Prerequisite: All of APSC 182, APSC 183.</td>
</tr>
<tr>
<td>APSC 259-208</td>
<td>APSC_O</td>
<td>208</td>
<td>Materials Science I</td>
<td>WS</td>
<td>Atomic bonding, crystallographic characteristics of materials, stress-strain curve, strengthening mechanisms, failure of materials, Eutectic and Eutectoid phase transformations, Fe-C phase diagram, composite materials, corrosion, electrical properties of materials. [3-2*-0] Prerequisite: All of APSC 182, APSC 183.</td>
</tr>
<tr>
<td>APSC 259-209</td>
<td>APSC_O</td>
<td>209</td>
<td>Materials Science I</td>
<td>WS</td>
<td>Atomic bonding, crystallographic characteristics of materials, stress-strain curve, strengthening mechanisms, failure of materials, Eutectic and Eutectoid phase transformations, Fe-C phase diagram, composite materials, corrosion, electrical properties of materials. [3-2*-0] Prerequisite: All of APSC 182, APSC 183.</td>
</tr>
<tr>
<td>APSC 259-210</td>
<td>APSC_O</td>
<td>210</td>
<td>Materials Science I</td>
<td>WS</td>
<td>Atomic bonding, crystallographic characteristics of materials, stress-strain curve, strengthening mechanisms, failure of materials, Eutectic and Eutectoid phase transformations, Fe-C phase diagram, composite materials, corrosion, electrical properties of materials. [3-2*-0] Prerequisite: All of APSC 182, APSC 183.</td>
</tr>
<tr>
<td>APSC 259-211</td>
<td>APSC_O</td>
<td>211</td>
<td>Materials Science I</td>
<td>WS</td>
<td>Atomic bonding, crystallographic characteristics of materials, stress-strain curve, strengthening mechanisms, failure of materials, Eutectic and Eutectoid phase transformations, Fe-C phase diagram, composite materials, corrosion, electrical properties of materials. [3-2*-0] Prerequisite: All of APSC 182, APSC 183.</td>
</tr>
<tr>
<td>APSC 259-212</td>
<td>APSC_O</td>
<td>212</td>
<td>Materials Science I</td>
<td>WS</td>
<td>Atomic bonding, crystallographic characteristics of materials, stress-strain curve, strengthening mechanisms, failure of materials, Eutectic and Eutectoid phase transformations, Fe-C phase diagram, composite materials, corrosion, electrical properties of materials. [3-2*-0] Prerequisite: All of APSC 182, APSC 183.</td>
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<td>APSC 259-L2I</td>
<td>APSC 259-L2J</td>
<td>Materials Science I</td>
<td>WS</td>
<td>Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 210.</td>
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<td>APSC 259-L2L</td>
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<td>Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 210.</td>
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<td>APSC 259-L2M</td>
<td>APSC 259-L2N</td>
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<td>Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 210.</td>
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<td>APSC 259-L2O</td>
<td>APSC 259-L2P</td>
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<td>Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 210.</td>
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<td>APSC 259-L2R</td>
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<td>APSC 259-L2S</td>
<td>APSC 259-L2T</td>
<td>Materials Science I</td>
<td>WS</td>
<td>Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 210.</td>
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<td>APSC 259-L2U</td>
<td>APSC 259-L2V</td>
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<td>APSC 310-71C</td>
<td>APSC 310-71F</td>
<td>Co-operative Education Work Term III</td>
<td>WS</td>
<td>Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 210.</td>
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<td>APSC 310-71F</td>
<td>Co-operative Education Work Term III</td>
<td>WS</td>
<td>Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 210.</td>
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<td>APSC 410-71E</td>
<td>Co-operative Education Work Term IV</td>
<td>WS</td>
<td>Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 210.</td>
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<td>Supervised, integrated learning experience in a public or private organization for a minimum of three months. Formal co-op assignments required. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program. Prerequisite: APSC 210.</td>
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<td>APSC 512-001</td>
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ARTH 370-001  ARTH 0 001  Story and Image Across the Islamic World  WS  Lecture  In Person Learning  Mon Wed  6:30 p.m. - 8:00 p.m.

ARTH 480-001  ARTH 0 001  African Art and Visual Culture  WS  Lecture  In Person Learning  Wed Fri  11:00 a.m. - 12:30 p.m.

ARTH 380-001  ARTH 0 001  Indigenous Art and Visual Culture  WS  Lecture  In Person Learning  Tue Thu  7:30 p.m. - 8:30 p.m.

ARTH 495-001  ARTH 0 001  Renaissance Europe in a Global Context  WS  Lecture  Online Learning  Wed Fri  8:00 a.m. - 9:30 a.m.

ARTH 397-001  ARTH 0 001  Latin American Art and Visual Culture Since 1521  WS  Lecture  In Person Learning  Tue Fri  2:00 p.m. - 3:30 p.m.

ARTH 420-001  ARTH 0 001  Curating Contemporary Art  WS  Lecture  In Person Learning  Mon Thu  11:00 a.m. - 12:30 p.m.

ASTR 110-001  ASTR 0 001  Astrophysics I  WS  Lecture  In Person Learning  Thu  8:00 a.m. - 9:30 a.m.

ASTR 110-01  ASTR 0 01  Astrophysics I  WS  Lecture  In Person Learning  Tue (Alternate weeks)  2:30 p.m. - 5:30 p.m.

ASTR 110-02  ASTR 0 02  Astrophysics I  WS  Laboratory  In Person Learning  Tue (Alternate weeks)  6:30 p.m. - 9:30 p.m.

ASTR 110-03  ASTR 0 03  Astrophysics I  WS  Seminar  In Person Learning  Wed  1:00 p.m. - 2:00 p.m.

ASTR 111-001  ASTR 0 001  Astronomy I  WS  Lecture  In Person Learning  Mon  8:00 a.m. - 9:30 a.m.

ASTR 111-01  ASTR 0 01  Astronomy I  WS  Laboratory  In Person Learning  Tue (Alternate weeks)  2:30 p.m. - 5:30 p.m.

ASTR 111-02  ASTR 0 02  Astronomy I  WS  Laboratory  In Person Learning  Tue (Alternate weeks)  6:30 p.m. - 9:30 p.m.

ASTR 111-03  ASTR 0 03  Astronomy I  WS  Laboratory  In Person Learning  Tue (Alternate weeks)  9:30 a.m. - 12:30 p.m.

ASTR 112-001  ASTR 0 001  Astronomy I (Non-Lab)  WS  Lecture  In Person Learning  Thu  8:00 a.m. - 9:30 a.m.

ASTR 210-001  ASTR 0 001  Physical Processes in the Universe  WS  Lecture  In Person Learning  Mon Wed  11:00 a.m. - 12:30 p.m.

ASTR 401-001  ASTR 0 001  Astrophysical Processes  WS  Lecture  In Person Learning  Mon Wed  2:00 p.m. - 3:30 p.m.
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<td>BIOC_O 306-001</td>
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<td>Natural Product Biosynthesis and Synthetic Biology</td>
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<td>Biocatalysis</td>
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**Course Descriptions:**

- **Chemical and Biochemical Analysis:**
  - Methods of measurement, statistical analysis and errors of measurement, method development and validation, the meaning of test results, accuracy, precision, analytical electrochemistry, biosensors, chemical separation, introduction to gas and liquid chromatography. Credit will be granted for only one of BIOC 211 or BIOC 211. [3-1-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122.

- **Directed Studies in Biochemistry:**
  - In Person Learning
  - Library (3 credits) or laboratory project with written report (3 or 6 credits) allowing a student to undertake an investigation on a specific topic as agreed upon by the faculty and student. Prerequisite: Fourth-year standing in the Major in Biochemistry and Molecular Biology program with a minimum overall grade average of 72%, and permission of the supervisor's department.
  - The credit value for this course will be determined in consultation with the student prior to the registration.
  - Independent Study
  - In Person Learning
  - Arranged

- **Biocatalysis:**
  - Methods of measurement, statistical analysis and errors of measurement, method development and validation, the meaning of test results, accuracy, precision, analytical electrochemistry, biosensors, chemical separation, introduction to gas and liquid chromatography. Credit will be granted for only one of BIOC 211 or BIOC 211. [3-1-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122.

- **Directed Studies in Biochemistry:**
  - In Person Learning
  - Library (3 credits) or laboratory project with written report (3 or 6 credits) allowing a student to undertake an investigation on a specific topic as agreed upon by the faculty and student. Prerequisite: Fourth-year standing in the Major in Biochemistry and Molecular Biology program with a minimum overall grade average of 72%, and permission of the supervisor's department.
  - The credit value for this course will be determined in consultation with the student prior to the registration.
  - Independent Study
  - In Person Learning
  - Arranged
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<td>Library (3 credits) or laboratory project with written report (3 or 6 credits) allowing a student to undertake an investigation on a specific topic as agreed upon by the faculty and student. Prerequisite: Fourth-year standing in the Major in Biochemistry and Molecular Biology program with a minimum overall grade average of 72%, and permission of the supervisor's department.</td>
<td>The credit value for this course will be determined in consultation with the student prior to the registration, arranged on an individual basis.</td>
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<td>BI0C_O 448-A_007</td>
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<td>BI0C_O 448-A_008</td>
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<td>Library (3 credits) or laboratory project with written report (3 or 6 credits) allowing a student to undertake an investigation on a specific topic as agreed upon by the faculty and student. Prerequisite: Fourth-year standing in the Major in Biochemistry and Molecular Biology program with a minimum overall grade average of 72%, and permission of the supervisor's department.</td>
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<td>Library (3 credits) or laboratory project with written report (3 or 6 credits) allowing a student to undertake an investigation on a specific topic as agreed upon by the faculty and student. Prerequisite: Fourth-year standing in the Major in Biochemistry and Molecular Biology program with a minimum overall grade average of 72%, and permission of the supervisor's department.</td>
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<td>Library (3 credits) or laboratory project with written report (3 or 6 credits) allowing a student to undertake an investigation on a specific topic as agreed upon by the faculty and student. Prerequisite: Fourth-year standing in the Major in Biochemistry and Molecular Biology program with a minimum overall grade average of 72%, and permission of the supervisor's department.</td>
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Current techniques in DNA-manipulation and analysis will be presented, relevant to such areas as molecular biology, microbiology, and biochemistry. Topics include site-directed mutagenesis, variations in cloning techniques, sequence analysis, Southern blotting, plus maintenance of a research lab notebook. [0-4-0] Prerequisite: One of BIOC 393, BIOL 393. BIOL 366 is strongly recommended.

Course designed to enhance oral and written communication of scientific concepts. Each student will present two seminars and write an NSERC-style grant related to their research. Credit will be granted for only one of BIOC 549 or BIOC 630. Prerequisite: Admission to the Biochemistry and Molecular Biology graduate program.

First of a pair of courses that introduce students to the biological concepts necessary to continue into second-year biology. Covers evolutionary theory and its underlying genetic basis, basic cell biology, plant and animal nutrition, and energy acquisition. Credit will be granted for only BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: Either (a) CHEM 11 and one of Life Science 11, Anatomy and Physiology 12; or (b) CHEM 11 and one of BIOL 11, BIOL 12. Corequisite: One of CHEM 111, CHEM 121 is recommended.

First of a pair of courses that introduce students to the biological concepts necessary to continue into second-year biology. Covers evolutionary theory and its underlying genetic basis, basic cell biology, plant and animal nutrition, and energy acquisition. Credit will be granted for only BIOL 116/125 or BIOL 117/122. [3-3-0] Prerequisite: Either (a) CHEM 11 and one of Life Science 11, Anatomy and Physiology 12; or (b) CHEM 11 and one of BIOL 11, BIOL 12. Corequisite: One of CHEM 111, CHEM 121 is recommended.

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Laboratory In Person Learning Tue 3:30 p.m. - 6:30 p.m.

First of a pair of courses that introduce students to the biological concepts necessary to continue into second-year biology. Covers evolutionary theory and its underlying genetic basis, basic cell biology, plant and animal nutrition, and energy acquisition. Credit will be granted for only BIOL 116/125 or BIOL 117/122. [3-3-0]
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Laboratory In Person Learning Wed 9:30 a.m. - 12:30 p.m.

First of a pair of courses that introduce students to the biological concepts necessary to continue into second-year biology. Covers evolutionary theory and its underlying genetic basis, basic cell biology, plant and animal nutrition, and energy acquisition. Credit will be granted for only BIOL 116/125 or BIOL 117/122. [3-3-0]
Prerequisite: Either (a) CHEM 11 and one of Life Science 11, Anatomy and Physiology 12, or (b) CHEM 11 and one of BIOL 11, BIOL 12. Corequisite: One of CHEM 111, CHEM 121 is recommended.
Laboratory In Person Learning Wed 12:30 p.m. - 3:30 p.m.

First of a pair of courses that introduce students to the biological concepts necessary to continue into second-year biology. Covers evolutionary theory and its underlying genetic basis, basic cell biology, plant and animal nutrition, and energy acquisition. Credit will be granted for only BIOL 116/125 or BIOL 117/122. [3-3-0]
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Laboratory In Person Learning Fri 9:30 a.m. - 12:30 p.m.

First of a pair of courses that introduce students to the biological concepts necessary to continue into second-year biology. Covers evolutionary theory and its underlying genetic basis, basic cell biology, plant and animal nutrition, and energy acquisition. Credit will be granted for only BIOL 116/125 or BIOL 117/122. [3-3-0]
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Laboratory In Person Learning Mon 12:30 p.m. - 3:30 p.m.
First of a pair of courses that introduce students to the biological concepts necessary to continue into second-year biology. Covers evolutionary theory and its underlying genetic basis, basic cell biology, plant and animal nutrition, and energy acquisition. Credit will be granted for only BIOL 116/125 or BIOL 117/122. [3-3-0]

Prerequisite: Either (a) CHEM 11 and one of Life Science 11, Anatomy and Physiology 12, or (b) CHEM 11 and one of BIOL 11, BIOL 12. Corequisite: One of CHEM 111, CHEM 121 is recommended. Laboratory In Person Learning Mon 3:30 p.m. - 6:30 p.m.

First of a pair of courses that introduce students to the biological concepts necessary to continue into second-year biology. Covers evolutionary theory and its underlying genetic basis, basic cell biology, plant and animal nutrition, and energy acquisition. Credit will be granted for only BIOL 116/125 or BIOL 117/122. [3-3-0]

Prerequisite: Either (a) CHEM 11 and one of Life Science 11, Anatomy and Physiology 12, or (b) CHEM 11 and one of BIOL 11, BIOL 12. Corequisite: One of CHEM 111, CHEM 121 is recommended. Laboratory In Person Learning Mon 6:30 p.m. - 9:30 p.m.

First of a pair of courses that introduce students to the biological concepts necessary to continue into second-year biology. Covers evolutionary theory and its underlying genetic basis, basic cell biology, plant and animal nutrition, and energy acquisition. Credit will be granted for only BIOL 116/125 or BIOL 117/122. [3-3-0]

Prerequisite: Either (a) CHEM 11 and one of Life Science 11, Anatomy and Physiology 12, or (b) CHEM 11 and one of BIOL 11, BIOL 12. Corequisite: One of CHEM 111, CHEM 121 is recommended. Laboratory In Person Learning Tue 9:30 a.m. - 12:30 p.m.

First of a pair of courses that introduce students to the biological concepts necessary to continue into second-year biology. Covers evolutionary theory and its underlying genetic basis, basic cell biology, plant and animal nutrition, and energy acquisition. Credit will be granted for only BIOL 116/125 or BIOL 117/122. [3-3-0]

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Prerequisite: Either (a) CHEM 11 and one of Life Science 11, Anatomy and Physiology 12, or (b) CHEM 11 and one of BIOL 11, BIOL 12. Corequisite: One of CHEM 111, CHEM 121 is recommended. Laboratory In Person Learning Thu 12:30 p.m. - 3:30 p.m.
Introduction to human structures and functions, emphasizing basic physiological principles, plus cell and tissue structure. Laboratory work will include gross and microscopic anatomy, and will demonstrate underlying physiological processes. This course is for students planning to enroll in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMMN 190. [3-3-0] Prerequisite: Either (a) BIOC 122 or (b) all of Life Science 11 or Anatomy and Physiology 12, Chemistry 11, or (c) all of Biology 11 or 12, Chemistry 11.
Introduction to human structures and functions, emphasizing basic physiological principles, plus cell and tissue structure. Laboratory work will include gross and microscopic anatomy, and will demonstrate underlying physiological processes. This course is for students planning to enroll in BIOL 133 in their second term. Credit will be granted for only one of BIOL 131, HES 101, or HMKN 190. [3-3-0] Prerequisite: Either (a) BIOL 122 or (b) all of Life Science 11 or Anatomy and Physiology 12, Chemistry 11 or (c) all of Biology 11 or 12, Chemistry 11. Laboratory In Person Learning Wed 12:00 p.m. - 3:00 p.m.

Introduction to human structures and functions, emphasizing basic physiological principles, plus cell and tissue structure. Laboratory work will include gross and microscopic anatomy, and will demonstrate underlying physiological processes. This course is for students planning to enroll in BIOL 133 in their second term. Credit will be granted for only one of BIOL 131, HES 101, or HMKN 190. [3-3-0] Prerequisite: Either (a) BIOL 122 or (b) all of Life Science 11 or Anatomy and Physiology 12, Chemistry 11 or (c) all of Biology 11 or 12, Chemistry 11. Laboratory In Person Learning Wed 5:00 p.m. - 8:00 p.m.

Introduction to human structures and functions, emphasizing basic physiological principles, plus cell and tissue structure. Laboratory work will include gross and microscopic anatomy, and will demonstrate underlying physiological processes. This course is for students planning to enroll in BIOL 133 in their second term. Credit will be granted for only one of BIOL 131, HES 101, or HMKN 190. [3-3-0] Prerequisite: Either (a) BIOL 122 or (b) all of Life Science 11 or Anatomy and Physiology 12, Chemistry 11 or (c) all of Biology 11 or 12, Chemistry 11. Laboratory In Person Learning Thu 8:00 a.m. - 11:00 a.m.

Introduction to human structures and functions, emphasizing basic physiological principles, plus cell and tissue structure. Laboratory work will include gross and microscopic anatomy, and will demonstrate underlying physiological processes. This course is for students planning to enroll in BIOL 133 in their second term. Credit will be granted for only one of BIOL 131, HES 101, or HMKN 190. [3-3-0] Prerequisite: Either (a) BIOL 122 or (b) all of Life Science 11 or Anatomy and Physiology 12, Chemistry 11 or (c) all of Biology 11 or 12, Chemistry 11. Laboratory In Person Learning Thu 11:00 a.m. - 2:00 p.m.

Introduction to human structures and functions, emphasizing basic physiological principles, plus cell and tissue structure. Laboratory work will include gross and microscopic anatomy, and will demonstrate underlying physiological processes. This course is for students planning to enroll in BIOL 133 in their second term. Credit will be granted for only one of BIOL 131, HES 101, or HMKN 190. [3-3-0] Prerequisite: Either (a) BIOL 122 or (b) all of Life Science 11 or Anatomy and Physiology 12, Chemistry 11 or (c) all of Biology 11 or 12, Chemistry 11. Laboratory In Person Learning Fri 8:00 a.m. - 11:00 a.m.

Introduction to human structures and functions, emphasizing basic physiological principles, plus cell and tissue structure. Laboratory work will include gross and microscopic anatomy, and will demonstrate underlying physiological processes. This course is for students planning to enroll in BIOL 133 in their second term. Credit will be granted for only one of BIOL 131, HES 101, or HMKN 190. [3-3-0] Prerequisite: Either (a) BIOL 122 or (b) all of Life Science 11 or Anatomy and Physiology 12, Chemistry 11 or (c) all of Biology 11 or 12, Chemistry 11. Laboratory In Person Learning Fri 12:00 p.m. - 3:00 p.m.

Introduction to human structures and functions, emphasizing basic physiological principles, plus cell and tissue structure. Laboratory work will include gross and microscopic anatomy, and will demonstrate underlying physiological processes. This course is for students planning to enroll in BIOL 133 in their second term. Credit will be granted for only one of BIOL 131, HES 101, or HMKN 190. [3-3-0] Prerequisite: Either (a) BIOL 122 or (b) all of Life Science 11 or Anatomy and Physiology 12, Chemistry 11 or (c) all of Biology 11 or 12, Chemistry 11. Laboratory In Person Learning Arranged Arranged

Structure and function of plant and animal cells; membrane models, cytoskeleton-organellae, biological information from gene to protein, the endomembrane system, secretion, intracellular digestion, endocytosis, transport processes, cytoskeleton and cell motility. [3-0-0] Prerequisite: BIOL 125 and one of CHEM 113, CHEM 117.

Fundamental processes underlying adaptive evolution, speciation, and extinction. Methods used to reconstruct the evolutionary histories of, and relationships among, groups of organisms. Factors determining the distribution and abundance of organisms. Competition, predation, and an exploration of processes that promote species coexistence and lead to the maintenance of species diversity. [3-0-0] Prerequisite: BIOL 125.

Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. If R and RMarkdown are used to visualize and analyze data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.

Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. If R and RMarkdown are used to visualize and analyze data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.
BIOL O 202-L03 BIOL_O L03 Introduction to Biostatistics W1

Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.

Laboratory In Person Learning Tue 8:00 a.m. - 9:30 a.m.

BIOL O 202-L04 BIOL_O L04 Introduction to Biostatistics W1

Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.

Laboratory In Person Learning Thu 8:00 a.m. - 9:30 a.m.

BIOL O 202-L05 BIOL_O L05 Introduction to Biostatistics W1

Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.

Laboratory In Person Learning Thu 9:30 a.m. - 11:00 a.m.

BIOL O 202-L06 BIOL_O L06 Introduction to Biostatistics W1

Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.

Laboratory In Person Learning Tue 8:00 a.m. - 9:30 a.m.

BIOL O 202-L07 BIOL_O L07 Introduction to Biostatistics W1

Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.

Laboratory In Person Learning Tue 8:00 a.m. - 9:30 a.m.

BIOL O 202-L08 BIOL_O L08 Introduction to Biostatistics W1

Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.

Laboratory In Person Learning Wed 8:00 a.m. - 9:30 a.m.

BIOL O 202-L09 BIOL_O L09 Introduction to Biostatistics W1

Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.

Laboratory In Person Learning Mon 2:00 p.m. - 3:30 p.m.

BIOL O 202-L10 BIOL_O L10 Introduction to Biostatistics W1

Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.

Laboratory In Person Learning Thu 8:00 a.m. - 9:30 a.m.

BIOL O 202-L11 BIOL_O L11 Introduction to Biostatistics W1

Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.

Laboratory In Person Learning Fri 8:00 a.m. - 9:30 a.m.

BIOL O 202-L12 BIOL_O L12 Introduction to Biostatistics W1

Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.

Laboratory In Person Learning Fri 8:00 a.m. - 9:30 a.m.

BIOL O 202-L13 BIOL_O L13 Introduction to Biostatistics W1

Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.

Laboratory In Person Learning Tue 3:30 p.m. - 5:00 p.m.

BIOL O 202-L14 BIOL_O L14 Introduction to Biostatistics W1

Data analysis methods for biologists including sampling and experimental design, visualizing and describing data, probability, hypothesis testing, comparisons of proportions and means, correlation and regression analysis, analysis of variance, non-parametric, permutation-based tests, and the central roles that statistical analyses and reproducibility play in scientific research. R and RMarkdown are used to visualize and analyze data, and to communicate findings using literate programming. [3-2-0] Prerequisite: MATH 100.

Laboratory In Person Learning Thu 11:00 a.m. - 12:30 p.m.
Vertebrate Structure and Function

11:00 a.m. - 2:00 p.m.

Lab

L05

Vertebrate Structure and Function

Lab

W1

Introduction to the invertebrate phyla. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.

Lab

L02

Vertebrate Structure and Function

Lab

W1

Introduction to the vertebrate phyla and their evolution; comparative study of vertebrate structure and function, with dissection of representative forms. [3-3-0] Prerequisite: Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.

Lab

L01

Vertebrate Structure and Function

Lab

W1

An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213. Lecture

Lab

W1

Comparative Invertebrate Zoology

Lab

W1

An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213. Lecture

Lab

W1

Introductory Microbiology

Lab

W1

An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213. Lecture

Lab

W1

Introductory Microbiology

Lab

W1

An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213. Lecture

Lab

W1

Introductory Microbiology

Lab

W1

An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213. Lecture

Lab

W1

Introductory Microbiology

Lab

W1

An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213. Lecture

Lab

W1

Introductory Microbiology

Lab

W1

An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213. Lecture

Lab

W1

Introductory Microbiology

Lab

W1

An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213. Lecture

Lab

W1

Introductory Microbiology

Lab

W1

An introductory course providing a broad background in microbiology. Topics include structure, metabolism, diversity of micro-organisms, microbial genetics, virology, and immunology. Laboratory work will include techniques and experiments relevant to lectures. [3-3-0] Prerequisite: BIOL 125. Corequisite: One of CHEM 203, CHEM 213. Lecture
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 308-T01</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Lecture.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T02</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Lecture.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T03</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Lecture.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T04</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Lecture.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T05</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Lecture.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 311-001</td>
<td>Biochemistry I</td>
<td>3</td>
<td>Structure and function of proteins, carbohydrates, lipids, and nucleic acids. Principles of thermodynamics and enzyme reaction mechanisms. Enzyme kinetics. Credit will only be granted for one of BIOL 311 or BIOC 304. (3-0-0) Prerequisite: BIOL 116 and one of CHEM 204, CHEM 214.</td>
<td>Lecture.</td>
<td>Mon-Wed</td>
</tr>
<tr>
<td>BIOL 314-001</td>
<td>Medical Microbiology</td>
<td>3</td>
<td>Introduction to concepts of immunology. Immune system, innate immunity and complement, adaptive immunity, cellular and humoral immune response, cytokines, T-cell activation, the major histocompatibility complex, antibody structure and genetics, immune system and cancer, AIDS, autoimmunity, hypersensitivity. (3-0-0) Prerequisite: BIOL 228.</td>
<td>Lecture.</td>
<td>Mon-Wed</td>
</tr>
<tr>
<td>BIOL 341-001</td>
<td>Neurobiology</td>
<td>3</td>
<td>Analysis of cellular function common to diverse organisms with an emphasis on iron transport in excitable and non-excitable cells, signaling via second messengers, cellular pH regulation, and epithelial transport. (3-0-1) Prerequisite: BIOL 200 and one of BIOL 202, STAT 230 and one of PHYS 121, PHYS 122.</td>
<td>Lecture.</td>
<td>Mon-Wed</td>
</tr>
<tr>
<td>BIOL 354-001</td>
<td>Cell Physiology</td>
<td>3</td>
<td>Analysis of cellular function common to diverse organisms with an emphasis on iron transport in excitable and non-excitable cells, signaling via second messengers, cellular pH regulation, and epithelial transport. (3-0-1) Prerequisite: BIOL 200 and one of BIOL 202, STAT 230 and one of PHYS 121, PHYS 122.</td>
<td>Lecture.</td>
<td>Mon-Wed</td>
</tr>
<tr>
<td>BIOL 300-001</td>
<td>Population Biology</td>
<td>3</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Lecture.</td>
<td>Mon-Wed</td>
</tr>
<tr>
<td>BIOL 301-101</td>
<td>Evolutionary Principles and Methods</td>
<td>3</td>
<td>An exploration of the field of Evolutionary Biology as an ongoing scientific endeavour. Current research methodology and development of concepts relating to the study of evolutionary change, adaptation, and the history of life will be examined. (3-0-0) Prerequisite: BIOL 201.</td>
<td>Lecture.</td>
<td>Mon-Wed</td>
</tr>
<tr>
<td>BIOL 308-001</td>
<td>Population Biology</td>
<td>3</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Lecture.</td>
<td>Mon-Wed</td>
</tr>
<tr>
<td>BIOL 308-T01</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T02</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T03</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T04</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T05</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T06</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T07</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T08</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T09</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
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<tr>
<td>BIOL 308-T10</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T11</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T12</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T13</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T14</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T15</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T16</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T17</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL 308-T18</td>
<td>Population Biology</td>
<td>4</td>
<td>Demography, single species growth, competition, predation, and natural selection in plant and animal populations. (3-0-1) Prerequisite: One of MATH 101, MATH 103 and one of BIOL 201, GEOS 207.</td>
<td>Discussion.</td>
<td>Mon-Thur</td>
</tr>
<tr>
<td>BIOL_O 354-T01</td>
<td>BIOL_O</td>
<td>T01</td>
<td>Cell Physiology</td>
<td>W5</td>
<td>Analysis of cellular function common to diverse organisms with an emphasis on ion transport in excitable and non-excitable cells, signaling via second messengers, cellular pH regulation, and epithelial transport. [3-0-1*] Prerequisite: BIOL 200 and one of BIOL 202, STAT 230 and one of PHYS 121, PHYS 122.</td>
</tr>
<tr>
<td>BIOL_O 354-T02</td>
<td>BIOL_O</td>
<td>T02</td>
<td>Cell Physiology</td>
<td>W5</td>
<td>Analysis of cellular function common to diverse organisms with an emphasis on ion transport in excitable and non-excitable cells, signaling via second messengers, cellular pH regulation, and epithelial transport. [3-0-1*] Prerequisite: BIOL 200 and one of BIOL 202, STAT 230 and one of PHYS 121, PHYS 122.</td>
</tr>
<tr>
<td>BIOL_O 354-T03</td>
<td>BIOL_O</td>
<td>T03</td>
<td>Cell Physiology</td>
<td>W5</td>
<td>Analysis of cellular function common to diverse organisms with an emphasis on ion transport in excitable and non-excitable cells, signaling via second messengers, cellular pH regulation, and epithelial transport. [3-0-1*] Prerequisite: BIOL 200 and one of BIOL 202, STAT 230 and one of PHYS 121, PHYS 122.</td>
</tr>
<tr>
<td>BIOL_O 354-T04</td>
<td>BIOL_O</td>
<td>T04</td>
<td>Cell Physiology</td>
<td>W5</td>
<td>Analysis of cellular function common to diverse organisms with an emphasis on ion transport in excitable and non-excitable cells, signaling via second messengers, cellular pH regulation, and epithelial transport. [3-0-1*] Prerequisite: BIOL 200 and one of BIOL 202, STAT 230 and one of PHYS 121, PHYS 122.</td>
</tr>
<tr>
<td>BIOL_O 354-XMT</td>
<td>BIOL_O</td>
<td>XMT</td>
<td>Cell Physiology</td>
<td>W5</td>
<td>Analysis of cellular function common to diverse organisms with an emphasis on ion transport in excitable and non-excitable cells, signaling via second messengers, cellular pH regulation, and epithelial transport. [3-0-1*] Prerequisite: BIOL 200 and one of BIOL 202, STAT 230 and one of PHYS 121, PHYS 122.</td>
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<tr>
<td>BIOL_O 357-001</td>
<td>BIOL_O</td>
<td>001</td>
<td>Introduction to Entomology</td>
<td>W5</td>
<td>General survey of the evolution, classification, and biology of insects, with a special emphasis on their functional ecology. Experiments using insect systems as well as master techniques for collecting and curating insect specimens will be conducted in the lab. A properly-curated collection is a requirement for this course. [3-0-3] Prerequisite: BIOL 201 and one of BIOL 202, STAT 230, BIOL 205 is recommended.</td>
</tr>
<tr>
<td>BIOL_O 357-L01</td>
<td>BIOL_O</td>
<td>L01</td>
<td>Introduction to Entomology</td>
<td>W5</td>
<td>General survey of the evolution, classification, and biology of insects, with a special emphasis on their functional ecology. Experiments using insect systems as well as master techniques for collecting and curating insect specimens will be conducted in the lab. A properly-curated collection is a requirement for this course. [3-0-3] Prerequisite: BIOL 201 and one of BIOL 202, STAT 230, BIOL 205 is recommended.</td>
</tr>
<tr>
<td>BIOL_O 357-L02</td>
<td>BIOL_O</td>
<td>L02</td>
<td>Introduction to Entomology</td>
<td>W5</td>
<td>General survey of the evolution, classification, and biology of insects, with a special emphasis on their functional ecology. Experiments using insect systems as well as master techniques for collecting and curating insect specimens will be conducted in the lab. A properly-curated collection is a requirement for this course. [3-0-3] Prerequisite: BIOL 201 and one of BIOL 202, STAT 230, BIOL 205 is recommended.</td>
</tr>
<tr>
<td>BIOL_O 357-L03</td>
<td>BIOL_O</td>
<td>L03</td>
<td>Introduction to Entomology</td>
<td>W5</td>
<td>General survey of the evolution, classification, and biology of insects, with a special emphasis on their functional ecology. Experiments using insect systems as well as master techniques for collecting and curating insect specimens will be conducted in the lab. A properly-curated collection is a requirement for this course. [3-0-3] Prerequisite: BIOL 201 and one of BIOL 202, STAT 230, BIOL 205 is recommended.</td>
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<tr>
<td>BIOL_O 357-XMT</td>
<td>BIOL_O</td>
<td>XMT</td>
<td>Introduction to Entomology</td>
<td>W5</td>
<td>General survey of the evolution, classification, and biology of insects, with a special emphasis on their functional ecology. Experiments using insect systems as well as master techniques for collecting and curating insect specimens will be conducted in the lab. A properly-curated collection is a requirement for this course. [3-0-3] Prerequisite: BIOL 201 and one of BIOL 202, STAT 230, BIOL 205 is recommended.</td>
</tr>
<tr>
<td>BIOL_O 366-001</td>
<td>BIOL_O</td>
<td>001</td>
<td>Molecular Genetics</td>
<td>W5</td>
<td>Stresses the principles of molecular biology techniques and their relevance to the study of all areas of biology. Gene expression, gene regulation, and development genetics. [3-0-0] Prerequisite: One of BIOL 265, BIOL 365.</td>
</tr>
<tr>
<td>BIOL_O 380-001</td>
<td>BIOL_O</td>
<td>001</td>
<td>Food and Industrial Microbiology</td>
<td>W5</td>
<td>Spatial patterns in ecology, exploring ways to describe variation and mechanisms that give rise to patterns. Dispersal, metapopulation and source-sink dynamics, connectivity and fragmentation, heterogeneity, disturbance, edges, and dynamics of geographical ranges. Credit will be granted for only one of BIOL 401 or BIOL 512. [3-0-0] Prerequisite: One of BIOL 265, BIOL 365.</td>
</tr>
<tr>
<td>BIOL_O 401-001</td>
<td>BIOL_O</td>
<td>001</td>
<td>Spatial Ecology</td>
<td>W5</td>
<td>Spatial patterns in ecology, exploring ways to describe variation and mechanisms that give rise to patterns. Dispersal, metapopulation and source-sink dynamics, connectivity and fragmentation, heterogeneity, disturbance, edges, and dynamics of geographical ranges. Credit will be granted for only one of BIOL 401 or BIOL 512. [3-0-0] Prerequisite: One of BIOL 265, BIOL 365.</td>
</tr>
<tr>
<td>BIOL_O 405-001</td>
<td>BIOL_O</td>
<td>001</td>
<td>Functional Glycoscience</td>
<td>W5</td>
<td>Metabolism and nomenclature of glycans (saccharides) in prokaryotes and eukaryotes. Roles of glycans in normal cell function and in congenital, chronic and infectious diseases. Techniques for glycan analysis. [3-0-0] Prerequisite: BIOL 228.</td>
</tr>
<tr>
<td>BIOL_O 410-001</td>
<td>BIOL_O</td>
<td>001</td>
<td>Plant-Microbe Interactions</td>
<td>W5</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-001</td>
<td>BIOL_O</td>
<td>001</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-002</td>
<td>BIOL_O</td>
<td>002</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-003</td>
<td>BIOL_O</td>
<td>003</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-004</td>
<td>BIOL_O</td>
<td>004</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-005</td>
<td>BIOL_O</td>
<td>005</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-006</td>
<td>BIOL_O</td>
<td>006</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-007</td>
<td>BIOL_O</td>
<td>007</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-008</td>
<td>BIOL_O</td>
<td>008</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-009</td>
<td>BIOL_O</td>
<td>009</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-010</td>
<td>BIOL_O</td>
<td>010</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
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<tr>
<td>BIOL_O 440-011</td>
<td>BIOL_O</td>
<td>011</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
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<tr>
<td>BIOL_O 440-012</td>
<td>BIOL_O</td>
<td>012</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
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<tr>
<td>BIOL_O 440-013</td>
<td>BIOL_O</td>
<td>013</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-014</td>
<td>BIOL_O</td>
<td>014</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-015</td>
<td>BIOL_O</td>
<td>015</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
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<tr>
<td>BIOL_O 440-016</td>
<td>BIOL_O</td>
<td>016</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
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<tr>
<td>BIOL_O 440-017</td>
<td>BIOL_O</td>
<td>017</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
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<tr>
<td>BIOL_O 440-018</td>
<td>BIOL_O</td>
<td>018</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-019</td>
<td>BIOL_O</td>
<td>019</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-020</td>
<td>BIOL_O</td>
<td>020</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-021</td>
<td>BIOL_O</td>
<td>021</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
</tr>
<tr>
<td>BIOL_O 440-022</td>
<td>BIOL_O</td>
<td>022</td>
<td>Honours Thesis</td>
<td>W1-2</td>
<td>Students undertake a research project on a specific topic as agreed upon by the faculty member and the student. A written thesis is required, with a public presentation of the thesis in the form of a poster or a seminar. Prerequisite: Permission of the department head and course supervisor.</td>
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CHEM O 121-002 CHEM_O 002 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

CHEM O 121-L01 CHEM_O L01 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Mon 1:30 p.m. - 4:30 p.m.

CHEM O 121-L02 CHEM_O L02 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Mon 1:30 p.m. - 4:30 p.m.

CHEM O 121-L03 CHEM_O L03 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Mon 1:30 p.m. - 4:30 p.m.

CHEM O 121-L04 CHEM_O L04 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Tue 9:30 a.m. - 12:30 p.m.

CHEM O 121-L05 CHEM_O L05 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Tue 9:30 a.m. - 12:30 p.m.

CHEM O 121-L06 CHEM_O L06 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Tue 9:30 a.m. - 12:30 p.m.

CHEM O 121-L07 CHEM_O L07 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Tue 1:30 p.m. - 4:30 p.m.

CHEM O 121-L08 CHEM_O L08 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Tue 1:30 p.m. - 4:30 p.m.

CHEM O 121-L09 CHEM_O L09 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Tue 1:30 p.m. - 4:30 p.m.

CHEM O 121-L10 CHEM_O L10 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Tue 5:30 p.m. - 8:30 p.m.

CHEM O 121-L11 CHEM_O L11 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Tue 5:30 p.m. - 8:30 p.m.

CHEM O 121-L12 CHEM_O L12 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Tue 5:30 p.m. - 8:30 p.m.

CHEM O 121-L13 CHEM_O L13 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Wed 9:30 a.m. - 12:30 p.m.

CHEM O 121-L14 CHEM_O L14 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Wed 9:30 a.m. - 12:30 p.m.

CHEM O 121-L15 CHEM_O L15 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Wed 9:30 a.m. - 12:30 p.m.

CHEM O 121-L16 CHEM_O L16 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Wed 2:00 p.m. - 5:00 p.m.

CHEM O 121-L17 CHEM_O L17 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Wed 2:00 p.m. - 5:00 p.m.

CHEM O 121-L18 CHEM_O L18 Atomic and Molecular Chemistry W1 Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended. Laboratory In Person Learning Wed 2:00 p.m. - 5:00 p.m.
Gases, atomic structure and quantum theory of atoms, molecular structure and bonding, intermolecular forces. Credit will be granted for only one of CHEM 121 or CHEM 111. [3-3-0] Prerequisite: CHEM 11. Chemistry 12 is strongly recommended. Principles of Mathematics 12 or Pre-Calculus 12 is strongly recommended.

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<th>Code</th>
<th>Type</th>
<th>Title</th>
<th>Days</th>
<th>Time</th>
<th>Location</th>
<th>Prerequisites</th>
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</thead>
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<tr>
<td>CHEM_O 203-L01</td>
<td>CHEM_O</td>
<td>Introduction to Organic Chemistry</td>
<td>W1</td>
<td>1:30 p.m. - 4:30 p.m.</td>
<td>Laboratory</td>
<td>For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.</td>
</tr>
<tr>
<td>CHEM_O 203-L02</td>
<td>CHEM_O</td>
<td>Introduction to Organic Chemistry</td>
<td>W1</td>
<td>5:30 p.m. - 8:30 p.m.</td>
<td>Laboratory</td>
<td>For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.</td>
</tr>
<tr>
<td>CHEM_O 203-L03</td>
<td>CHEM_O</td>
<td>Introduction to Organic Chemistry</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory</td>
<td>For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.</td>
</tr>
<tr>
<td>CHEM_O 203-L04</td>
<td>CHEM_O</td>
<td>Introduction to Organic Chemistry</td>
<td>W1</td>
<td>1:30 p.m. - 4:30 p.m.</td>
<td>Laboratory</td>
<td>For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.</td>
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<tr>
<td>CHEM_O 203-L05</td>
<td>CHEM_O</td>
<td>Introduction to Organic Chemistry</td>
<td>W1</td>
<td>5:30 p.m. - 8:30 p.m.</td>
<td>Laboratory</td>
<td>For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.</td>
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<tr>
<td>CHEM_O 203-L06</td>
<td>CHEM_O</td>
<td>Introduction to Organic Chemistry</td>
<td>W1</td>
<td>2:00 p.m. - 5:00 p.m.</td>
<td>Laboratory</td>
<td>For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.</td>
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<tr>
<td>CHEM_O 203-L07</td>
<td>CHEM_O</td>
<td>Introduction to Organic Chemistry</td>
<td>W1</td>
<td>5:30 p.m. - 8:30 p.m.</td>
<td>Laboratory</td>
<td>For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.</td>
</tr>
<tr>
<td>CHEM_O 203-L08</td>
<td>CHEM_O</td>
<td>Introduction to Organic Chemistry</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory</td>
<td>For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.</td>
</tr>
<tr>
<td>CHEM_O 203-L09</td>
<td>CHEM_O</td>
<td>Introduction to Organic Chemistry</td>
<td>W1</td>
<td>1:30 p.m. - 4:30 p.m.</td>
<td>Laboratory</td>
<td>For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.</td>
</tr>
<tr>
<td>CHEM_O 203-L10</td>
<td>CHEM_O</td>
<td>Introduction to Organic Chemistry</td>
<td>W1</td>
<td>5:30 p.m. - 8:30 p.m.</td>
<td>Laboratory</td>
<td>For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.</td>
</tr>
<tr>
<td>CHEM_O 203-XMT</td>
<td>CHEM_O</td>
<td>Introduction to Organic Chemistry</td>
<td>W1</td>
<td>11:00 a.m. - 12:00 p.m.</td>
<td>Laboratory</td>
<td>For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.</td>
</tr>
</tbody>
</table>
Structure, bonding, and physical properties of organic compounds; conformational analysis, stereochemistry, and chirality; reactions of alkenes, alkyl halides, and alcohols. Emphasis will be placed on biological applications. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 203.

Laboratory In Person Learning Thu (Alternate weeks) 9:30 a.m. - 12:30 p.m.

Structure, bonding, and physical properties of organic compounds; conformational analysis, stereochemistry, and chirality; reactions of alkenes, alkyl halides, and alcohols. Emphasis will be placed on biological applications. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 203.

Laboratory In Person Learning Thu (Alternate weeks) 9:30 a.m. - 12:30 p.m.

Structure, bonding, and physical properties of organic compounds; conformational analysis, stereochemistry, and chirality; reactions of alkenes, alkyl halides, and alcohols. Emphasis will be placed on biological applications. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 203.

Laboratory In Person Learning Thu (Alternate weeks) 1:30 p.m. - 4:30 p.m.

Structure, bonding, and physical properties of organic compounds; conformational analysis, stereochemistry, and chirality; reactions of alkenes, alkyl halides, and alcohols. Emphasis will be placed on biological applications. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 203.

Laboratory In Person Learning Thu (Alternate weeks) 1:30 p.m. - 4:30 p.m.

CHEM_O 213-XMT      CHEM_O  XMT Organic Chemistry for Biological Sciences I  W1

Laboratory In Person Learning Arranged Arranged

Examination of various theories of atomic structure and molecular bonding, and their use to explain chemical and physical properties of atoms and molecules. Atomic wave mechanics, Lewis theory, valence bond theory, crystal field theory, symmetry and group theory, and molecular orbital theory of diatomic and polyatomic molecules and extended solids. [3-5-0] Prerequisite: One of CHEM 113, CHEM 123. A minimum grade of 65% in CHEM 113 is strongly recommended.

Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

Introduction to structure, composition, and chemical processes occurring in Earth’s atmosphere including interactions with solar radiation, stratospheric ozone layer, photochemical smog, and acid rain. [3-0-0]

Prerequisite: One of MATH 101, MATH 103 and one of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122.

One of CHEM 210, 211 is recommended.

Lecture In Person Learning Wed Fri 3:30 p.m. - 5:00 p.m.

Review of thermodynamics concepts; solution thermodynamics; electrochemistry; chemical equilibria, phase equilibria, colloid science. Emphasis on applications of thermodynamics to both chemical and biochemical systems. [3-4*-0] Prerequisite: CHEM 201. MATH 200 is recommended.

Lecture In Person Learning Mon Wed Fri 12:00 p.m. - 1:00 p.m.

Review of thermodynamics concepts; solution thermodynamics; electrochemistry; chemical equilibria, phase equilibria, colloid science. Emphasis on applications of thermodynamics to both chemical and biochemical systems. [3-4*-0] Prerequisite: CHEM 201. MATH 200 is recommended.

Lecture In Person Learning Thu (Alternate weeks) 3:30 p.m. - 7:30 p.m.

Review of thermodynamics concepts; solution thermodynamics; electrochemistry; chemical equilibria, phase equilibria, colloid science. Emphasis on applications of thermodynamics to both chemical and biochemical systems. [3-4*-0] Prerequisite: CHEM 201. MATH 200 is recommended.

Lecture In Person Learning Thu (Alternate weeks) 3:30 p.m. - 7:30 p.m.

Review of thermodynamics concepts; solution thermodynamics; electrochemistry; chemical equilibria, phase equilibria, colloid science. Emphasis on applications of thermodynamics to both chemical and biochemical systems. [3-4*-0] Prerequisite: CHEM 201. MATH 200 is recommended.

Lecture In Person Learning Arranged Arranged

Diffusion and transport phenomena of biomolecules. Interaction of radiation and matter in biochemical systems. Methods to determine molar mass, size, and shape of biomolecules in solution. MATH 200 is strongly recommended. [3-4*-0] Prerequisite: One of CHEM 201, CHEM 210.

Lecture In Person Learning Mon Wed Fri 2:00 p.m. - 3:00 p.m.

Diffusion and transport phenomena of biomolecules. Interaction of radiation and matter in biochemical systems. Methods to determine molar mass, size, and shape of biomolecules in solution. MATH 200 is strongly recommended. [3-4*-0] Prerequisite: One of CHEM 201, CHEM 210.

Lecture In Person Learning Tue (Alternate weeks) 3:30 p.m. - 7:30 p.m.

Diffusion and transport phenomena of biomolecules. Interaction of radiation and matter in biochemical systems. Methods to determine molar mass, size, and shape of biomolecules in solution. MATH 200 is strongly recommended. [3-4*-0] Prerequisite: One of CHEM 201, CHEM 210.

Lecture In Person Learning Tue (Alternate weeks) 3:30 p.m. - 7:30 p.m.

Diffusion and transport phenomena of biomolecules. Interaction of radiation and matter in biochemical systems. Methods to determine molar mass, size, and shape of biomolecules in solution. MATH 200 is strongly recommended. [3-4*-0] Prerequisite: One of CHEM 201, CHEM 210.

Lecture In Person Learning Arranged Arranged

Application of mass spectrometry, NMR, and IR spectroscopies to organic chemical problems. [3-0-0]

Prerequisite: One of CHEM 204, CHEM 214.

Lecture In Person Learning Mon Wed Fri 1:00 p.m. - 2:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
<th>Prerequisites</th>
<th>Schedule</th>
<th>Notes</th>
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<tbody>
<tr>
<td>CHEM 338-001</td>
<td>0.01</td>
<td>Organometallic Chemistry</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>3:00 p.m. - 4:00 p.m.</td>
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<tr>
<td>CHEM 338-L01</td>
<td>0.01</td>
<td>Organometallic Chemistry</td>
<td>Lecture</td>
<td>Tue (Alternate weeks)</td>
<td>8:00 a.m. - 12:00 p.m.</td>
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<tr>
<td>CHEM 338-L02</td>
<td>0.01</td>
<td>Organometallic Chemistry</td>
<td>Lecture</td>
<td>Tue (Alternate weeks)</td>
<td>8:00 a.m. - 12:00 p.m.</td>
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<td>CHEM 338-XMT</td>
<td>0.01</td>
<td>Organometallic Chemistry</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>12:00 p.m. - 1:00 p.m.</td>
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<tr>
<td>CHEM 412-001</td>
<td>0.01</td>
<td>Methods in Metabolomics</td>
<td>Lecture</td>
<td>Wed Fri</td>
<td>11:00 a.m. - 12:30 p.m.</td>
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<tr>
<td>CHEM 420-001</td>
<td>0.01</td>
<td>Main Group Chemistry</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>12:00 p.m. - 1:00 p.m.</td>
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<tr>
<td>CHEM 448-001</td>
<td>0.01</td>
<td>Chromatography and Mass Spectrometry</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>0:00 p.m. - 2:00 p.m.</td>
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<tr>
<td>CHEM 448-A-001</td>
<td>0.02</td>
<td>Special Topics in Chemistry</td>
<td>Lecture Format</td>
<td>Mon Wed Fri</td>
<td>Independent Study</td>
</tr>
<tr>
<td>CHEM 448-A-002</td>
<td>0.02</td>
<td>Special Topics in Chemistry</td>
<td>Lecture Format</td>
<td>Mon Wed Fri</td>
<td>Independent Study</td>
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<tr>
<td>CHEM 448-B-001</td>
<td>0.02</td>
<td>Special Topics in Chemistry</td>
<td>Lecture Format</td>
<td>Mon Wed Fri</td>
<td>Independent Study</td>
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<tr>
<td>CHEM 448-B-002</td>
<td>0.02</td>
<td>Special Topics in Chemistry</td>
<td>Lecture Format</td>
<td>Mon Wed Fri</td>
<td>Independent Study</td>
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<tr>
<td>CHEM 448-B-003</td>
<td>0.02</td>
<td>Special Topics in Chemistry</td>
<td>Lecture Format</td>
<td>Mon Wed Fri</td>
<td>Independent Study</td>
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<tr>
<td>CHEM 448-C-001</td>
<td>0.02</td>
<td>Special Topics in Chemistry</td>
<td>Lecture Format</td>
<td>Mon Wed Fri</td>
<td>Independent Study</td>
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<tr>
<td>CHEM 449-001</td>
<td>0.01</td>
<td>Honours Thesis</td>
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<td>Arranged</td>
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<td>CHEM 449-002</td>
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<td>Thesis</td>
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<td>COOP_O 403-101</td>
<td>Co-op Education Work Experience III</td>
<td>W1</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<td>COOP_O 404-101</td>
<td>Co-op Education Work Experience IV</td>
<td>W1</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<td>COOP_O 405-101</td>
<td>Co-op Education Work Experience V</td>
<td>W1</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<tr>
<td>COOP_O 406-101</td>
<td>Co-op Education Work Experience VI</td>
<td>W1</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<td>CORH_O 203-001</td>
<td>Communication in the Sciences</td>
<td>W2</td>
<td>Lecture</td>
<td>Online Learning</td>
<td>Tue Thu</td>
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<tr>
<td>CORH_O 203-002</td>
<td>Communication in the Sciences</td>
<td>W1</td>
<td>Lecture</td>
<td>Online Learning</td>
<td>Mon Wed</td>
</tr>
<tr>
<td>CORH_O 204-001</td>
<td>Communications in the Humanities</td>
<td>W1</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Thu</td>
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<tr>
<td>CORH_O 205-001</td>
<td>Communication in the Social Sciences</td>
<td>W1</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
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<tr>
<td>CORH_O 205-002</td>
<td>Communication in the Social Sciences</td>
<td>W2</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
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<tr>
<td>CORH_O 321-101</td>
<td>Personal and Professional Identity and Interpers.</td>
<td>W1</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Fri</td>
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<tr>
<td>CORH_O 331-001</td>
<td>Social Writing: Studies in Multimodal Communic</td>
<td>WS</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed</td>
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<tr>
<td>COSC_O 111-001</td>
<td>Computer Programming I</td>
<td>W1</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed</td>
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<tr>
<td>COSC_O 111-002</td>
<td>Computer Programming I</td>
<td>W1</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
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<td>COSC_O 111-003</td>
<td>Computer Programming I</td>
<td>W1</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed</td>
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<td>COSC_O 111-004</td>
<td>Computer Programming I</td>
<td>W1</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed</td>
</tr>
</tbody>
</table>

**COSC 111-001 Computer Programming I**

Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 125, MATH 126.

**COSC 111-002 Computer Programming I**

Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 125, MATH 126.

**COSC 111-003 Computer Programming I**

Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 125, MATH 126.

**COSC 111-004 Computer Programming I**

Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 125, MATH 126.
Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.

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Introduction to the design, implementation, and understanding of computer programs. Topics include problem solving, algorithm design, and data and procedural abstraction, with emphasis on the development of working programs. This course should be followed by COSC 121. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.
COSC O 121-001  COSC_O 001  Computer Programming II  WS  Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177. Lecture In Person Learning Wed Fri 12:30 p.m. - 2:00 p.m.

COSC O 121-011  COSC_O 001  Computer Programming II  WS  Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177. Laboratory In Person Learning Mon 12:00 p.m. - 2:00 p.m.

COSC O 121-012  COSC_O 001  Computer Programming II  WS  Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177. Laboratory In Person Learning Fri 2:00 p.m. - 4:00 p.m.

COSC O 121-013  COSC_O 001  Computer Programming II  WS  Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177. Laboratory In Person Learning Thu 2:00 p.m. - 4:00 p.m.

COSC O 121-014  COSC_O 001  Computer Programming II  WS  Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177. Laboratory In Person Learning Fri 2:00 p.m. - 4:00 p.m.

COSC O 121-05  COSC_O 001  Computer Programming II  WS  Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177. Laboratory In Person Learning Mon 10:00 a.m. - 12:00 p.m.

COSC O 121-06  COSC_O 001  Computer Programming II  WS  Advanced programming in the application of software engineering techniques to the design and implementation of programs manipulating complex data structures. [3-2-0] Prerequisite: A score of 60% or higher in one of COSC 111, COSC 123, APSC 177. Laboratory In Person Learning Thu 2:00 p.m. - 4:00 p.m.

COSC O 122-001  COSC_O 001  Computer Fluency  WS  Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0] Lecture In Person Learning Wed Fri 8:00 a.m. - 9:30 a.m.

COSC O 122-01  COSC_O 001  Computer Fluency  WS  Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0] Laboratory In Person Learning Mon 8:00 a.m. - 10:00 a.m.

COSC O 122-02  COSC_O 001  Computer Fluency  WS  Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0] Laboratory In Person Learning Thu 8:00 a.m. - 10:00 a.m.

COSC O 122-03  COSC_O 001  Computer Fluency  WS  Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0] Laboratory In Person Learning Fri 10:00 a.m. - 12:00 p.m.

COSC O 122-04  COSC_O 001  Computer Fluency  WS  Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0] Laboratory In Person Learning Tue 8:00 a.m. - 10:00 a.m.

COSC O 122-05  COSC_O 001  Computer Fluency  WS  Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0] Laboratory In Person Learning Tue 8:00 a.m. - 10:00 a.m.

COSC O 122-06  COSC_O 001  Computer Fluency  WS  Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0] Laboratory In Person Learning Thu 8:00 a.m. - 10:00 a.m.

COSC O 122-07  COSC_O 001  Computer Fluency  WS  Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0] Laboratory In Person Learning Mon 8:00 a.m. - 10:00 a.m.

COSC O 122-08  COSC_O 001  Computer Fluency  WS  Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0] Laboratory In Person Learning Mon 8:00 a.m. - 10:00 a.m.

COSC O 122-09  COSC_O 001  Computer Fluency  WS  Introduction to computer skills (electronic communication, websites, Internet, document editing, programming, data analysis using spreadsheets/databases) and concepts (information representation, abstraction, algorithmic thinking). Course objectives are lifelong productivity and understanding of technology in society. [3-2-0] Laboratory In Person Learning Mon 10:00 a.m. - 12:00 p.m.

COSC O 211-001  COSC_O 001  Machine Architecture  WS  Organization and design of computer systems and their impact on the practice of software development. Instruction set architecture and assembly programming languages, design of central processing units (CPU), memory hierarchy and cache organization, input and output programming. [3-0-0] Prerequisite: COSC 121. Lecture In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.

COSC O 221-001  COSC_O 001  Discrete Structures in Computing  WS  Discrete structures in computing and relevant mathematical techniques. Logic and applications in automated reasoning and programming, proof techniques and analysis of algorithms and computation models; graph theory and graph models in computing; counting principles and discrete probability. [3-0-1] Prerequisite: One of MATH 101, MATH 103, MATH 142, APSC 173. Corequisite: COSC 121. Lecture In Person Learning Mon Wed Fri 8:00 a.m. - 9:00 a.m.

COSC O 221-001  COSC_O 001  Discrete Structures in Computing  WS  Discrete structures in computing and relevant mathematical techniques. Logic and applications in automated reasoning and programming, proof techniques and analysis of algorithms and computation models; graph theory and graph models in computing; counting principles and discrete probability. [3-0-1] Prerequisite: One of MATH 101, MATH 103, MATH 142, APSC 173. Corequisite: COSC 121. Seminar In Person Learning Mon 9:00 a.m. - 10:00 a.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>COSC 221-502</td>
<td>Discrete Structures in Computing</td>
<td>3</td>
<td>Seminar in Person Learning Tue 5:00 p.m. - 6:00 p.m.</td>
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<tr>
<td>COSC 221-503</td>
<td>Discrete Structures in Computing</td>
<td>3</td>
<td>Seminar in Person Learning Thu 1:00 p.m. - 2:00 p.m.</td>
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<tr>
<td>COSC 221-505</td>
<td>Discrete Structures in Computing</td>
<td>3</td>
<td>Seminar in Person Learning Wed 9:00 a.m. - 10:00 a.m.</td>
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<td>COSC 222-001</td>
<td>Data Structures</td>
<td>3</td>
<td>Lecture In Person Learning Thu 11:00 a.m. - 12:30 p.m.</td>
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<tr>
<td>COSC 222-L01</td>
<td>Data Structures</td>
<td>3</td>
<td>Lecture In Person Learning Mon 10:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>COSC 222-L02</td>
<td>Data Structures</td>
<td>3</td>
<td>Laboratory In Person Learning Mon 10:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>COSC 222-L03</td>
<td>Data Structures</td>
<td>3</td>
<td>Laboratory In Person Learning Mon 12:00 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>COSC 222-L04</td>
<td>Data Structures</td>
<td>3</td>
<td>Laboratory In Person Learning Fri 2:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>COSC 222-L05</td>
<td>Data Structures</td>
<td>3</td>
<td>Laboratory In Person Learning Fri 2:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>COSC 222-L06</td>
<td>Data Structures</td>
<td>3</td>
<td>Laboratory In Person Learning Thu 8:00 a.m. - 10:00 a.m.</td>
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<tr>
<td>COSC 222-L07</td>
<td>Data Structures</td>
<td>3</td>
<td>Laboratory In Person Learning Tue 4:00 p.m. - 6:00 p.m.</td>
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<tr>
<td>COSC 222-L08</td>
<td>Data Structures</td>
<td>3</td>
<td>Laboratory In Person Learning Tue 8:00 a.m. - 10:00 a.m.</td>
</tr>
<tr>
<td>COSC 301-101</td>
<td>Introduction to Data Analytics</td>
<td>1</td>
<td>Lecture In Person Learning Wed 5:00 p.m. - 6:30 p.m.</td>
</tr>
<tr>
<td>COSC 301-L2A</td>
<td>Introduction to Data Analytics</td>
<td>1</td>
<td>Laboratory In Person Learning Wed 8:00 a.m. - 10:00 a.m.</td>
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<tr>
<td>COSC 301-L2B</td>
<td>Introduction to Data Analytics</td>
<td>1</td>
<td>Laboratory In Person Learning Thu 12:00 p.m. - 2:00 p.m.</td>
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<td>COSC 301-L2D</td>
<td>Introduction to Data Analytics</td>
<td>1</td>
<td>Laboratory In Person Learning Fri 12:00 p.m. - 2:00 p.m.</td>
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<td>COSC 301-L2F</td>
<td>Introduction to Data Analytics</td>
<td>1</td>
<td>Laboratory In Person Learning Fri 2:00 p.m. - 4:00 p.m.</td>
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<td>COSC 304-001</td>
<td>Introduction to Databases</td>
<td>1</td>
<td>Lecture In Person Learning Thu 9:30 a.m. - 11:00 a.m.</td>
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<tr>
<td>COSC 310-001</td>
<td>Software Engineering</td>
<td>1</td>
<td>Lecture In Person Learning Thu 5:00 p.m. - 6:30 p.m.</td>
</tr>
</tbody>
</table>
### COSC_O 310-L01
**Title:** Software Engineering
**Credits:** WS
**Weekly Schedule:**
- **10:00 a.m. - 12:00 p.m.:** Laboratory
- **9:30 a.m. - 11:00 a.m., 12:30 p.m. - 2:00 p.m.:** In Person Learning

### COSC_O 310-L02
**Title:** Software Engineering
**Credits:** WS
**Weekly Schedule:**
- **12:00 p.m. - 2:00 p.m.:** Laboratory
- **2:00 p.m. - 4:00 p.m.:** In Person Learning

### COSC_O 441-L01
**Title:** Advanced Human Computer Interaction
**Credits:** WS
**Weekly Schedule:**
- **10:00 a.m. - 12:00 p.m.:** Laboratory
- **11:00 a.m. - 12:30 p.m.:** Lecture

### COSC_O 441-L02
**Title:** Advanced Human Computer Interaction
**Credits:** WS
**Weekly Schedule:**
- **10:00 a.m. - 12:00 p.m.:** Lecture
- **1:00 p.m. - 3:30 p.m.:** In Person Learning

### COSC_O 541-001
**Title:** Introduction to Operating Systems
**Credits:** WS
**Weekly Schedule:**
- **10:00 a.m. - 12:00 p.m.:** Laboratory
- **12:00 p.m. - 2:00 p.m.:** In Person Learning
COSC_O 441-102 Advanced Human Computer Interaction   
W1 Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Fourth-year standing. 
Laboratory In Person Learning Tue 10:00 a.m. - 12:00 p.m.

COSC_O 448-A_001 Directed Studies in Computer Science  
W1-2 Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head. 
Independent Study In Person Learning Arranged Arranged

COSC_O 448-A_005 Directed Studies in Computer Science  
W1-2 Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head. 
Independent Study In Person Learning Arranged Arranged

COSC_O 448-B_001 Directed Studies in Computer Science  
W1-2 Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head. 
Independent Study In Person Learning Arranged Arranged

COSC_O 448-B_002 Directed Studies in Computer Science  
W1-2 Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head. 
Independent Study In Person Learning Arranged Arranged

COSC_O 448-B_003 Directed Studies in Computer Science  
W1-2 Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head. 
Independent Study In Person Learning Arranged Arranged

COSC_O 448-C_001 Directed Studies in Computer Science  
W1-2 Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head. 
Independent Study In Person Learning Arranged Arranged

COSC_O 448-C_002 Directed Studies in Computer Science  
W1-2 Supervised reading, participation in a seminar, and one or more programming projects. With different topics, this course may be taken twice for credit. Prerequisite: Third-year standing and permission of the department head. 
Independent Study In Person Learning Arranged Arranged

COSC_O 449-001 Honours Thesis  
W1-2 Students will undertake a research project as agreed upon by the student, supervising faculty member, and department head. A written thesis and a public presentation (poster or seminar) are required. Prerequisite: Fourth-year standing; admission to the B.A. or B.Sc. Computer Science Honours Program; and permission of the department head. 
Thesis In Person Learning Arranged Arranged

COSC_O 449-002 Honours Thesis  
W1-2 Students will undertake a research project as agreed upon by the student, supervising faculty member, and department head. A written thesis and a public presentation (poster or seminar) are required. Prerequisite: Fourth-year standing; admission to the B.A. or B.Sc. Computer Science Honours Program; and permission of the department head. 
Thesis In Person Learning Arranged Arranged

COSC_O 449-003 Honours Thesis  
W1-2 Students will undertake a research project as agreed upon by the student, supervising faculty member, and department head. A written thesis and a public presentation (poster or seminar) are required. Prerequisite: Fourth-year standing; admission to the B.A. or B.Sc. Computer Science Honours Program; and permission of the department head. 
Thesis In Person Learning Arranged Arranged

COSC_O 449-004 Honours Thesis  
W1-2 Students will undertake a research project as agreed upon by the student, supervising faculty member, and department head. A written thesis and a public presentation (poster or seminar) are required. Prerequisite: Fourth-year standing; admission to the B.A. or B.Sc. Computer Science Honours Program; and permission of the department head. 
Thesis In Person Learning Arranged Arranged

COSC_O 449-005 Honours Thesis  
W1-2 Students will undertake a research project as agreed upon by the student, supervising faculty member, and department head. A written thesis and a public presentation (poster or seminar) are required. Prerequisite: Fourth-year standing; admission to the B.A. or B.Sc. Computer Science Honours Program; and permission of the department head. 
Thesis In Person Learning Arranged Arranged

COSC_O 449-002 Capstone Software Engineering Project  
W1-2 A capstone project requiring team software development for an actual client. Students must produce a comprehensive report and deliver a formal presentation. [0-3-0: 0-3-0] Prerequisite: All of COSC 304, COSC 310, COSC 341. 
Laboratory In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.

COSC_O 449-003 Capstone Software Engineering Project  
W1-2 A capstone project requiring team software development for an actual client. Students must produce a comprehensive report and deliver a formal presentation. [0-3-0: 0-3-0] Prerequisite: All of COSC 304, COSC 310, COSC 341. 
Laboratory In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

COSC_O 505-001 Modeling and Simulation  
W1 Simulation methodology: data collection, model design, output analysis, optimization, validation. Credit will be granted for only one of COSC 405, DATA 405, COSC 505, or DATA 505. 
Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

COSC_O 506-001 Numerical Optimization  
W2 Formulation and analysis of algorithms for continuous optimization problems; linear, quadratic, semi-definite, nonlinear (constrained and unconstrained); large-scale problems. Credit will be granted for only one of COSC 405 or COSC 506. 
Lecture In Person Learning Wed Fri 12:30 p.m. - 2:00 p.m.

COSC_O 519-J_001 Topics in Computer Science  
W1 Specialized topics in computer science. Credit will be granted for only one of COSC 419 or COSC 519 when the subject matter is of the same nature. 
Lecture In Person Learning Wed 2:00 p.m. - 5:00 p.m.

COSC_O 521-001 Network Science  
W1 Graphs and complex networks in scientific research. Probabilistic and statistical models. Structures, patterns, and behaviors in networks. Algorithms and statistical methods. (online/mobile) social networks and social media platforms. Social influence, information diffusion, and viral marketing. Sentiment analysis and opinion mining. Data privacy. Search engines and recommendation systems. Credit will be granted for only one of COSC 421, COSC 521, DATA 421 or DATA 521. 
Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

COSC_O 541-001 Advanced Human Computer Interaction  
W1 Computer interaction design principles, advanced methodologies and theories; novel interfaces and platforms, conceptualization from ideation to implementation, advanced techniques for evaluation including controlled quantitative evaluation, field evaluation, quantitative analysis; introduction to HCI research. Credit will be granted for only one of COSC 441 or COSC 541. 
Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

COSC_O 549-001 Master's Thesis  
W1 Pass/Fail. 
Thesis In Person Learning Arranged Arranged

COSC_O 549-101 Master's Thesis  
W1-2 Pass/Fail. 
Thesis In Person Learning Arranged Arranged

COSC_O 590-D_501 Graduate Seminar  
W1 Presentation and discussion of recent results in the Computer Science literature. Pass/Fail. 
Seminar In Person Learning Tue 8:00 a.m. - 11:00 a.m.

COSC_O 649-001 Doctoral Dissertation  
W1-2 Pass/Fail. 
Thesis In Person Learning Arranged Arranged

COSC_O 649-001 Doctoral Dissertation  
W1 Pass/Fail. 
Thesis In Person Learning Arranged Arranged

COSC_O 649-001 Doctoral Dissertation  
W1 Pass/Fail. 
Thesis In Person Learning Arranged Arranged

COSC_O 649-001 Doctoral Dissertation  
W1 Pass/Fail. 
Thesis In Person Learning Arranged Arranged

COSC_O 649-001 Doctoral Dissertation  
W1 Pass/Fail. 
Thesis In Person Learning Arranged Arranged

COSC_O 649-001 Doctoral Dissertation  
W1 Pass/Fail. 
Thesis In Person Learning Arranged Arranged

COSC_O 649-001 Doctoral Dissertation  
W1 Pass/Fail. 
Thesis In Person Learning Arranged Arranged
**CRWR_O 150-001**  
**CRWR_O 001**  
**Introduction to Writing Poetry and Non-Fiction**  
Lecture  
In Person Learning  
Tue Thu  
| 5:00 p.m. - 6:30 p.m. |

**CRWR_O 160-001**  
**CRWR_O 001**  
**Introduction to Writing Fiction and Drama**  
Lecture  
In Person Learning  
Mon  
| 11:00 a.m. - 2:00 p.m. |

**CRWR_O 160-002**  
**CRWR_O 002**  
**Introduction to Writing Fiction and Drama**  
Lecture  
In Person Learning  
Thu  
| 2:00 p.m. - 5:00 p.m. |

**CRWR_O 217-001**  
**CRWR_O 001**  
**Intermediate Workshop in Creative Writing: Fiction**  
Lecture  
In Person Learning  
Wed  
| 12:30 p.m. - 2:00 p.m. |

**CRWR_O 250-001**  
**CRWR_O 001**  
**Workshop in Creative Writing: Screenwriting**  
Lecture  
In Person Learning  
Tue Thu  
| 9:30 a.m. - 11:00 a.m. |

**CRWR_O 310-001**  
**CRWR_O 001**  
**The Power of Metaphor**  
Lecture  
In Person Learning  
Wed  
| 8:00 a.m. - 11:00 a.m. |

**CRWR_O 380-001**  
**CRWR_O 001**  
**Writing of the Short Story**  
Lecture  
In Person Learning  
Fri  
| 8:00 a.m. - 11:00 a.m. |

**CRWR_O 381-A_001**  
**CRWR_O A A_001**  
**Writing of Poetry**  
Lecture  
In Person Learning  
Tue Thu  
| 2:00 p.m. - 5:00 p.m. |

**CRWR_O 470-A_001**  
**CRWR_O A A_001**  
**Portfolio**  
Lecture  
In Person Learning  
Thu  
| 11:00 a.m. - 2:00 p.m. |

**CRWR_O 474-001**  
**CRWR_O 001**  
**Writing with Media**  
Lecture  
In Person Learning  
Wed Fri  
| 2:00 p.m. - 4:00 p.m. |

**CRWR_O 581-A_001**  
**CRWR_O A A_001**  
**Graduate Workshop in Creative Writing - Lyric**  
Lecture  
In Person Learning  
Tue Thu  
| 11:00 a.m. - 2:00 p.m. |

**CRWR_O 582-A_001**  
**CRWR_O A A_001**  
**Graduate Workshop in Creative Writing - Narrative**  
Lecture  
In Person Learning  
Tue Thu  
| 8:00 a.m. - 11:00 a.m. |

**CULT_O 100-001**  
**CULT_O 001**  
**Media and Popular Cultures in Global Context**  
Lecture  
In Person Learning  
Thu  
| 11:00 a.m. - 12:30 p.m. |

**CULT_O 100-002**  
**CULT_O 002**  
**Media and Popular Cultures in Global Context**  
Lecture  
In Person Learning  
Tue Thu  
| 5:00 p.m. - 6:30 p.m. |

**CULT_O 100-003**  
**CULT_O 003**  
**Media and Popular Cultures in Global Context**  
Lecture  
In Person Learning  
Mon Wed  
| 2:00 p.m. - 3:30 p.m. |

**CULT_O 101-001**  
**CULT_O 001**  
**Cultural Studies Practices**  
Lecture  
In Person Learning  
Wed Fri  
| 8:00 a.m. - 9:30 a.m. |

**CULT_O 101-002**  
**CULT_O 002**  
**Cultural Studies Practices**  
Lecture  
In Person Learning  
Mon Wed  
| 9:30 a.m. - 11:00 a.m. |

**CULT_O 101-003**  
**CULT_O 003**  
**Cultural Studies Practices**  
Lecture  
In Person Learning  
Tue Thu  
| 3:30 p.m. - 5:00 p.m. |

**CULT_O 101-004**  
**CULT_O 004**  
**Cultural Studies Practices**  
Lecture  
In Person Learning  
Tue Thu  
| 9:30 a.m. - 11:00 a.m. |

**CULT_O 210-001**  
**CULT_O 001**  
**Reading Screens**  
Lecture  
In Person Learning  
Wed Fri  
| 12:30 p.m. - 2:00 p.m. |

**CULT_O 215-001**  
**CULT_O 001**  
**Cultural Industries**  
Lecture  
In Person Learning  
Tue Thu  
| 12:30 p.m. - 2:00 p.m. |

**CULT_O 220-101**  
**CULT_O 101**  
**Research with Media in the Humanities**  
Lecture  
In Person Learning  
Tue Thu  
| 3:30 p.m. - 5:00 p.m. |
Critical intercultural reading approaches, focusing on literature and film from the global South. Emphasis upon ideas of culture, difference, and the relations between reader and text. At least 15% of class time involves practice-based instruction in critical analysis, essay writing and research. Credit will be granted for only one of CULT 230 or ENGL 224. Prerequisite: 3 credits of first-year CULT and 3 credits of first-year ENGL. Equivalency: ENGL224

Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

Survey of Indigenous-authored poetry, drama, fiction, non-fiction prose, and orature in North America, with attention to Indigenous methodologies and major critical trends. At least 35% of class time involves practice-based instruction in critical analysis, essay writing and research. Credit will be granted for only one of ENGL 234 or CULT 250. [3-0-0] Prerequisite: 3 credits of first-year CULT and 3 credits of first-year ENGL. Equivalency: ENGL 254

Lecture In Person Learning Wed Fri 3:30 p.m. - 5:00 p.m.

Study of the major trends in critical theory. Attention will be given to applications of theory in literary research. Credit will be granted for only one of CULT 275 or ENGL 250. [3-0-0] Prerequisite: 3 credits of first-year CULT and 3 credits of first-year ENGL. Equivalency: ENGL250

Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

The theory and practice of producing a short narrative motion picture for the purpose of developing narrative film literacy. Credit will be granted for only one of CULT 303, CULT 316, FILM 303, or THTR 303. VISA 206, VISA 261, VISA 271, CULT 210, THTR 105, CRWR 251, or FILM 100 recommended. Prerequisite: One of VISA 106, VISA 261, FILM 261, and third-year standing or permission of the instructor. Equivalency: FILM 303, THTR 303

Lecture In Person Learning Thu 12:00 p.m. - 3:00 p.m.

History, theory, and practice of performance art as a visual medium, a global language, and a political force. Explores a wide range of experimental and interdisciplinary performance art practices, including key contributions by Indigenous artists. Credit will be granted for only one of CULT 309, ARTH 309, THTR 309, or WRLD 309. Prerequisite: Third-year standing. Equivalency: ARTH 309, THTR 309, WRLD 309

Lecture In Person Learning Wed 2:00 p.m. - 5:00 p.m.

A critical study of the cultural influence of the Internet on everyday life. With different topics, this course may be taken more than once for credit. No more than 9 credits in total will be granted for CULT 312, DIHU 312, or any combination thereof. Credit will be granted for only one of CULT 312 and DIHU 312 when the subject matter is of the same nature. Prerequisite: Third-year standing. Equivalency: DIHU312

Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

The medium of television from a global perspective, and the investigation of how genres in different television broadcast regimes shape content and reception. Credit will be granted for only one of CULT 315 or DIHU 315. [3-0-0] Prerequisite: Third-year standing. CULT 201, CULT 215, or CULT 220 recommended. Equivalency: DIHU 315

Lecture In Person Learning Tue 5:00 p.m. - 8:00 p.m.

Advanced studio course in digital- and film-based photography. Emphasis on photography as an artistic tool. This course may be taken twice for a maximum of 6 credits. Students in the Major/Combined Major/Minor in CULT can apply no more than 6 credits in total of CULT 310, VISA 362, or any combination thereof to their degree. Prerequisite: All of VISA 244, VISA 256. Or permission of the instructor. Note: for VISA 244, CULT students require permission of instructor. Equivalency: VISA 362

Lecture In Person Learning Tue 3:30 p.m. - 7:30 p.m.

Advanced survey of major trends within critical theory, with attention to issues such as subjectivity and power, the body, culture and imperatives, and social discourse. No more than 6 credits in total will be granted for CULT 371, ENGL 309 or any combination thereof. Prerequisite: 3 credits of 200-level or 200-level ENGL. One of CULT 270, CULT 275 recommended. Equivalency: ENGL309

Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

Advanced interdisciplinary course addressing the importance of technology-based approaches in contemporary art, with emphasis placed upon the formation of ideas and the media most appropriate to its expression. Students in the Major/Combined Major/Minor in CULT can apply no more than 6 credits in total of CULT 382, VISA 382, or any combination thereof to their degree. Prerequisite: One of VISA 206, VISA 266, VISA 268, VISA 269, VISA 271, or permission of the instructor. Equivalency: VISA 382

Lecture In Person Learning Tue 8:00 a.m. - 12:00 p.m.

Examination of selected themes related to identities and power. With different topics, this course can be taken more than once for credit. Topics vary from year to year. Prerequisite: Third-year standing.

Lecture In Person Learning Wed 11:00 a.m. - 2:00 p.m.

Examination of selected themes related to identities and power. With different topics, this course can be taken more than once for credit. Topics vary from year to year. Prerequisite: Third-year standing.

Lecture In Person Learning Mon Thu 8:00 a.m. - 9:30 a.m.

Seminar in the interdisciplinary field of performance studies, broadly conceived as the investigation of aesthetic, ritual, and everyday life performance practices. Credit will be granted for only one of CULT 411, THTR 411, or WRDL 411. [3-0-0] Prerequisite: Third-year standing. Equivalency: THTR411, WRDL411

Lecture In Person Learning Tue 2:00 p.m. - 5:00 p.m.

Examines colonialism, decolonisation, and globalisation, as they relate to literature and other modes of cultural production, using a cross-cultural framework. Topics vary from year to year. With different topics this course may be taken more than once for credit. No more than 9 credits in total will be granted for CULT 437, ENGL 457, or any combination thereof. Prerequisite: 3 credits of CULT and third-year standing. CULT 230 is recommended. Equivalency: ENGL437

Lecture In Person Learning Mon 11:00 a.m. - 2:00 p.m.

Topics in Indigenous literature and criticism in North America, including particular periods and individual authors. Credit will be granted for only one of ENGL 473 or CULT 450. [3-0-0] Prerequisite: 3 credits of 200-level CULT. CULT 250 recommended. Equivalency: ENGL 473

Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

Introduction to the techniques and software for handling real-world data. Topics include data cleaning, visualization, simulation, basic modelling, and prediction making. [3-1-0]

Lecture In Person Learning Mon Wed 8:00 a.m. - 9:30 a.m.

Introduction to the techniques and software for handling real-world data. Topics include data cleaning, visualization, simulation, basic modelling, and prediction making. [3-1-0]

Laboratory In Person Learning Wed 1:00 p.m. - 2:00 p.m.

Introduction to the techniques and software for handling real-world data. Topics include data cleaning, visualization, simulation, basic modelling, and prediction making. [3-1-0]

Laboratory In Person Learning Wed 10:00 a.m. - 11:00 a.m.

Introduction to the techniques and software for handling real-world data. Topics include data cleaning, visualization, simulation, basic modelling, and prediction making. [3-1-0]

Laboratory In Person Learning Mon 12:00 p.m. - 1:00 p.m.
Directed Studies in Data Science
12:00 p.m. - 2:00 p.m.

Collaborative Software Development
8:30 a.m. - 9:30 a.m.

Stochastic Modelling and Simulation
9:30 a.m. - 11:00 a.m.

Making Predictions with Data
12:00 p.m. - 2:00 p.m.

Communication and Consulting in Data Science
2:00 p.m. - 3:30 p.m.

Programming for Data Science
2:00 p.m. - 3:30 p.m.

Algorithms and Data Structure
2:00 p.m. - 3:30 p.m.

In Person Learning
9:00 a.m. - 10:00 a.m.
Laboratory 9:30 a.m. - 11:00 a.m. Discussion

In Person Learning 12:30 p.m. - 4:30 p.m.

Discussion 10:30 a.m. - 12:30 p.m.

In Person Learning 12:30 p.m. - 4:30 p.m.

Discussion 10:00 a.m. - 12:00 p.m.

In Person Learning 10:30 a.m. - 12:30 p.m.

Discussion 9:30 a.m. - 11:30 a.m.

In Person Learning 12:30 p.m. - 4:30 p.m.

Discussion 9:30 a.m. - 11:30 a.m.

In Person Learning 12:30 p.m. - 4:30 p.m.

Discussion 9:30 a.m. - 11:30 a.m.

In Person Learning 12:30 p.m. - 4:30 p.m.

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In Person Learning 12:30 p.m. - 4:30 p.m.

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Discussion 9:30 a.m. - 11:30 a.m.

In Person Learning 12:30 p.m. - 4:30 p.m.

Discussion 9:30 a.m. - 11:30 a.m.

In Person Learning 12:30 p.m. - 4:30 p.m.

Discussion 9:30 a.m. - 11:30 a.m.
DIHU_O 155-T1B  DIHU_O  T1B  Writing and Making with Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155  Discussion  In Person Learning  Wed  4:00 p.m. - 5:00 p.m.

DIHU_O 155-T1C  DIHU_O  T1C  Writing and Making with Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155  Discussion  In Person Learning  Thu  1:00 p.m. - 2:00 p.m.

DIHU_O 155-T1D  DIHU_O  T1D  Writing and Making with Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155  Discussion  In Person Learning  Mon  4:00 p.m. - 5:00 p.m.

DIHU_O 155-T1E  DIHU_O  T1E  Writing and Making with Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155  Discussion  In Person Learning  Fri  2:00 p.m. - 3:00 p.m.

DIHU_O 155-T1F  DIHU_O  T1F  Writing and Making with Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155  Discussion  In Person Learning  Thu  4:00 p.m. - 5:00 p.m.

DIHU_O 155-T1G  DIHU_O  T1G  Writing and Making with Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: ENGL 155  Discussion  In Person Learning  Tue  2:00 p.m. - 3:00 p.m.

DIHU_O 155-T1H  DIHU_O  T1H  Writing and Making with Technology in the Humanities  WS  Working in the context of fine arts and humanities research, students develop methods for multimedia research. No digital humanities or computing experience required. At least 35% of class time involves instruction in humanities criticism, prototyping, writing, and research. Credit will be granted for only one of DIHU 220 and CULT 210. Prerequisite: 3 credits of 100-level CULT, DHUM, or ENGL, or FILM 100. Equivalency: CULT220  Lecture  Online Learning  Thu Thu  3:30 p.m. - 5:00 p.m.

DIHU_O 312-A_001  DIHU_O  A  A  001  Internet Culture  WS  A critical study of the cultural influence of the Internet on everyday life. With different topics, this course may be taken more than once for credit. No more than 9 credits in total will be granted for DIHU 312, CULT 312, or any combination thereof. Credit will be granted for only one of DIHU 312 and CULT 312 when the subject matter is the same nature. Prerequisite: Third-year standing. Equivalency: CLAS312  Lecture  Online Learning  Thu Thu  9:30 a.m. - 11:00 a.m.

DIHU_O 315-001  DIHU_O  001  Television Studies  WS  The medium of television from a global perspective, and the investigation of how genres in different television broadcast regimes shape content and reception. Credit will be granted for only one of CULT 315 or DIHU 315. (3-2-0) Prerequisite: Third-year standing. CULT 201, CULT 215, or CULT 220 recommended. Equivalency: CULT 315  Lecture  In Person Learning  Tue  5:00 p.m. - 8:00 p.m.

DIHU_O 370-001  DIHU_O  001  Story and Image Across the Islamic World  WS  Selections from the arts of the book across the Islamic world (6th to 19th C) showing how literature inspired painters and calligraphers to weave together word and image. Digital art historical approaches will normally be used, though no computing experience is required. Credit will be granted for only one of DIHU 370, ARTH 370, or WRLD 370. Prerequisite: Third-year standing. Equivalency: ARTH 370, WRLD 370  Lecture  In Person Learning  Mon Wed  6:30 p.m. - 8:00 p.m.

EADM_O 557-001  EADM_O  001  Leadership for Inclusion and Social Justice  WS  An overview of the theoretical and practical elements of leadership for inclusive education, social justice, and other associated topics.  Lecture  Online Learning  Tue  4:30 p.m. - 7:30 p.m.

EAP_O 103-001  EAP_O  001  English for Academic Purposes Level III  WS  Practice and refinement of academic communication and composition skills: writing and grammar; reading comprehension and proficiency; listening comprehension and oral fluency; intercultural communication. Students participate in an increasingly complex variety of academic activities and situations involving multiple purposes and participants. Twelve weeks (240 hours). Prerequisite: Minimum English language competence level (see English Language Proficiency Tests at https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs). Registration limited to students in the English Foundation Program.  Lecture  In Person Learning  Mon Tue Wed Thu Fri  8:00 a.m. - 11:00 a.m.

EAP_O 104-001  EAP_O  001  English for Academic Purposes Level IV  WS  Development of advanced academic communication and composition skills: writing and grammar; reading comprehension and proficiency; listening comprehension and oral fluency; intercultural communication. Students participate in a variety of complex academic activities and situations involving multiple purposes and participants. Twelve weeks (240 hours). Prerequisite: Successful completion of EAP 103 or minimum English language competence level (see English Language Proficiency Tests at https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs). Registration limited to students in the English Foundation Program.  Lecture  In Person Learning  Mon Tue Wed Thu Fri  8:00 a.m. - 11:00 a.m.

EAP_O 104-002  EAP_O  002  English for Academic Purposes Level IV  WS  Development of advanced academic communication and composition skills: writing and grammar; reading comprehension and proficiency; listening comprehension and oral fluency; intercultural communication. Students participate in a variety of complex academic activities and situations involving multiple purposes and participants. Twelve weeks (240 hours). Prerequisite: Successful completion of EAP 103 or minimum English language competence level (see English Language Proficiency Tests at https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs). Registration limited to students in the English Foundation Program.  Lecture  In Person Learning  Mon Tue Wed Thu Fri  11:00 a.m. - 2:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAP_O 104-003</td>
<td>English for Academic Purposes Level IV</td>
<td>003</td>
<td>Development of advanced academic communication and composition skills; writing and grammar; reading comprehension and proficiency; comprehension and oral fluency; intercultural communication. Students participate in a variety of complex academic activities and situations involving multiple purposes and participants. Twelve weeks (240 hours). Prerequisite: Successful completion of EAP 103 or minimum English language competence level (see English Language Proficiency Tests at <a href="https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs">https://okanagan.calendar.ubc.ca/admissions/english-language-admission-standard/english-language-proficiency-tests-and-programs</a>). Registration limited to students in the English Foundation Program.</td>
</tr>
<tr>
<td>ECE_0 418-001</td>
<td>Observation and Documentation in Early Childh</td>
<td>001</td>
<td>Methods of observing, recording, and interpreting children’s behavior in early childhood settings and in using data for educational guidance following the developmentally appropriate practices. Restricted to students with at least third-year standing. Pass/Fail. [3-0-0]</td>
</tr>
<tr>
<td>ECON_O 101-001</td>
<td>Principles of Microeconomics</td>
<td>001</td>
<td>Elements of theory and Canadian policy and institutions concerning the economics of markets and market behaviour, prices and costs, exchange and trade, competition and monopoly, distribution of income. [3-0-0]</td>
</tr>
<tr>
<td>ECON_O 101-002</td>
<td>Principles of Microeconomics</td>
<td>002</td>
<td>Elements of theory and Canadian policy and institutions concerning the economics of markets and market behaviour, prices and costs, exchange and trade, competition and monopoly, distribution of income. [3-0-0]</td>
</tr>
<tr>
<td>ECON_O 102-001</td>
<td>Principles of Macroeconomics</td>
<td>001</td>
<td>Elements of theory and Canadian policy and institutions concerning the economics of growth and business cycles, national income accounting, interest and exchange rates, money and banking, the balance of trade. [3-0-0]</td>
</tr>
<tr>
<td>ECON_O 204-001</td>
<td>Intermediate Microeconomic Analysis</td>
<td>001</td>
<td>Microecon theory course at the post-principles level. Analysis of consumer behaviour, production, exchange, equilibrium of the firm under varying market structures, factor markets, economic efficiency, and welfare. [3-0-0]</td>
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<tr>
<td>ECON_O 204-001</td>
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<td>001</td>
<td>Microecon theory course at the post-principles level. Analysis of consumer behaviour, production, exchange, equilibrium of the firm under varying market structures, factor markets, economic efficiency, and welfare. [3-0-0]</td>
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<td>ECON_O 204-002</td>
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<tr>
<td>ECON_O 205-001</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>001</td>
<td>Macroecon theory course at the post-principles level. Income and employment theory, monetary and fiscal policies, the impact of international trade and finance on the domestic economy, economic growth and fluctuations. [3-0-1]</td>
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<tr>
<td>ECON_O 205-001</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>001</td>
<td>Macroecon theory course at the post-principles level. Income and employment theory, monetary and fiscal policies, the impact of international trade and finance on the domestic economy, economic growth and fluctuations. [3-0-1]</td>
</tr>
<tr>
<td>ECON_O 205-002</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>002</td>
<td>Macroecon theory course at the post-principles level. Income and employment theory, monetary and fiscal policies, the impact of international trade and finance on the domestic economy, economic growth and fluctuations. [3-0-1]</td>
</tr>
<tr>
<td>ECON_O 225-001</td>
<td>Data and Statistics for Economists</td>
<td>001</td>
<td>Visualization and interpretation of economic data. Topics include descriptive statistics, graphical methods, and inference, and applying these methods to economic data. Credit will be granted for only one of ECON 225 or ECON 391W. [3-0-4]</td>
</tr>
<tr>
<td>ECON_O 232-001</td>
<td>History of Economic Thought</td>
<td>001</td>
<td>Evolution of economic thinking from ancient to present times. The Greek, Islamic, and Medieval scholars; the Physiocrats, Adam Smith, Malthus, Bentham, Ricardo, Mill, Marx, Keynes, and other major economic thinkers. Development of fundamental economic ideas and conflicting perspectives are studied within their social and economic context. [3-0-0]</td>
</tr>
<tr>
<td>ECON_O 295-001</td>
<td>Managerial Economics</td>
<td>001</td>
<td>Economic foundations of managerial decision-making. Demand theory, cost and production, market structure, competitive strategy, organization of the firm, welfare-economic foundations of business regulation. [3-0-0]</td>
</tr>
<tr>
<td>ECON_O 327-001</td>
<td>Introduction to Empirical Economics</td>
<td>001</td>
<td>The essentials of probability and statistics for applied work in economics. Topics include descriptive statistics, probability, estimation, hypothesis testing, and analysis of variance. [3-0-2]</td>
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<tr>
<td>ECON_O 327-001</td>
<td>Introduction to Empirical Economics</td>
<td>001</td>
<td>The essentials of probability and statistics for applied work in economics. Topics include descriptive statistics, probability, estimation, hypothesis testing, and analysis of variance. [3-0-2]</td>
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<td>ECON_O 327-002</td>
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<tr>
<td>ECON_O 339-001</td>
<td>Economics of Technological Change</td>
<td>001</td>
<td>Application of economic analysis to technological change; impact of technological change on the growth and distribution of income; economic influences on the invention and diffusion of technology; interaction between technology, work, skills, and education; public policy toward technological change. [3-0-0]</td>
</tr>
<tr>
<td>ECON_O 340-001</td>
<td>Financial Economics</td>
<td>001</td>
<td>Fundamental topics in financial economics, including net present value, risk expected return, valuing bonds and equities, the capital asset pricing model, futures and options, and international investing. [3-0-0]</td>
</tr>
<tr>
<td>ECON_O 345-001</td>
<td>Money and Banking</td>
<td>001</td>
<td>Financial markets and financial institutions in theory and practice; structure and development of the Canadian financial system; development and theory of the regulation of the financial system; process of monetary control; theory and history of central banking and monetary policy. [3-0-0]</td>
</tr>
<tr>
<td>ECON_O 347-011</td>
<td>Monetary Economics</td>
<td>011</td>
<td>Monetary theory and practice. Demand for money. Goals, strategies and tools of central banks. Theory and practice of the interactions between money and other economic variables. Recent policy issues, such as digital currency. Credit will be granted for only one of ECON 347 or ECON 391W. [3-0-0]</td>
</tr>
</tbody>
</table>
ECON 355-001  ECON 001 Women in the Economy WS Lecture In Person Learning Mon Wed 12:30 p.m. - 2:00 p.m.

ECON 353-001  ECON 001 Urban and Transportation Economics WS Lecture In Person Learning Wed Fri 9:30 a.m. - 11:00 a.m.

ECON 355-001  ECON 001 International Trade WS Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

ECON 360-001  ECON 001 Labour Economics WS Lecture In Person Learning Wed Fri 9:30 a.m. - 11:00 a.m.

ECON 361-001  ECON 001 Economics of Industrial Relations WS Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

ECON 363-001  ECON 001 Health Economics WS Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

ECON 370-101  ECON 010 Benefit-Cost Analysis and the Economics of Projs WS Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

ECON 371-001  ECON 001 Economics of the Environment WS Lecture In Person Learning Tue Thu 5:00 p.m. - 6:30 p.m.

ECON 386-001  ECON 001 Industrial Organization and Regulation WS Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

ECON 391-001  ECON Y 001 Topics in Economics WS Lecture In Person Learning Wed Fri 2:00 p.m. - 3:30 p.m.

ECON 402-001  ECON 001 Applied Macroeconomic Analysis WS Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

ECON 427-001  ECON 001 Econometrics WS Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.

EDST 498-D_001 EDST D 001 Contemporary Educational Practice WS Seminar that explores various approaches, projects, methodologies, and teaching applications. Restricted to students with at least third-year standing. Pass/Fail. Credit will be granted for only one of ECON 391T or ECON 386. [3-0-0] Prerequisite: ECON 204 and one of ECON 225, STAT 230.

EDUC 100-002  EDUC 002 Controversial Issues in Education WS Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

EDUC 104-001  EDUC 001 Introduction to Academic Pedagogy: An Aboriginal WS Lecture In Person Learning Wed Fri 2:00 p.m. - 3:30 p.m.

EDUC 104-003  EDUC 003 Introduction to Academic Pedagogy: An Aboriginal WS Lecture Online Learning Arranged Arranged

EDUC 160-001  EDUC 001 Mathematical Reasoning for Arts and Education WS Lecture In Person Learning Mon Wed 8:00 a.m. - 9:30 a.m.

EDUC 300-001  EDUC 001 Inquiry in Education WS Lecture In Person Learning Thu 5:00 p.m. - 8:00 p.m.

EDUC 400-001  EDUC 001 Designing and Facilitating Effective Learning Exp WS Lecture In Person Learning Mon 2:00 p.m. - 5:00 p.m.

ECON 366-001  ECON 001 Health Economics WS Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

Canadian labour market. Labour supply, allocation of time among work and non-market activity, labour force participation, education and training. Determination of and effect of unions on wages and employment. Wage structure and differentials. [3-0-0] Prerequisite: All of ECON 101, ECON 102. 

ECON 375-001  ECON 001 Economics of Industrial Relations WS Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

ECON 386-001  ECON 001 Industrial Organization and Regulation WS Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

ECON 391-001  ECON Y 001 Topics in Economics WS Lecture In Person Learning Wed Fri 2:00 p.m. - 3:30 p.m.

ECON 402-001  ECON 001 Applied Macroeconomic Analysis WS Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

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EDST 498-D_001 EDST D 001 Contemporary Educational Practice WS Seminar that explores various approaches, projects, methodologies, and teaching applications. Restricted to students with at least third-year standing. Pass/Fail. Credit will be granted for only one of ECON 391T or ECON 386. [3-0-0] Prerequisite: ECON 204 and one of ECON 225, STAT 230.

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EDUC 160-001  EDUC 001 Mathematical Reasoning for Arts and Education WS Lecture In Person Learning Mon Wed 8:00 a.m. - 9:30 a.m.

EDUC 300-001  EDUC 001 Inquiry in Education WS Lecture In Person Learning Thu 5:00 p.m. - 8:00 p.m.

EDUC 400-001  EDUC 001 Designing and Facilitating Effective Learning Exp WS Lecture In Person Learning Mon 2:00 p.m. - 5:00 p.m.
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<tr>
<th>Course Code</th>
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<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC_O 440-001</td>
<td>EDUC_O Becoming a Scholar-Practitioner</td>
<td>W5</td>
<td>The cultivation of knowledge and understanding regarding the interdisciplinary foundations of educational principles, policies and practices, all of which are examined through large group contexts, seminars and field experiences. Pass/Fail. Prerequisite: Restricted to students in the Bachelor of Education Program Corequisite: All of EDUC 403, EDUC 411. Lecture In Person Learning Mon Tue Wed Thu Fri 8:00 a.m. - 5:30 p.m.</td>
</tr>
<tr>
<td>EDUC_O 451-001</td>
<td>EDUC_O Developing a Pedagogical Stance</td>
<td>W5</td>
<td>Foundational pedagogical knowledge and practice explored through seminars, colloquia and site-based learning where teacher candidates develop their practice and understandings related to diversity, literacies, numeracy and learning theories. Pass/Fail. Prerequisite: EDUC 403. Lecture In Person Learning Mon Tue Wed Thu Fri 8:00 a.m. - 5:30 p.m.</td>
</tr>
<tr>
<td>EDUC_O 440-P01</td>
<td>EDUC_O Field Experience: Literacies and Numeracies in A WS</td>
<td>W5</td>
<td>Field Experience: Final Practicum/Internship Extended immersion in a school community, co-planning/co-teaching/co-assessing with mentors and other colleagues and, with demonstrated competency, assume the lead in planning and curricular enactment with the support of mentor teachers. Pass/Fail. Prerequisite: EDUC 438, 6 credits of electives or equivalent approved by the Faculty of Education. Experiential In Person Learning Arranged Arranged</td>
</tr>
<tr>
<td>EDUC_O 444-P01</td>
<td>EDUC_O Research Methodology in Education Part I</td>
<td>W5</td>
<td>An introductory course examining various issues, methods and techniques used in educational research. Consideration is given to research strategies and techniques and the selection of research questions appropriate to a range of issues facing educators. Lecture In Person Learning Sat [Alternate weeks] 9:00 a.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>EDUC_O 500-001</td>
<td>EDUC_O Research Methodology in Education Part II</td>
<td>W5</td>
<td>Examine inquiry frameworks as a mode of investigation. Issues, methods and techniques used in educational research. Consideration is given to research strategies and techniques and the selection of research questions appropriate to a range of issues facing scholar-practitioners. Seminar Online Learning Wed 5:00 p.m. - 8:00 p.m.</td>
</tr>
<tr>
<td>EDUC_O 554-001</td>
<td>EDUC_O Experiential Seminar I: Project Fundamentals</td>
<td>W5</td>
<td>Examining how respective Indigenous traditional knowledge stories and storytelling practices inform organic theoretical frameworks, pedagogy, and praxis in place-based schooling, community, and peoples transforming projects. Credit will be granted for only one of EDUC 554 and EDUC 562 when the subject matter is of the same nature. Hybrid Learning Wed 5:00 p.m. - 8:00 p.m.</td>
</tr>
<tr>
<td>EDUC_O 562-M_001</td>
<td>EDUC_O Special Topics in Education</td>
<td>W5</td>
<td>Building on coursework completed during the master's program, this course supports students in the development of their M. Ed. exit projects. It provides scaffolding for the conceptualization, development, and completion of projects that will meet or exceed the requirements for both graduate programs and teacher qualification standards. Pass/Fail. Independent Study In Person Learning Arranged Arranged</td>
</tr>
<tr>
<td>EDUC_O 598-201</td>
<td>EDUC_O M.Ed. Seminar with Project</td>
<td>W5-2</td>
<td>Building on coursework completed during the master's program, this course supports students in the development of their M. Ed. exit projects. It provides scaffolding for the conceptualization, development, and completion of projects that will meet or exceed the requirements for both graduate programs and teacher qualification standards. Pass/Fail. Independent Study In Person Learning Arranged Arranged</td>
</tr>
<tr>
<td>EESC_O 101-001</td>
<td>EESC_O Environmental Science</td>
<td>W5</td>
<td>The geological history of what is now Canada from the formation of Earth to the present day. Practical applications of geology to Canadian society and the economy. [3-0-0] Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>EESC_O 104-001</td>
<td>EESC_O Four Billion Years and Counting</td>
<td>W5</td>
<td>The geological history of what is now Canada from the formation of Earth to the present day. Practical applications of geology to Canadian society and the economy. [3-0-0] Lecture In Person Learning Mon Wed Fri 2:00 p.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>EESC_O 111-001</td>
<td>EESC_O Earth Science</td>
<td>W5</td>
<td>Origin, structure and composition of Earth. Plate tectonics as the unifying mechanism for mountain building, formation of ocean basins, and assembly and break-up of continents. Minerals, rocks, Earth surface processes, geological maps, natural resources and hazards. [3-0-0] Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>EESC_O 111-L01</td>
<td>EESC_O Earth Science</td>
<td>L01</td>
<td>Origin, structure and composition of Earth. Plate tectonics as the unifying mechanism for mountain building, formation of ocean basins, and assembly and break-up of continents. Minerals, rocks, Earth surface processes, geological maps, natural resources and hazards. [3-0-0] Laboratory In Person Learning Thu 8:00 a.m. - 10:00 a.m.</td>
</tr>
<tr>
<td>EESC_O 111-L02</td>
<td>EESC_O Earth Science</td>
<td>L02</td>
<td>Origin, structure and composition of Earth. Plate tectonics as the unifying mechanism for mountain building, formation of ocean basins, and assembly and break-up of continents. Minerals, rocks, Earth surface processes, geological maps, natural resources and hazards. [3-0-0] Laboratory In Person Learning Mon 10:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>EESC_O 111-L03</td>
<td>EESC_O Earth Science</td>
<td>L03</td>
<td>Origin, structure and composition of Earth. Plate tectonics as the unifying mechanism for mountain building, formation of ocean basins, and assembly and break-up of continents. Minerals, rocks, Earth surface processes, geological maps, natural resources and hazards. [3-0-0] Laboratory In Person Learning Tue 10:00 a.m. - 12:00 p.m.</td>
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<tr>
<td>EESC_O 111-L04</td>
<td>EESC_O Earth Science</td>
<td>L04</td>
<td>Origin, structure and composition of Earth. Plate tectonics as the unifying mechanism for mountain building, formation of ocean basins, and assembly and break-up of continents. Minerals, rocks, Earth surface processes, geological maps, natural resources and hazards. [3-0-0] Laboratory In Person Learning Fri 2:00 p.m. - 4:00 p.m.</td>
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<tr>
<td>EESC_O 111-L05</td>
<td>EESC_O Earth Science</td>
<td>L05</td>
<td>Origin, structure and composition of Earth. Plate tectonics as the unifying mechanism for mountain building, formation of ocean basins, and assembly and break-up of continents. Minerals, rocks, Earth surface processes, geological maps, natural resources and hazards. [3-0-0] Laboratory In Person Learning Fri 8:00 a.m. - 10:00 a.m.</td>
</tr>
<tr>
<td>EESC_O 111-L06</td>
<td>EESC_O Earth Science</td>
<td>L06</td>
<td>Origin, structure and composition of Earth. Plate tectonics as the unifying mechanism for mountain building, formation of ocean basins, and assembly and break-up of continents. Minerals, rocks, Earth surface processes, geological maps, natural resources and hazards. [3-0-0] Laboratory In Person Learning Thu 12:00 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>EESC_O 200-001</td>
<td>EESC_O Mineralogy</td>
<td>W5</td>
<td>Crystallography and the physical and chemical properties of minerals. Recognition and identification of common minerals. [2-3-0] Prerequisite: EESC 111 and one of CHEM 111, CHEM 121. Lecture In Person Learning Mon Wed Fri 11:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>EESC_O 200-L01</td>
<td>EESC_O Mineralogy</td>
<td>L01</td>
<td>Crystallography and the physical and chemical properties of minerals. Recognition and identification of common minerals. [2-3-0] Prerequisite: EESC 111 and one of CHEM 111, CHEM 121. Lecture In Person Learning Thu 11:00 a.m. - 2:00 p.m.</td>
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<tr>
<td>Course Code</td>
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<tr>
<td>EESC 222-001</td>
<td>Geomorphology</td>
<td>001</td>
<td>Lecture</td>
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<tr>
<td>EESC 222-L01</td>
<td>Geomorphology</td>
<td>L01</td>
<td>Lecture</td>
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<tr>
<td>EESC 222-L02</td>
<td>Geomorphology</td>
<td>L02</td>
<td>Lecture</td>
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<tr>
<td>EESC 301-001</td>
<td>Limnology</td>
<td>001</td>
<td>Lecture</td>
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<tr>
<td>EESC 301-L01</td>
<td>Limnology</td>
<td>L01</td>
<td>Lecture</td>
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<tr>
<td>EESC 301-L02</td>
<td>Limnology</td>
<td>L02</td>
<td>Lecture</td>
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<tr>
<td>EESC 311-001</td>
<td>Environmental Impact Assessment: Process, Reg</td>
<td>001</td>
<td>Lecture</td>
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<td>EESC 312-001</td>
<td>Igneous and Metamorphic Petrology</td>
<td>001</td>
<td>Lecture</td>
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<tr>
<td>EESC 312-L01</td>
<td>Igneous and Metamorphic Petrology</td>
<td>L01</td>
<td>Lecture</td>
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<tr>
<td>EESC 312-L02</td>
<td>Igneous and Metamorphic Petrology</td>
<td>L02</td>
<td>Lecture</td>
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<tr>
<td>EESC 323-010</td>
<td>Geochemistry</td>
<td>010</td>
<td>Lecture</td>
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<tr>
<td>EESC 325-001</td>
<td>Structural Geology</td>
<td>001</td>
<td>Lecture</td>
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Description and classification of geologic structures. Stress, strain and their relationship to deformation processes. Mechanics of faulting, folding, and shear zone development. Interpretation of physical deformation processes and the resulting geologic structures. [3-3-0] Prerequisite: EESC 111. and Third-year standing in EESC Major or EESC Minor. Laboratory In Person Learning Wed 6:30 p.m. - 9:30 p.m.

Introduction to the theory of groundwater flow; flow nets; regional groundwater resource evaluation; well hydraulics. [3-3-0] Prerequisite: Either (a) MATH 100 and one of PHYS 111, PHYS 112 and one of EESC 111, EESC 121, GEOG 109, EESC 205; (b) one of ENGR 340, ENGR 341. Third-year standing. Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

Introduction to the theory of groundwater flow; flow nets; regional groundwater resource evaluation; well hydraulics. [3-3-0] Prerequisite: Either (a) MATH 100 and one of PHYS 111, PHYS 112 and one of EESC 111, EESC 121, GEOG 109, EESC 205, GEOG 205; or (b) one of ENGR 340, ENGR 341. Third-year standing. Laboratory In Person Learning Fri 2:00 p.m. - 5:00 p.m.

Introduction to the theory of groundwater flow; flow nets; regional groundwater resource evaluation; well hydraulics. [3-3-0] Prerequisite: Either (a) MATH 100 and one of PHYS 111, PHYS 112 and one of EESC 111, EESC 121, GEOG 109, EESC 205, GEOG 205; or (b) one of ENGR 340, ENGR 341. Third-year standing. Laboratory In Person Learning Thu 2:00 p.m. - 5:00 p.m.

Written and oral communication. Report preparation, business correspondence, and oral presentation of technical material. Advanced grammar and writing styles. Logical writing; referencing; and editing. Presenting technical information to scientists and non-scientists. [3-0-2] Prerequisite: Three credits of APSC 176, CORH 203, ENGL 109,112, 114, 150, 151, 153, 154, 155, or 156. Discussion In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

Written and oral communication. Report preparation, business correspondence, and oral presentation of technical material. Advanced grammar and writing styles. Logical writing; referencing; and editing. Presenting technical information to scientists and non-scientists. [3-0-2] Prerequisite: Three credits of APSC 176, CORH 203, ENGL 109,112, 114, 150, 151, 153, 154, 155, or 156. Students undertake an individual research project as agreed upon by the student and the supervising faculty member. A written thesis is required and the research must be publicly presented as a seminar or poster. Prerequisite: Admission to the Earth and Environmental Sciences or Freshwater Sciences Honours program. Thesis In Person Learning Mon 11:00 a.m. - 12:00 p.m.

Origin, nature, and distribution of glacial landforms and landform assemblages. Evaluation of hypotheses and theories on formation of glacial landforms and sediments, glacial mechanics, hydrology, and Quaternary stratigraphy. Students are required to attend several field trips on weekends. [3-1-0] Prerequisite: One of EESC 222, EESC 436, GEOG 222, GEOG 306. Lecture In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.

Students undertake an individual research project as agreed upon by the student and the supervising faculty member. A written thesis is required and the research must be publicly presented as a seminar or poster. Prerequisite: Admission to the Earth and Environmental Sciences or Freshwater Sciences Honours program. Thesis In Person Learning Arranged Arranged

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Physical, chemical, and biological properties of soils, soil formation and classification. Soil physics and water movement. Soil productivity, conservation, and sustainability. The application of soil science to land use, environmental quality, global change, and sustainable development. Credit will be granted for only one of EESC 456 or GEOG 466. [3-0-0] Prerequisite: One of EESC 111, EESC 200, GEOG 109, CHEM 111, CHEM 121, PHYS 111, PHYS 112. Third-year standing. Equivalency: GEOG 466 Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.
<table>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Schedule</th>
</tr>
</thead>
</table>
| EESC 456-101 | Soil Science                                                                                | 2       | Physical, chemical, and biological properties of soils, soil formation and classification. Soil physics and water movement. Soil productivity, conservation, and sustainability. The application of soil science to land use, environmental quality, global change, and sustainable development. Credit will be granted for only one of EESC 456 or GEOG 466. [3-3-0] Prerequisite: One of EESC 111, EESC 200, GEOG 109, CHEM 111, CHEM 121, PHYS 111, PHYS 112. Third-year standing. Equivalency: GEOG466. | Laboratory In Person Learning Thu 8:00 a.m. - 11:00 a.m. |}
| EESC 456-102 | Soil Science                                                                                | 2       | Physical, chemical, and biological properties of soils, soil formation and classification. Soil physics and water movement. Soil productivity, conservation, and sustainability. The application of soil science to land use, environmental quality, global change, and sustainable development. Credit will be granted for only one of EESC 456 or GEOG 466. [3-3-0] Prerequisite: One of EESC 111, EESC 200, GEOG 109, CHEM 111, CHEM 121, PHYS 111, PHYS 112. Third-year standing. Equivalency: GEOG466. | Laboratory In Person Learning Tue 2:00 p.m. - 5:00 p.m. |}
| EESC 550-001 | Research in Earth and Environmental Sciences                                                | 1       | Practical and theoretical grounding in professional research. Critical assessment of the logic, reasoning, and structure of research ideas. Research proposal development. Presentation of scientific ideas in written and oral forms. Seminar presentations by faculty and external speakers, as available. | Seminar In Person Learning Tue 2:00 p.m. - 5:00 p.m. |}
| EESC 599-001 | M.Sc. Thesis                                                                                 | 3       | Pass/Fail. Advances communication skills in composition, close reading, rhetoric, grammar, and citation. Emphasis on academic literacy from Indigenous perspectives. Credit will be granted for only one of ENGL 109 or ENGL 110. Restricted to students in the Aboriginal Access Studies program and/or students who self-identify as Indigenous in Workday. | Lecture In Person Learning Mon Wed 2:00 p.m. - 3:30 p.m. |}
| EESC 599-201 | Ph.D. Dissertation                                                                            | 4       | Pass/Fail. Advances communication skills in composition, close reading, rhetoric, grammar, and citation. Emphasis on academic literacy from Indigenous perspectives. Credit will be granted for only one of ENGL 109 or ENGL 110. Restricted to students in the Aboriginal Access Studies program and/or students who self-identify as Indigenous in Workday. | Thesis In Person Learning Arranged Arranged |}
| ENGL 104-001 | University Writing: Indigenous Perspectives                                                  | 3       | A two-semester practice-based course that gives learners an extended opportunity to develop university-level writing skills. Advances communication abilities in rhetoric, critical analysis, grammar, and documentation, with emphasis on research-based writing and academic literacy. Essays and exercises are required. Credit will be granted for only one of ENGL 109, ENGL 112 or ENGL 114. | Lecture In Person Learning Mon Wed 2:00 p.m. - 3:30 p.m. |}
| ENGL 109-001 | Studies in Composition (Enhanced)                                                             | 3-2     | A two-semester practice-based course that gives learners an extended opportunity to develop university-level writing skills. Advances communication abilities in rhetoric, critical analysis, grammar, and documentation, with emphasis on research-based writing and academic literacy. Essays and exercises are required. Credit will be granted for only one of ENGL 109, ENGL 112 or ENGL 114. | Lecture In Person Learning Thu 8:00 a.m. - 9:30 a.m. |}
| ENGL 109-002 | Studies in Composition (Enhanced)                                                             | 3-2     | A two-semester practice-based course that gives learners an extended opportunity to develop university-level writing skills. Advances communication abilities in rhetoric, critical analysis, grammar, and documentation, with emphasis on research-based writing and academic literacy. Essays and exercises are required. Credit will be granted for only one of ENGL 109, ENGL 112 or ENGL 114. | Lecture In Person Learning Thu 2:00 p.m. - 3:30 p.m. |}
| ENGL 109-003 | Studies in Composition (Enhanced)                                                             | 3-2     | A two-semester practice-based course that gives learners an extended opportunity to develop university-level writing skills. Advances communication abilities in rhetoric, critical analysis, grammar, and documentation, with emphasis on research-based writing and academic literacy. Essays and exercises are required. Credit will be granted for only one of ENGL 109, ENGL 112 or ENGL 114. | Lecture In Person Learning Thu 11:00 a.m. - 12:30 p.m. |}
| ENGL 109-004 | Studies in Composition (Enhanced)                                                             | 3-2     | A two-semester practice-based course that gives learners an extended opportunity to develop university-level writing skills. Advances communication abilities in rhetoric, critical analysis, grammar, and documentation, with emphasis on research-based writing and academic literacy. Essays and exercises are required. Credit will be granted for only one of ENGL 109, ENGL 112 or ENGL 114. | Lecture In Person Learning Wed Fri 9:30 a.m. - 11:00 a.m. |}
| ENGL 109-005 | Studies in Composition (Enhanced)                                                             | 3-2     | A two-semester practice-based course that gives learners an extended opportunity to develop university-level writing skills. Advances communication abilities in rhetoric, critical analysis, grammar, and documentation, with emphasis on research-based writing and academic literacy. Essays and exercises are required. Credit will be granted for only one of ENGL 109, ENGL 112 or ENGL 114. | Lecture In Person Learning Wed Fri 3:30 p.m. - 5:00 p.m. |}
| ENGL 109-006 | Studies in Composition (Enhanced)                                                             | 3-2     | Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. | Lecture In Person Learning Mon Wed 3:00 p.m. - 6:30 p.m. |}
| ENGL 112-001 | Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. | Lecture Online Learning Arranged Arranged |}
| ENGL 112-002 | Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. | Lecture Online Learning Arranged Arranged |}
| ENGL 112-003 | Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. | Lecture Online Learning Arranged Arranged |}
| ENGL 112-004 | Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. | Lecture In Person Learning Thu 12:30 p.m. - 2:00 p.m. |}
| ENGL 112-005 | Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. | Lecture In Person Learning Wed Fri 2:00 p.m. - 3:30 p.m. |}
| ENGL 112-006 | Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. | Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m. |}
| ENGL 112-007 | Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114. | Lecture In Person Learning Wed Fri 8:00 a.m. - 9:30 a.m. |}
Practice-based approach to writing at the university level. Emphasis is placed on the processes of research-based writing. Credit will be granted for only one of ENGL 112, ENGL 109, or ENGL 114.

Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.

Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.

Introduction to literature focusing on genres such as poetry, drama, and fiction. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research.

Study of narrative forms such as life-writing, 6films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.

Study of narrative forms such as life-writing, 6films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.

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Study of narrative forms such as life-writing, 6films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research.
ENGL 153-T11  ENGL_O  T11  Readings in Narrative  WS  Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Discussion  In Person Learning  Wed  1:00 p.m. - 2:00 p.m.

ENGL 153-T12  ENGL_O  T12  Readings in Narrative  WS  Study of narrative forms such as life-writing, films, histories, myths, narrative poems, novels, short stories, and songs. At least 35% of class time involves practice-based instruction in essay writing and research. Discussion  In Person Learning  Thu  3:00 p.m. - 4:00 p.m.

ENGL 155-001  ENGL_O  001  Writing and Making Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Lecture  In Person Learning  Fri  12:00 p.m. - 2:00 p.m.

ENGL 155-T1A  ENGL_O  T1A  Writing and Making Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Discussion  In Person Learning  Fri  11:00 a.m. - 12:00 p.m.

ENGL 155-T1B  ENGL_O  T1B  Writing and Making Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Discussion  In Person Learning  Wed  4:00 p.m. - 5:00 p.m.

ENGL 155-T1C  ENGL_O  T1C  Writing and Making Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Discussion  In Person Learning  Thu  1:00 p.m. - 2:00 p.m.

ENGL 155-T1D  ENGL_O  T1D  Writing and Making Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Discussion  In Person Learning  Mon  4:00 p.m. - 5:00 p.m.

ENGL 155-T1E  ENGL_O  T1E  Writing and Making Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Discussion  In Person Learning  Fri  2:00 p.m. - 3:00 p.m.

ENGL 155-T1F  ENGL_O  T1F  Writing and Making Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Discussion  In Person Learning  Thu  4:00 p.m. - 5:00 p.m.

ENGL 155-T1G  ENGL_O  T1G  Writing and Making Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Discussion  In Person Learning  Tue  2:00 p.m. - 3:00 p.m.

ENGL 155-T1H  ENGL_O  T1H  Writing and Making Technology in the Humanities  WS  Introduction to digital and technological cultures with a focus on humanities methods, drawing on a range of periods in technological development and critical approaches to studying technology. At least 35% of class time involves practice-based instruction in humanities criticism, prototyping, writing, and research. Equivalency: DIHU 155 Discussion  In Person Learning  Wed  1:00 p.m. - 2:00 p.m.

ENGL 156-001  ENGL_O  001  Environmental Literature  WS  Introduction to literature and criticism on the environment. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research. Lecture  In Person Learning  Mon  5:00 p.m. - 6:30 p.m.

ENGL 156-002  ENGL_O  002  Environmental Literature  WS  Introduction to literature and criticism on the environment. Develops skills in interpretation of texts. At least 35% of class time involves practice-based instruction in essay writing and research. Lecture  In Person Learning  Tue  11:00 a.m. - 12:30 p.m.

ENGL 203-A_001  ENGL_O  A  A_001  Topics in Composition  WS  Examination of published research on a special topic with emphasis on rhetorical features and social contexts. Students will produce a final project that demonstrates their ability to reason, develop ideas, organize, write in an effective style, incorporate research, and revise their work. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Lecture  In Person Learning  Wed Fri  11:00 a.m. - 12:30 p.m.

ENGL 203-A_002  ENGL_O  A  A_002  Topics in Composition  WS  Examination of published research on a special topic with emphasis on rhetorical features and social contexts. Students will produce a final project that demonstrates their ability to reason, develop ideas, organize, write in an effective style, incorporate research, and revise their work. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Lecture  In Person Learning  Tue Thu  2:00 p.m. - 3:30 p.m.

ENGL 203-A_003  ENGL_O  A  A_003  Topics in Composition  WS  Examination of published research on a special topic with emphasis on rhetorical features and social contexts. Students will produce a final project that demonstrates their ability to reason, develop ideas, organize, write in an effective style, incorporate research, and revise their work. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Lecture  In Person Learning  Wed Fri  9:30 a.m. - 11:00 a.m.

ENGL 212-001  ENGL_O  001  Children's Literature  WS  Historical survey of literature written for and about children, in genres such as poems, short stories, fairy tales, novels, and treatises, covering a full range of modes from didactic to realistic to fantasy. At least 35% of class time involves practice-based instruction in critical analysis, essay writing and research. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Lecture  In Person Learning  Wed Fri  11:00 a.m. - 12:30 p.m.

ENGL 215-001  ENGL_O  001  Reading Screens  WS  Film and other screen-based media as narrative, with a focus on both formal and ideological elements. Credit will be granted for only one of ENGL 215 or CULT 215. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Equivalency: CULT 210 Lecture  In Person Learning  Wed Fri  12:30 p.m. - 2:00 p.m.

ENGL 220-001  ENGL_O  001  Foundations: Literature in Historical Context 1  WS  Poetry, drama, fiction, and non-fiction prose to the eighteenth century, with attention to the importance of Notary and changes in form for literary analysis. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Lecture  In Person Learning  Tue Thu  3:30 p.m. - 5:00 p.m.
ENGL_O 220-002  ENGL_O 002 Foundations: Literature in Historical Context 1  WS  Poetry, drama, fiction, and non-fiction prose to the eighteenth century, with attention to the importance of history and changes in form for literary analysis. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Lecture  In Person Learning  Tue Thu  3:30 p.m. - 5:00 p.m.

ENGL_O 224-001  ENGL_O 001 Foundations: Reading Across Borders  WS  Critical intercultural reading approaches, focusing on literature and film from the global South. Emphasis upon ideas of culture, difference, and the relations between reader and text. At least 35% of class time involves practice-based instruction in critical analysis, essay writing and research. Credit will be granted for only one of ENGL 224 or CLT 230. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Equivalency: CLT1230 Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

ENGL_O 234-001  ENGL_O 001 Foundations: Indigenous Literature  WS  Survey of Indigenous-authored poetry, drama, fiction, non-fiction prose, and orature in North America, with attention to Indigenous methodologies and major critical trends. At least 35% of class time involves practice-based instruction in critical analysis, essay writing and research. Credit will be granted for only one of ENGL 234 or CULT 250. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Equivalency: CULT 250 Lecture  In Person Learning  Wed Fri  3:30 p.m. - 5:00 p.m.

ENGL_O 250-001  ENGL_O 001 Foundations: Interdisciplinary Theory and Meth WS  Major trends in critical theory, with attention to the applications of theory in literary research. Credit will be granted for only one of ENGL 250 or CULT 275. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. Equivalency: CULT 275 Lecture  In Person Learning  Tue Thu  12:30 p.m. - 2:00 p.m.

ENGL_O 309-A_001  ENGL_O A_A_001 Modern Critical Theory and Interdisciplinary Me WS  The movement from the literature of the Gilded Age to the Progressive Era, paying close attention to the cultural work done by realism and naturalism. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Equivalency: CULT171 Lecture  In Person Learning  Mon Wed  9:30 a.m. - 11:00 a.m.

ENGL_O 339-001  ENGL_O 001 American Literature from the Civil War to WWI  WS  Study of how literary works reflect and respond to social, political, and religious change in the context of revolution. Popular and polemical works, including advice literature, polemical pamphlets, or political tracts, will inform critical debates on gender, religion, and/or liberty. With different topics, this course may be taken more than once for credit. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Lecture  In Person Learning  Tue Thu  3:30 p.m. - 5:00 p.m.

ENGL_O 349-C_001  ENGL_O C_C_001 17th-Century Literature  WS  Examines sixteenth and seventeenth century works across a range of authors, forms, and genres with a thematic focus. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Lecture  In Person Learning  Wed Fri  3:30 p.m. - 5:00 p.m.

ENGL_O 350-C_001  ENGL_O C_C_001 18th- and 19th-Century Studies  WS  Lecture  In Person Learning  Tue Thu  11:00 a.m. - 12:30 p.m.

ENGL_O 353-001  ENGL_O 101 Shakespeare: Later Works  WS  Lecture  In Person Learning  Mon Wed  11:00 a.m. - 12:30 p.m.

ENGL_O 391-001  ENGL_O 001 Metropolitan Literature  WS  Addresses English literature through interdisciplinary perspectives and practices, ranging from performance, to visual arts, to creative writing and comparative literature. This course may involve cross-discipline pedagogies, experiential learning, community-based learning and/or undergraduate research opportunities. With different topics, this course may be taken more than once for credit. ENGL 394 and ENGL 395 must have different topics in order for students to receive credit for both courses. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Experiential Lecture  In Person Learning  Wed Fri  11:00 a.m. - 12:30 p.m.

ENGL_O 394-B_001  ENGL_O B_B_001 Interdisciplinary Studies in English Literature  WS  An examination of one or more genres, writers, forms, themes, or major trends in popular culture. May not be taken for credit toward the English major, minor, humanities or combined major, or the English concentration in the BA, General Studies. With different topics, this course may be taken three times for credit, but it cannot be used as a prerequisite for 400-level ENGL courses. ENGL 395 and ENGL 394 must have different topics in order for students to receive credit for both courses. Prerequisite: One of ENGL 109, ENGL 112, ENGL 114, ENGL 150, ENGL 151, ENGL 153, ENGL 154, ENGL 155, ENGL 156. and third-year standing. Lecture  In Person Learning  Wed Fri  11:00 a.m. - 12:30 p.m.

ENGL_O 395-I_001  ENGL_O I_I_001 Popular Literature  WS  Examines colonialism, decolonization, and globalization, as they relate to literature and other modes of cultural production, using a cross-cultural framework. Topics vary from year to year. With different topics this course may be taken more than once for credit. No more than 6 credits in total will be granted for ENGL 394-397, CULT 347, or any combination thereof. [3-0-0] Prerequisite: 3 credits of 300-level ENGL. Equivalency: CULT347 Lecture  In Person Learning  Mon  11:00 a.m. - 2:00 p.m.

ENGL_O 437-B_001  ENGL_O B_B_001 Postcolonial Studies  WS  The works of no more than three significant authors will be examined. Specific topics will be announced. [3-0-0] Prerequisite: 3 credits of 300-level ENGL. Independent Study Lecture  In Person Learning  Mon Wed  9:30 a.m. - 11:00 a.m.

ENGL_O 473-001  ENGL_O 001 Studies in Indigenous Literature and Criticism  WS  Topics in Indigenous literature and criticism in North America, including particular periods and individual authors. Credit will be granted for only one of ENGL 473 or CULT 452; [3-0-0] Prerequisite: 3 credits of 300-level ENGL. Equivalency: CULT 450 Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

ENGL_O 483-K_001  ENGL_O K_K_001 Topics in Popular Culture  WS  Focus on media such as music, film, music videos, television, advertising, and the Internet. No more than 9 credits in total will be granted for ENGL 437, CULT 437, or any combination thereof. [3-0-0] Prerequisite: 3 credits of 300-level ENGL. Equivalency: CULT437 Lecture  In Person Learning  Wed Fri  8:00 a.m. - 9:30 a.m.

ENGL_O 499-I_001  ENGL_O I_I_001 Honours Essay  WS-2 Prerequisite: Entry into the English Honours program. Independent Study Lecture  In Person Learning  Arranged Arranged

ENGL_O 525-K_001  ENGL_O K_K_001 Studies in Diversity and Identity  WS  Introduction to the profession's expectations, practices, and responsibilities. Pass/Fail. Lecture  In Person Learning  Tue Thu  11:00 a.m. - 2:00 p.m.

ENGL_O 531-A_101  ENGL_O A_A_101 Place and Power  WS  Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.
ENGR_O 303-101 ENGR_O 101 Engineering Project Management WI Lecture In Person Learning Mon Wed 8:00 a.m. - 9:30 a.m.

ENGR_O 310-101 ENGR_O 101 Fluid Mechanics II W1 Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

ENGR_O 310-L1A ENGR_O 11A Fluid Mechanics II W1 Laboratory In Person Learning Wed (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR_O 310-L1B ENGR_O 11B Fluid Mechanics II W1 Laboratory In Person Learning Wed (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR_O 310-L1C ENGR_O 11C Fluid Mechanics II W1 Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 310-L1D ENGR_O 11D Fluid Mechanics II W1 Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 310-L1E ENGR_O 11E Fluid Mechanics II W1 Laboratory In Person Learning Fri (Alternate weeks) 12:00 p.m. - 2:00 p.m.

ENGR_O 310-L1F ENGR_O 11F Fluid Mechanics II W1 Laboratory In Person Learning Fri (Alternate weeks) 12:00 p.m. - 2:00 p.m.

ENGR_O 310-L1G ENGR_O 11G Fluid Mechanics II W1 Laboratory In Person Learning Wed (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 310-L1H ENGR_O 11H Fluid Mechanics II W1 Laboratory In Person Learning Wed (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 310-L1J ENGR_O 11J Fluid Mechanics II W2 Laboratory In Person Learning Fri (Alternate weeks) 8:00 a.m. - 10:00 a.m.

ENGR_O 310-L1K ENGR_O 11K Fluid Mechanics II W1 Laboratory In Person Learning Wed (Alternate weeks) 12:00 p.m. - 2:00 p.m.

ENGR_O 310-L1L ENGR_O 11L Fluid Mechanics II W1 Laboratory In Person Learning Wed (Alternate weeks) 12:00 p.m. - 2:00 p.m.

ENGR_O 310-T1A ENGR_O 11A Fluid Mechanics II W1 Discussion Online Learning Mon 1:00 p.m. - 2:00 p.m.

ENGR_O 310-T1B ENGR_O 11B Fluid Mechanics II W1 Discussion Online Learning Mon 3:00 p.m. - 4:00 p.m.

ENGR_O 310-T1C ENGR_O 11C Fluid Mechanics II W1 Discussion Online Learning Mon 10:00 a.m. - 11:00 a.m.

ENGR_O 310-T1D ENGR_O 11D Fluid Mechanics II W1 Discussion Online Learning Tue 1:00 p.m. - 2:00 p.m.

ENGR_O 310-T1E ENGR_O 11E Fluid Mechanics II W1 Discussion Online Learning Fri 2:00 p.m. - 3:00 p.m.

ENGR_O 325-101 ENGR_O 101 Civil Engineering Materials W1 Lecture In Person Learning Tue Thu 8:00 a.m. - 9:30 a.m.

ENGR_O 325-L1A ENGR_O 11A Civil Engineering Materials W2 Laboratory In Person Learning Tue (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 325-L1B ENGR_O 11B Civil Engineering Materials W3 Laboratory In Person Learning Fri (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR_O 325-L1C ENGR_O 11C Civil Engineering Materials W3 Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 325-L1D ENGR_O 11D Civil Engineering Materials W1 Laboratory In Person Learning Wed (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR_O 325-L1E ENGR_O 11E Civil Engineering Materials W1 Laboratory In Person Learning Thu (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR_O 325-L1F ENGR_O 11F Civil Engineering Materials W1 Laboratory In Person Learning Mon (Alternate weeks) 1:00 p.m. - 3:00 p.m.

ENGR_O 325-L1G ENGR_O 11G Civil Engineering Materials W1 Laboratory In Person Learning Thu (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 325-L1H ENGR_O 11H Civil Engineering Materials W1 Laboratory In Person Learning Mon (Alternate weeks) 5:00 p.m. - 7:00 p.m.

ENGR_O 327-101 ENGR_O 101 Reinforced Concrete Design I W1 Lecture In Person Learning Tue Thu 5:00 p.m. - 6:30 p.m.

ENGR_O 327-L1A ENGR_O 11A Reinforced Concrete Design I W1 Laboratory In Person Learning Tue (Alternate weeks) 10:00 a.m. - 12:00 p.m.
ENGR 327-11B ENGR 342-L2E Laboratory In Person Learning Reinforced Concrete Design I [W1] Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 253, APSC 261. Corequisite: ENGR 325. Laboratory In Person Learning Tue (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR 327-11C ENGR 342-L2F Laboratory In Person Learning Reinforced Concrete Design I [W1] Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 253, APSC 260. Corequisite: ENGR 325. Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR 327-11D ENGR 342-L2G Laboratory In Person Learning Reinforced Concrete Design I [W1] Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 253, APSC 260. Corequisite: ENGR 325. Laboratory In Person Learning Wed (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR 327-11E ENGR 342-L2H Laboratory In Person Learning Reinforced Concrete Design I [W1] Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 253, APSC 260. Corequisite: ENGR 325. Laboratory In Person Learning Thu (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR 327-11F ENGR 342-L2I Laboratory In Person Learning Reinforced Concrete Design I [W1] Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 253, APSC 260. Corequisite: ENGR 325. Laboratory In Person Learning Mon (Alternate weeks) 1:00 p.m. - 3:00 p.m.

ENGR 327-11G ENGR 342-L2J Laboratory In Person Learning Reinforced Concrete Design I [W1] Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 253, APSC 260. Corequisite: ENGR 325. Laboratory In Person Learning Thu (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR 327-11H ENGR 342-L2K Laboratory In Person Learning Reinforced Concrete Design I [W1] Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 253, APSC 260. Corequisite: ENGR 325. Laboratory In Person Learning Mon (Alternate weeks) 5:00 p.m. - 7:00 p.m.

ENGR 327-11A ENGR 342-L2A Discussion In Person Learning Reinforced Concrete Design I [W1] Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 253, APSC 260. Corequisite: ENGR 325. Discussion In Person Learning Wed 10:00 a.m. - 11:00 a.m.

ENGR 327-11B ENGR 342-L2B Discussion In Person Learning Reinforced Concrete Design I [W1] Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 253, APSC 260. Corequisite: ENGR 325. Discussion In Person Learning Wed 2:00 p.m. - 3:00 p.m.

ENGR 327-11C ENGR 342-L2C Discussion In Person Learning Reinforced Concrete Design I [W1] Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 253, APSC 260. Corequisite: ENGR 325. Discussion In Person Learning Mon 1:00 p.m. - 2:00 p.m.

ENGR 327-11D ENGR 342-L2D Discussion In Person Learning Reinforced Concrete Design I [W1] Analysis of reinforced concrete members subjected to flexure, shear, and combined bending and axial forces. Design of one-way slabs, beams, and short columns. Serviceability analysis. Bond and anchorage. [3-2*-1] Prerequisite: All of APSC 253, APSC 260. Corequisite: ENGR 325. Discussion In Person Learning Fri 10:00 a.m. - 11:00 a.m.

ENGR 341-101 ENGR 342-L2E Lecture In Person Learning Engineering Hydrology [W2] Hydrologic processes, climate change and hydrologic cycle analysis, urban flood management. Emphasis on quantitative techniques. [3-0-0] Prerequisite: All of APSC 253, APSC 255. Lecture In Person Learning Wed Fri 12:30 p.m. - 2:00 p.m.

ENGR 342-201 ENGR 342-L2F Lecture In Person Learning Open Channel Flow [W5] Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, steady flow, contaminant transport. [3-2*-0] Prerequisite: APSC 253. Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

ENGR 342-202 ENGR 342-L2G Lecture In Person Learning Open Channel Flow [W5] Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, steady flow, contaminant transport. [3-2*-0] Prerequisite: APSC 253. Lecture In Person Learning Thu (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR 342-203 ENGR 342-L2H Lecture In Person Learning Open Channel Flow [W5] Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, steady flow, contaminant transport. [3-2*-0] Prerequisite: APSC 253. Lecture In Person Learning Thu (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR 342-204 ENGR 342-L2I Lecture In Person Learning Open Channel Flow [W5] Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, steady flow, contaminant transport. [3-2*-0] Prerequisite: APSC 253. Lecture In Person Learning Thu (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR 342-205 ENGR 342-L2J Lecture In Person Learning Open Channel Flow [W5] Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, steady flow, contaminant transport. [3-2*-0] Prerequisite: APSC 253. Lecture In Person Learning Thu (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR 342-206 ENGR 342-L2K Lecture In Person Learning Open Channel Flow [W5] Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, steady flow, contaminant transport. [3-2*-0] Prerequisite: APSC 253. Lecture In Person Learning Thu (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR 342-207 ENGR 342-L2L Lecture In Person Learning Open Channel Flow [W5] Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, steady flow, contaminant transport. [3-2*-0] Prerequisite: APSC 253. Lecture In Person Learning Fri (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR 342-208 ENGR 342-L2M Lecture In Person Learning Open Channel Flow [W5] Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, steady flow, contaminant transport. [3-2*-0] Prerequisite: APSC 253. Lecture In Person Learning Fri (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR 347-101 ENGR 342-201 Lecture In Person Learning Environmental Engineering [W5] Air, water, environmental pollutants, and treatment design concepts. [3-0-0] Prerequisite: All of APSC 183, APSC 283, APSC 253. Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

ENGR 350-201 ENGR 342-202 Lecture In Person Learning Linear Circuit Theory [W5] Signals and amplifier fundamentals, the operational amplifier, diodes, metal-oxide-semiconductor field effect transistor amplifier circuits, and bipolar junction transistor amplifier circuits. [3-2*-0] Prerequisite: APSC 255. Lecture In Person Learning Mon Wed 6:30 p.m. - 8:00 p.m.

ENGR 351-201 ENGR 342-203 Lecture In Person Learning Microelectronics I [W5]
Signals and amplifier fundamentals, the operational amplifier, diodes, metal-oxide-semiconductor field effect transistor amplifier circuits, and bipolar junction transistor amplifier circuits. [3-2*-0] Prerequisite: APSC 255. Laboratory In Person Learning Thu (Alternate weeks) 8:00 a.m. - 10:00 a.m.

Signals and amplifier fundamentals, the operational amplifier, diodes, metal-oxide-semiconductor field effect transistor amplifier circuits, and bipolar junction transistor amplifier circuits. [3-2*-0] Prerequisite: APSC 255. Laboratory In Person Learning Mon (Alternate weeks) 12:00 p.m. - 2:00 p.m.

Signals and amplifier fundamentals, the operational amplifier, diodes, metal-oxide-semiconductor field effect transistor amplifier circuits, and bipolar junction transistor amplifier circuits. [3-2*-0] Prerequisite: APSC 255. Laboratory In Person Learning Fri (Alternate weeks) 8:00 a.m. - 10:00 a.m.

Signals and amplifier fundamentals, the operational amplifier, diodes, metal-oxide-semiconductor field effect transistor amplifier circuits, and bipolar junction transistor amplifier circuits. [3-2*-0] Prerequisite: APSC 255. Laboratory In Person Learning Fri (Alternate weeks) 8:00 a.m. - 10:00 a.m.

Semiconductor materials, carrier transport phenomena, P-N diode, metal-semiconductor junction, light emitting diode, semiconductor lasers and photodiodes, bipolar junction transistors, MOSFET, and other semiconductor devices. [3-0-0] Prerequisite: APSC 255. Lecture In Person Learning Wed Fri 3:30 p.m. - 5:00 p.m.

Microcomputer architecture, number representation, assembly language, parallel and serial input/output, interrupts, memory, peripherals. [3-2*-0] Prerequisite: APSC 255. Lecture In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.

Microcomputer architecture, number representation, assembly language, parallel and serial input/output, interrupts, memory, peripherals. [3-2*-0] Prerequisite: APSC 255. Laboratory In Person Learning Tue (Alternate weeks) 12:00 p.m. - 2:00 p.m.

Laboratory In Person Learning Tue (Alternate weeks) 12:00 p.m. - 2:00 p.m.

Laboratory In Person Learning Tue (Alternate weeks) 12:00 p.m. - 2:00 p.m.

Laboratory In Person Learning Tue (Alternate weeks) 10:00 a.m. - 12:00 p.m.

Laboratory In Person Learning Tue (Alternate weeks) 10:00 a.m. - 12:00 p.m.

Laboratory In Person Learning Wed (Alternate weeks) 1:00 p.m. - 3:00 p.m.

Lecture In Person Learning Thu 2:00 p.m. - 3:30 p.m.

Review comprehensive study of phase diagrams, phase transformations, TTT diagrams, heat treatment, ferrus and nonferrous alloys, composite and concrete materials, and materials selection. [3-0-0] Prerequisite: APSC 255. Lecture In Person Learning Thu 11:00 a.m. - 12:30 p.m.

The design, analysis, and synthesis of mechanisms, linkages, cams, and gear trains; dynamic force analysis; balancing of rotating and reciprocating masses. [3-0-1] Prerequisite: APSC 181. Lecture In Person Learning Thu 5:00 p.m. - 6:30 p.m.

The design, analysis, and synthesis of mechanisms, linkages, cams, and gear trains; dynamic force analysis; balancing of rotating and reciprocating masses. [3-0-1] Prerequisite: APSC 181. Discussion Online Learning Tue 9:00 a.m. - 10:00 a.m.

The design, analysis, and synthesis of mechanisms, linkages, cams, and gear trains; dynamic force analysis; balancing of rotating and reciprocating masses. [3-0-1] Prerequisite: APSC 181. Discussion Online Learning Tue 9:00 a.m. - 10:00 a.m.

The design, analysis, and synthesis of mechanisms, linkages, cams, and gear trains; dynamic force analysis; balancing of rotating and reciprocating masses. [3-0-1] Prerequisite: APSC 181. Discussion Online Learning Mon 12:00 p.m. - 1:00 p.m.

The design, analysis, and synthesis of mechanisms, linkages, cams, and gear trains; dynamic force analysis; balancing of rotating and reciprocating masses. [3-0-1] Prerequisite: APSC 181. Discussion Online Learning Tue 8:00 a.m. - 9:00 a.m.

The design, analysis, and synthesis of mechanisms, linkages, cams, and gear trains; dynamic force analysis; balancing of rotating and reciprocating masses. [3-0-1] Prerequisite: APSC 181. Discussion Online Learning Thu 1:00 p.m. - 2:00 p.m.

The design, analysis, and synthesis of mechanisms, linkages, cams, and gear trains; dynamic force analysis; balancing of rotating and reciprocating masses. [3-0-1] Prerequisite: APSC 181. Discussion Online Learning Fri 10:00 a.m. - 11:00 a.m.

Vibration of mechanical systems. Single and multiple degree of freedom systems. Undamped, damped vibrations. Forced vibrations and resonance. Modal analysis, modelling vibrating systems. Spectral analysis. Measurement and control of vibrating mechanical systems. [3-0-1] Prerequisite: APSC 246. Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

Vibration of mechanical systems. Single and multiple degree of freedom systems. Undamped, damped vibrations. Forced vibrations and resonance. Modal analysis, modelling vibrating systems. Spectral analysis. Measurement and control of vibrating mechanical systems. [3-0-1] Prerequisite: APSC 246. Discussion In Person Learning Thu 8:00 a.m. - 9:00 a.m.
**ENGR_O 387-T1B** ENGR_O T1B Vibration of Mechanical Systems WS Vibration of mechanical systems. Single and multiple degree of freedom systems. Undamped, damped vibrations. Forced vibrations and resonance. Modal analysis, modelling vibrating systems. Spectral analysis. Measurement and control of vibrating mechanical systems. [3-0-1] Prerequisite: APSC 246. Discussion In Person Learning Mon 4:00 p.m. - 5:00 p.m.

**ENGR_O 387-T1C** ENGR_O T1C Vibration of Mechanical Systems WS Vibration of mechanical systems. Single and multiple degree of freedom systems. Undamped, damped vibrations. Forced vibrations and resonance. Modal analysis, modelling vibrating systems. Spectral analysis. Measurement and control of vibrating mechanical systems. [3-0-1] Prerequisite: APSC 246. Discussion In Person Learning Mon 1:00 p.m. - 2:00 p.m.

**ENGR_O 387-T1D** ENGR_O T1D Vibration of Mechanical Systems WS Vibration of mechanical systems. Single and multiple degree of freedom systems. Undamped, damped vibrations. Forced vibrations and resonance. Modal analysis, modelling vibrating systems. Spectral analysis. Measurement and control of vibrating mechanical systems. [3-0-1] Prerequisite: APSC 246. Discussion In Person Learning Mon 10:00 a.m. - 11:00 a.m.

**ENGR_O 387-T1E** ENGR_O T1E Vibration of Mechanical Systems WS Vibration of mechanical systems. Single and multiple degree of freedom systems. Undamped, damped vibrations. Forced vibrations and resonance. Modal analysis, modelling vibrating systems. Spectral analysis. Measurement and control of vibrating mechanical systems. [3-0-1] Prerequisite: APSC 246. Discussion In Person Learning Mon 12:00 p.m. - 1:00 p.m.

**ENGR_O 401-001** ENGR_O 001 Bioinstrumentation WS Bioinstruments used for tracking vital, diagnosis, and treatment of disease in the vascular, muscular, nervous, and respiratory systems. Introduction to the fundamentals of each body system, electrical safety, signal acquisition, biosensors, transducers, amplifiers, and analysis of human physiological measurements. Hands on experience with sensors, biomedical devices, and design through labs. [3-2*-0] Prerequisite: APSC 254. Lecture In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.

**ENGR_O 401-L1A** ENGR_O L1A Bioinstrumentation WS Bioinstruments used for tracking vital, diagnosis, and treatment of disease in the vascular, muscular, nervous, and respiratory systems. Introduction to the fundamentals of each body system, electrical safety, signal acquisition, biosensors, transducers, amplifiers, and analysis of human physiological measurements. Hands on experience with sensors, biomedical devices, and design through labs. [3-2*-0] Prerequisite: APSC 254. Laboratory In Person Learning Thu (Alternate weeks) 8:00 a.m. - 10:00 a.m.

**ENGR_O 401-L1B** ENGR_O L1B Bioinstrumentation WS Bioinstruments used for tracking vital, diagnosis, and treatment of disease in the vascular, muscular, nervous, and respiratory systems. Introduction to the fundamentals of each body system, electrical safety, signal acquisition, biosensors, transducers, amplifiers, and analysis of human physiological measurements. Hands on experience with sensors, biomedical devices, and design through labs. [3-2*-0] Prerequisite: APSC 254. Laboratory In Person Learning Thu (Alternate weeks) 8:00 a.m. - 10:00 a.m.

**ENGR_O 401-L1C** ENGR_O L1C Bioinstrumentation WS Bioinstruments used for tracking vital, diagnosis, and treatment of disease in the vascular, muscular, nervous, and respiratory systems. Introduction to the fundamentals of each body system, electrical safety, signal acquisition, biosensors, transducers, amplifiers, and analysis of human physiological measurements. Hands on experience with sensors, biomedical devices, and design through labs. [3-2*-0] Prerequisite: APSC 254. Laboratory In Person Learning Wed (Alternate weeks) 4:00 p.m. - 6:00 p.m.

**ENGR_O 408-001** ENGR_O 001 Energy System Transition WS GHG emission reductions, examination of the sources and use of energy, practical potential transition strategies. Participation in a one-day weekend field trip in March is required. [3-0-0] Prerequisite: ENGR 320. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

**ENGR_O 409-001** ENGR_O 001 Construction Digitalisation and Informatics WS Strong ground motion; single-degree-of-freedom systems; earthquake response of linear and inelastic systems; subspace iteration; multi-degree-of-freedom systems; earthquake response and design; building design consideration. [3-0-0] Prerequisite: ENGR 327. Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

**ENGR_O 418-001** ENGR_O 001 Applied Machine Learning for Engineers WS Fundamentals of machine learning, toolboxes in machine learning, supervised learning, unsupervised learning, applications of machine learning in various engineering disciplines. Credit will be granted for only one of ENGR 418 or ENGR 518. [3-0-0] Prerequisite: Fourth-year B.A.Sc. or B.Sc. COSC standing. Lecture In Person Learning Mon Wed 12:30 p.m. - 2:00 p.m.

**ENGR_O 426-101** ENGR_O 101 Analysis of Indeterminate Structures WS Analysis of statically indeterminate structures using flexibility and stiffness methods. Linear and non-linear analysis. Introduction to finite element method. [3-0-0] Prerequisite: All of APSC 179, ENGR 327. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

**ENGR_O 427-101** ENGR_O 101 Reinforced Concrete Design II WS Design of reinforced concrete two-way slabs, slender columns, footings, and walls. Design for torsion. [3-0-0] Prerequisite: All of ENGR 325, ENGR 327. Lecture In Person Learning Wed Fri 2:00 p.m. - 3:30 p.m.

**ENGR_O 428-001** ENGR_O 001 Earthquake Engineering WS Impact of climate change, integrated asset management, resilient infrastructure, condition assessment and performance modeling, in-service monitoring and risk-based evaluation, life cycle cost and benefits analysis, prioritisation and optimization, advanced modelling and GIS implementation. [3-0-0] Prerequisite: All of ENGR 301, ENGR 330, ENGR 331. Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

**ENGR_O 432-001** ENGR_O 001 Infrastructure Management II WS Analysis, design, and operation of transport systems that support our urban and rural communities, including: traffic studies and field surveys; capacity and level of service analysis; simulation and optimization of networks; transportation demand management; and CAD optimization of horizontal and vertical corridor alignments. [3-2*-0] Prerequisite: All of ENGR 335, ENGR 330. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

**ENGR_O 435-001** ENGR_O 001 Transportation Systems Engineering WS Analysis, design, and operation of transport systems that support our urban and rural communities, including: traffic studies and field surveys; capacity and level of service analysis; simulation and optimization of networks; transportation demand management; and CAD optimization of horizontal and vertical corridor alignments. [3-2*-0] Prerequisite: All of ENGR 335, ENGR 330. Laboratory In Person Learning Fri (Alternate weeks) 12:00 p.m. - 2:00 p.m.
Processes and techniques to facilitate properly integrated land use and transport systems, including: survey and data techniques; trip generation; trip distribution; modal choice; trip assignment; development traffic impact assessment; sustainable transportation strategies; and vulnerable road users. Credit will be granted for only one of ENGR 436 or ENGR 536. [3-2*-0] Prerequisite: ENGR 335.

Laboratory In Person Learning Mon Wed 8:00 a.m. - 9:30 a.m.

Processes and techniques to facilitate properly integrated land use and transport systems, including: survey and data techniques; trip generation; trip distribution; modal choice; trip assignment; development traffic impact assessment; sustainable transportation strategies; and vulnerable road users. Credit will be granted for only one of ENGR 436 or ENGR 536. [3-2*-0] Prerequisite: ENGR 335.

Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.

Mechanical properties of intact rock. Rock mass properties and classifications. Structural mapping and stereonets. Rock and rock mass strength criteria. Stressors in rock masses. Rock slope stability analysis. Empirical, analytical, and numerical analysis techniques for underground excavations. Rock support and stabilization. Credit will be granted for only one of ENGR 438 or ENGR 538. [3-2*-0] Prerequisite: ENGR 340.

Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

Mechanical properties of intact rock. Rock mass properties and classifications. Structural mapping and stereonets. Rock and rock mass strength criteria. Stressors in rock masses. Rock slope stability analysis. Empirical, analytical, and numerical analysis techniques for underground excavations. Rock support and stabilization. Credit will be granted for only one of ENGR 438 or ENGR 538. [3-2*-0] Prerequisite: ENGR 340.

Laboratory In Person Learning Tue (Alternate weeks) 2:00 p.m. - 4:00 p.m.

Empirical and analytical approaches for foundation engineering. Topics include site investigation, lateral earth pressure, ground improvement, design of shallow and deep foundations, and retaining structures. [3-0-1*] Prerequisite: ENGR 340. Corequisite: ENGR 127.

Discussion Online Learning Thu (Alternate weeks) 4:00 p.m. - 5:00 p.m.

Applications of engineering principles and practices to land disposal of hazardous and non-hazardous wastes. [3-0-0] Prerequisite: All of ENGR 340, ENGR 347.

Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

Theory and design of fundamental physical, chemical, and biological unit operations for drinking water and municipal wastewater treatment. The design principles of coagulation, flocculation, sedimentation, filtration, biological treatment, solid handling, disinfection, and advanced treatment processes are presented. [3-0-1] Prerequisite: ENGR 347.

Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.

Theory and design of fundamental physical, chemical, and biological unit operations for drinking water and municipal wastewater treatment. The design principles of coagulation, flocculation, sedimentation, filtration, biological treatment, solid handling, disinfection, and advanced treatment processes are presented. [3-0-1] Prerequisite: ENGR 347.

Discussion Online Learning Arranged Arranged

Theory and design of fundamental physical, chemical, and biological unit operations for drinking water and municipal wastewater treatment. The design principles of coagulation, flocculation, sedimentation, filtration, biological treatment, solid handling, disinfection, and advanced treatment processes are presented. [3-0-1] Prerequisite: ENGR 347.

Discussion Online Learning Arranged Arranged

The clinical environment and the role of a clinical engineer in supporting and advancing health care, in applying human factors in the health care setting, and performing health technology management. Labs explore a virtual operating room. [3-2*-0] Corequisites: ENGR 401.

Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

The clinical environment and the role of a clinical engineer in supporting and advancing health care, in applying human factors in the health care setting, and performing health technology management. Labs explore a virtual operating room. [3-2*-0] Corequisites: ENGR 401.

Laboratory In Person Learning Wed (Alternate weeks) 4:00 p.m. - 6:00 p.m.

The clinical environment and the role of a clinical engineer in supporting and advancing health care, in applying human factors in the health care setting, and performing health technology management. Labs explore a virtual operating room. [3-2*-0] Corequisites: ENGR 401.

Laboratory In Person Learning Wed (Alternate weeks) 4:00 p.m. - 6:00 p.m.

Applications and roles of power electronics, power semiconductor devices, diode rectifiers, phase-controlled rectifiers, DC-DC converters, DC-AC converters, resonant converters. Examples drawn from residential and industrial applications. Credit will be granted for only one of ENGR 458 or ENGR 558. [3-2*-0] Prerequisite: ENGR 320.

Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

Applications and roles of power electronics, power semiconductor devices, diode rectifiers, phase-controlled rectifiers, DC-DC converters, DC-AC converters, resonant converters. Examples drawn from residential and industrial applications. Credit will be granted for only one of ENGR 458 or ENGR 558. [3-2*-0] Prerequisite: ENGR 320.

Laboratory In Person Learning Tue (Alternate weeks) 2:00 p.m. - 4:00 p.m.

Applications and roles of power electronics, power semiconductor devices, diode rectifiers, phase-controlled rectifiers, DC-DC converters, DC-AC converters, resonant converters. Examples drawn from residential and industrial applications. Credit will be granted for only one of ENGR 458 or ENGR 558. [3-2*-0] Prerequisite: ENGR 320.

Laboratory In Person Learning Wed (Alternate weeks) 10:00 a.m. - 12:00 p.m.

The chip design process using VLSI design styles in CMOS technology. Data path, control and register file design and layout. Clocking schemes, flip-flop and latch-based design. Design project using CAD tools. [3-2*-0] Prerequisite: APSC 262.

Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

The chip design process using VLSI design styles in CMOS technology. Data path, control and register file design and layout. Clocking schemes, flip-flop and latch-based design. Design project using CAD tools. [3-2*-0] Prerequisite: APSC 262.

Laboratory In Person Learning Tue (Alternate weeks) 12:00 p.m. - 2:00 p.m.
ENGR_O 472-001  ENGR_O  001  Fibre Optics and Photonics  WS  Introduction to fibre optic transmission, single-mode and multimode fibre optics, dispersion and absorption design criteria, semiconductor diode lasers, LEDs, modulators, pn and p-i-n receivers, point-to-point and network implementations of fibre optic networks and integrated photonic systems. Credit will be granted for only one of ENGR 472 or ENGR 572. [3-2*-0] Prerequisite: ENGR 378.  Lecture  In Person Learning  Tue Thu  8:00 a.m. - 9:30 a.m.

ENGR_O 472-L2A  ENGR_O  12A  Fibre Optics and Photonics  WS  Introduction to fibre optic transmission, single-mode and multimode fibre optics, dispersion and absorption design criteria, semiconductor diode lasers, LEDs, modulators, pn and p-i-n receivers, point-to-point and network implementations of fibre optic networks and integrated photonic systems. Credit will be granted for only one of ENGR 472 or ENGR 572. [3-2*-0] Prerequisite: ENGR 378.  Laboratory  In Person Learning  Thu (Alternate weeks)  2:00 p.m. - 4:00 p.m.

ENGR_O 472-L2B  ENGR_O  12B  Fibre Optics and Photonics  WS  Wave propagation models, radiation patterns, directivity and gain, radiation resistance, Friis transmission equation, reciprocity, dipole antennas, image theory, loop antennas, uniform and non-uniform antenna arrays, broadband antennas, aperture antennas. Credit will be granted for only one of ENGR 472 or ENGR 572. [3-2*-0] Prerequisite: ENGR 378.  Lecture  In Person Learning  Mon Wed  11:00 a.m. - 12:30 p.m.

ENGR_O 473-001  ENGR_O  001  Antennas and Propagation  WS  Wave propagation models, radiation patterns, directivity and gain, radiation resistance, Friis transmission equation, reciprocity, dipole antennas, image theory, loop antennas, uniform and non-uniform antenna arrays, broadband antennas, aperture antennas. Credit will be granted for only one of ENGR 473 or ENGR 574. [3-2*-0] Prerequisite: ENGR 378.  Lecture  In Person Learning  Tue Thu  10:00 a.m. - 12:00 p.m.

ENGR_O 473-L2A  ENGR_O  12A  Antennas and Propagation  WS  Bending of curved beams; bending of beams with asymmetric cross-sections; shear flow and centre; review of beam deflections; column buckling; Castigliano's theorem; statically indeterminate beams, frames, and rings; Torsion of noncircular members. [3-0] Prerequisite: APSC 262.  Lecture  In Person Learning  Mon Wed  8:00 a.m. - 10:00 a.m.

ENGR_O 476-201  ENGR_O  201  Mechanics of Materials II  WS  Finite Element Discretization, Direct Stiffness Method, Numerical Solution of Large Deformations, Formulation of Finite Elements, Auxiliary Equations, Thermomechanical Analysis, Computer Implementation of the Finite Element Methods, Case Studies in Material Forming and Multi-Physics. Credit will be granted for only one of APSC 480 or APSC 580. [3-0] Prerequisite: All of APSC 315, APSC 316.  Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

ENGR_O 480-101  ENGR_O  101  Modern Control  WS  Heat exchanger design, heat transfer with phase change, radiation heat transfer, steady and transient mass diffusion, convective mass transfer, simultaneous heat and mass transfer. Credit will be granted for only one of ENGR 484 or ENGR 584. [3-0] Prerequisite: All of APSC 320, ENGR 385.  Lecture  In Person Learning  Tue Thu  12:30 p.m. - 2:00 p.m.

ENGR_O 486-101  ENGR_O  101  Heat Transfer  WS  Properties of moist air, air conditioning systems, heat transmission in building systems, heating and cooling load, refrigeration, pumps and piping design, fans and building air distribution. [3-0] Prerequisite: All of APSC 253, APSC 254, ENGR 385.  Lecture  In Person Learning  Tue Thu  5:00 p.m. - 6:30 p.m.

ENGR_O 486-201  ENGR_O  201  Heating, Ventilating, and Air Conditioning  WS  Aircraft conceptual design: methods for estimating aircraft weight, fuel load, lift, thrust, airflow and wing specification, engine selection and sizing, and structural loads. Introductory aerodynamics of airfoils and wings. [3-0] Prerequisite: ENGR 310.  Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

ENGR_O 493-001  ENGR_O  001  Introduction to Aerodynamics and Aircraft Design WS  A capstone design project in response to an actual engineering problem. The project can be multi-disciplinary or in a specialized area of engineering. Students are required to submit a comprehensive project report and deliver a formal presentation. [2-3-0; 0-6-0] Prerequisite: Fourth-year standing.  Lecture  In Person Learning  Fri  8:00 a.m. - 10:00 a.m.

ENGR_O 499-101  ENGR_O  101  Engineering Capstone Design Project WS-2  A capstone design project in response to an actual engineering problem. The project can be multi-disciplinary or in a specialized area of engineering. Students are required to submit a comprehensive project report and deliver a formal presentation. [2-3-0; 0-6-0] Prerequisite: Fourth-year standing.  Lecture  In Person Learning  Mon  8:00 a.m. - 10:00 a.m.

ENGR_O 499-L1A  ENGR_O  11A  Engineering Capstone Design Project WS-2  Strategies for clear, effective, and ethical technical communication (both written and oral). Tools and formatting for graphics, technical reports, proposals, journal papers, theses, and reports. [2-3-0; 0-6-0] Prerequisite: Fourth-year standing.  Lecture  Online Learning  Tue Thu  6:30 p.m. - 8:00 p.m.

ENGR_O 518-001  ENGR_O  001  Applied Machine Learning for Engineers WS  Strong ground motion, single and multiple degree-of-freedom systems, earthquake response of linear and non-linear systems, earthquake response and design, and building design considerations.  Lecture  In Person Learning  Tue Thu  2:00 p.m. - 3:30 p.m.

ENGR_O 528-001  ENGR_O  001  Earthquake Engineering WS  Fundamentals of machine learning, toolboxes in machine learning, supervised learning, unsupervised learning, applications of machine learning in various engineering disciplines. Credit will be granted for only one of ENGR 518 or ENGR 418.  Lecture  In Person Learning  Tue Thu  3:30 p.m. - 5:00 p.m.

ENGR_O 531-101  ENGR_O  101  Construction Engineering and Management WS  Principles, data, and economics pertaining to the planning, design, and management of sustainable community land use and transportation systems. Credit will be granted for only one of ENGR 531 or ENGR 431.  Lecture  In Person Learning  Wed Fri  12:30 p.m. - 2:00 p.m.

ENGR_O 536-001  ENGR_O  001  Sustainable Land Use and Transportation WS  Principles, data, and economics pertaining to the planning, design, and management of sustainable community land use and transportation systems. Credit will be granted for only one of ENGR 536 or ENGR 436.  Lecture  In Person Learning  Mon Wed  8:00 a.m. - 9:30 a.m.

ENGR_O 536-L1A  ENGR_O  11A  Sustainable Land Use and Transportation WS  Principles, data, and economics pertaining to the planning, design, and management of sustainable community land use and transportation systems. Credit will be granted for only one of ENGR 536 or ENGR 436.  Laboratory  Online Learning  Fri (Alternate weeks)  10:00 a.m. - 12:00 p.m.

ENGR_O 558-201  ENGR_O  201  Power Electronics WS  Applications and roles of power electronics, power semiconductor devices, diode rectifiers, phase-controlled rectifiers, DC-DC converters, DC-AC converters, resonant converters. Examples drawn from residential and industrial applications. Credit will be granted for only one of ENGR 558 or ENGR 458.  Lecture  In Person Learning  Tue Thu  12:30 p.m. - 2:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Title</th>
<th>Type</th>
<th>Credits</th>
<th>Schedule</th>
<th>Room</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td>ENGR 558-L1A</td>
<td>ENGR_O</td>
<td>Power Electronics</td>
<td>WS</td>
<td>4</td>
<td>W1</td>
<td>L1A</td>
<td>Power Electronics Applications and roles of power electronics, power semiconductor devices, diode rectifiers, phase-controlled rectifiers, DC-DC converters, DC-AC converters, resonant converters. Examples drawn from residential and industrial applications. Credit will be granted for only one of ENGR 558 or ENGR 458. Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.</td>
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<tr>
<td>ENGR 558-L1B</td>
<td>ENGR_O</td>
<td>Power Electronics</td>
<td>WS</td>
<td>4</td>
<td>W1</td>
<td>L1B</td>
<td>Power Electronics Applications and roles of power electronics, power semiconductor devices, diode rectifiers, phase-controlled rectifiers, DC-DC converters, DC-AC converters, resonant converters. Examples drawn from residential and industrial applications. Credit will be granted for only one of ENGR 558 or ENGR 458. Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.</td>
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<tr>
<td>ENGR 572-001</td>
<td>ENGR_O</td>
<td>Fibre Optics and Photonics</td>
<td>WS</td>
<td>3</td>
<td>W1</td>
<td>001</td>
<td>Fibre Optics and Photonics Introduction to fibre optics transmission, single-mode and multimode fibre optics, dispersion and absorption design criteria, semiconductor diode lasers, LEDs, modulators, and p-n junction receivers, point-to-point and network implementations of fibre optic networks and integrated photonics. Credit will be granted for only one of ENGR 572 or ENGR 472. Lecture In Person Learning Tue Thu 8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>ENGR 572-L1A</td>
<td>ENGR_O</td>
<td>Fibre Optics and Photonics</td>
<td>WS</td>
<td>3</td>
<td>W1</td>
<td>L1A</td>
<td>Fibre Optics and Photonics Introduction to fibre optics transmission, single-mode and multimode fibre optics, dispersion and absorption design criteria, semiconductor diode lasers, LEDs, modulators, and p-n junction receivers, point-to-point and network implementations of fibre optic networks and integrated photonics. Credit will be granted for only one of ENGR 572 or ENGR 472. Laboratory In Person Learning Thu (Alternate weeks) 10:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>ENGR 574-001</td>
<td>ENGR_O</td>
<td>Antennas and Propagation</td>
<td>WS</td>
<td>3</td>
<td>W1</td>
<td>001</td>
<td>Antennas and Propagation Wave propagation models, radiation patterns, directivity and gain, radiation resistance, Friis transmission equation, reciprocity, dipole antennas, image theory, loop antennas, uniform and non-uniform antenna arrays, broadband antennas, aperture antennas. Credit will be granted for only one of ENGR 574 or ENGR 473. Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>ENGR 574-L1A</td>
<td>ENGR_O</td>
<td>Antennas and Propagation</td>
<td>WS</td>
<td>3</td>
<td>W1</td>
<td>L1A</td>
<td>Antennas and Propagation Wave propagation models, radiation patterns, directivity and gain, radiation resistance, Friis transmission equation, reciprocity, dipole antennas, image theory, loop antennas, uniform and non-uniform antenna arrays, broadband antennas, aperture antennas. Credit will be granted for only one of ENGR 574 or ENGR 473. Laboratory In Person Learning Thu (Alternate weeks) 10:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>ENGR 580-101</td>
<td>ENGR_O</td>
<td>Modern Control</td>
<td>WS</td>
<td>3</td>
<td>W1</td>
<td>101</td>
<td>Modern Control Review of linear and matrix algebra, highlights of classical control theory; state-space modelling, continuous and discrete state equations, stability, controllability and observability; design of feedback systems. Credit will be granted for only one of ENGR 580 or ENGR 480. Lecture In Person Learning Wed Fri 12:30 p.m. - 2:00 p.m.</td>
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<tr>
<td>ENGR 580-L01</td>
<td>ENGR_O</td>
<td>Modern Control</td>
<td>WS</td>
<td>3</td>
<td>W1</td>
<td>L01</td>
<td>Modern Control Review of linear and matrix algebra, highlights of classical control theory; state-space modelling, continuous and discrete state equations, stability, controllability and observability; design of feedback systems. Credit will be granted for only one of ENGR 580 or ENGR 480. Laboratory Online Learning Arranged Arranged</td>
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<tr>
<td>ENGR 582-001</td>
<td>ENGR_O</td>
<td>Finite Element Method</td>
<td>WS</td>
<td>3</td>
<td>W1</td>
<td>001</td>
<td>Finite Element Method Heat exchanger design, heat transfer with phase change, radiation heat transfer, steady and transient mass diffusion, convective mass transfer, simultaneous heat and mass transfer. Credit will be granted for only one of ENGR 582 or ENGR 482. Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.</td>
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<tr>
<td>ENGR 584-001</td>
<td>ENGR_O</td>
<td>Heat and Mass Transfer</td>
<td>WS</td>
<td>4</td>
<td>W1</td>
<td>001</td>
<td>Heat and Mass Transfer Heat exchanger design, heat transfer with phase change, radiation heat transfer, steady and transient mass diffusion, convective mass transfer, simultaneous heat and mass transfer. Credit will be granted for only one of ENGR 584 or ENGR 484. Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>ENGR 587-001</td>
<td>ENGR_O</td>
<td>Engineering Project</td>
<td>WS</td>
<td>3</td>
<td>W1</td>
<td>001</td>
<td>Engineering Project Project on assigned topic of specialization. This course is restricted to M.Eng. students. Independent Study In Person Learning Arranged Arranged</td>
</tr>
<tr>
<td>EXCH 380-101</td>
<td>EXCH_O</td>
<td>Student Exchange Program, Undergraduate</td>
<td>WS</td>
<td>6</td>
<td>W1</td>
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<tr>
<td>EXCH 380-211</td>
<td>EXCH_O</td>
<td>Student Exchange Program, Undergraduate</td>
<td>WS</td>
<td>6</td>
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<td>EXCH 380-411</td>
<td>EXCH_O</td>
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<td>WS</td>
<td>6</td>
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<tr>
<td>EXCH 381-101</td>
<td>EXCH_O</td>
<td>Study Abroad Program, Undergraduate</td>
<td>WS</td>
<td>6</td>
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<td>Study Abroad Program, Undergraduate</td>
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<tr>
<td>EXCH 382-101</td>
<td>EXCH_O</td>
<td>Study Abroad Program, Graduate</td>
<td>WS</td>
<td>6</td>
<td>W1</td>
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<td>Study Abroad Program, Graduate</td>
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<tr>
<td>EXCH 382-201</td>
<td>EXCH_O</td>
<td>Study Abroad Program, Undergraduate</td>
<td>WS</td>
<td>6</td>
<td>W1</td>
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<td>Study Abroad Program, Undergraduate</td>
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<tr>
<td>EXCH 382-201</td>
<td>EXCH_O</td>
<td>Study Abroad Program, Undergraduate</td>
<td>WS</td>
<td>6</td>
<td>W1</td>
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<tr>
<td>EXCH 382-201</td>
<td>EXCH_O</td>
<td>Study Abroad Program, Undergraduate</td>
<td>WS</td>
<td>6</td>
<td>W1</td>
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<tr>
<td>EXCH 382-201</td>
<td>EXCH_O</td>
<td>Study Abroad Program, Undergraduate</td>
<td>WS</td>
<td>6</td>
<td>W1</td>
<td>201</td>
<td>Study Abroad Program, Undergraduate</td>
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<tr>
<td>FILM 103-001</td>
<td>FILM_O</td>
<td>Acting for Stage and Screen</td>
<td>WS</td>
<td>3</td>
<td>W1</td>
<td>001</td>
<td>Acting for Stage and Screen An introduction to acting techniques pertaining to the style of psychological realism for stage and screen. Credit will be granted for only one of FILM 103 or THTR 103. [5 hours/week studio] [5 hours/week studio] Equivalency: THTR 105 Studio In Person Learning Mon 2:00 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>FILM 250-001</td>
<td>FILM_O</td>
<td>Workshop in Creative Writing: Screenwriting</td>
<td>WS</td>
<td>3</td>
<td>W1</td>
<td>001</td>
<td>Workshop in Creative Writing: Screenwriting Students are instructed and guided in the writing of screenplays, are encouraged to pursue experimentation in screenwriting, and will participate in the feedback and critique sessions that constitute the workshop method. Credit will be granted for only one of FILM 250 or CRWR 250. [3-0-0] Prerequisite: Two of CRWR 150, CRWR 140, FILM 100, FILM 250, FILM 260, FILM 108, THTR 101, THTR 102. Equivalency: CRWR 250 Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>FILM 261-001</td>
<td>FILM_O</td>
<td>Video I</td>
<td>WS</td>
<td>3</td>
<td>W1</td>
<td>001</td>
<td>Video I Introduction to organizational, technical, creative, and critical skills required in video production. Provides experience in all stages of the production process, including pre-production, production, and post-production. Considera varies a approaches to video, such as artist videos, music videos, and television productions. Credit will be granted for only one of FILM 261 or VISA 261. Lecture In Person Learning Wed 8:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>FILM 303-001</td>
<td>FILM_O</td>
<td>Narrative Film Production</td>
<td>WS</td>
<td>3</td>
<td>W1</td>
<td>001</td>
<td>Narrative Film Production The theory and practice of producing a short narrative motion picture for the purpose of developing narrative film literacy. Credit will be granted for only one of FILM 303, CULT 303, or THTR 303. CULT 210, THTR 103, CRWR 250, or FILM 100 recommended. Prerequisite: One of VISA 106, VISA 261, FILM 261 and third-year standing or permission of the instructor. Equivalency: CULT 303, THTR 103 Lecture In Person Learning Thu 12:00 p.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>FREN 101-001</td>
<td>FREN_O</td>
<td>Elementary French I</td>
<td>WS</td>
<td>3</td>
<td>W1</td>
<td>001</td>
<td>Elementary French I For the beginner. Prepares students to understand and use familiar everyday expressions and to function in basic situations such as communicating personal details and responding in simple social settings. Corresponds to level A1 of the Common European Framework of Reference for Languages (CEFR). Not available to students who have completed French 11 and/or students who have a CEFR level A1. The next level course series available is FREN 103-104. Lecture In Person Learning Mon Wed Fri 2:00 p.m. - 3:00 p.m.</td>
</tr>
</tbody>
</table>
FREN-O 101-002  FREN-O 002 Elementary French I  WS  Lecture  Online Learning  Arranged  Arranged

FREN-O 101-003  FREN-O 003 Elementary French I  WS  Lecture  In Person Learning  Tue Thu  11:00 a.m. - 12:30 p.m.

FREN-O 101-004  FREN-O 004 Elementary French I  WS  Lecture  Online Learning  Arranged  Arranged

FREN-O 101-005  FREN-O 005 Elementary French I  WS  Lecture  In Person Learning  Mon Wed  4:00 p.m. - 5:30 p.m.

FREN-O 103-001  FREN-O 001 Upper Elementary French I  WS  Lecture  In Person Learning  Tue Thu  2:00 p.m. - 3:30 p.m.

FREN-O 103-002  FREN-O 002 Upper Elementary French I  WS  Lecture  In Person Learning  Mon Wed Fri  3:00 p.m. - 4:00 p.m.

FREN-O 103-003  FREN-O 003 Upper Elementary French I  WS  Lecture  Online Learning  Arranged  Arranged

FREN-O 122-001  FREN-O 001 Intermediate French I  WS  Lecture  In Person Learning  Mon Wed  11:00 a.m. - 12:30 p.m.

FREN-O 122-002  FREN-O 002 Intermediate French I  WS  Lecture  In Person Learning  Mon Wed  8:00 a.m. - 9:30 a.m.

FREN-O 221-001  FREN-O 001 Francophone Literature and Textual Analysis  WS  Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

FREN-O 222-001  FREN-O 001 French Language and Style I  WS  Lecture  In Person Learning  Mon Wed Fri  12:00 p.m. - 1:00 p.m.

FREN-O 330-001  FREN-O 001 Quebecois Literature  WS  Lecture  In Person Learning  Tue Thu  12:30 p.m. - 2:00 p.m.

FREN-O 344-001  FREN-O 001 Techniques of Oral Expression in French I  WS  Lecture  In Person Learning  Tue Thu  3:30 p.m. - 5:00 p.m.

FREN-O 353-001  FREN-O 001 French Grammar  WS  Lecture  In Person Learning  Tue Thu  11:00 a.m. - 12:30 p.m.

FREN-O 420-D_001  FREN-O D D_D_001 Selected Topics in French Literature and Culture  WS  Topics vary each time the course is offered. May be taken up to three times for a total of 9 credits. Prerequisite: FREN 353 and one of FREN 127, FREN 135, FREN 158, FREN 190, FREN 195.

GEOG-O 108-001  GEOG-O 001 Earth Systems: Weather, Climate, and Life  WS  Principles and processes that govern the functions of the atmosphere, hydrosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0] Lecture  In Person Learning  Mon Wed  2:00 p.m. - 3:30 p.m.

GEOG-O 108-101  GEOG-O 001 Earth Systems: Weather, Climate, and Life  WS  Principles and processes that govern the functions of the atmosphere, hydrosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0] Laboratory  In Person Learning  Fri  8:00 a.m. - 10:00 a.m.

GEOG-O 108-102  GEOG-O 002 Earth Systems: Weather, Climate, and Life  WS  Principles and processes that govern the functions of the atmosphere, hydrosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0] Laboratory  In Person Learning  Fri  12:00 p.m. - 2:00 p.m.

GEOG-O 108-103  GEOG-O 003 Earth Systems: Weather, Climate, and Life  WS  Principles and processes that govern the functions of the atmosphere, hydrosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0] Laboratory  In Person Learning  Thu  10:00 a.m. - 12:00 p.m.

GEOG-O 108-104  GEOG-O 004 Earth Systems: Weather, Climate, and Life  WS  Principles and processes that govern the functions of the atmosphere, hydrosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0] Laboratory  In Person Learning  Mon  2:00 p.m. - 4:00 p.m.

GEOG-O 108-105  GEOG-O 005 Earth Systems: Weather, Climate, and Life  WS  Principles and processes that govern the functions of the atmosphere, hydrosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0] Laboratory  In Person Learning  Thu  2:00 p.m. - 4:00 p.m.
**GEOG 108-L06** GEOG 0 108 Earth Systems: Weather, Climate, and Life WS1 Principles and processes that govern the functions of the atmosphere, hydroosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0] Laboratory In Person Learning Wed 2:00 p.m. - 4:00 p.m.

**GEOG 108-KMT** GEOG 0 108 Earth Systems: Weather, Climate, and Life WS1 Principles and processes that govern the functions of the atmosphere, hydroosphere, and biosphere. Interactions between these environmental systems and human activity. [3-2-0] Laboratory In Person Learning Arranged Arranged

**GEOG 222-L01** GEOG 0 222 Geomorphology WS1 Landform assemblages and processes of landscape evolution on Earth. Fundamental concepts, including system equilibrium, thresholds, complex response to external forces, and scale dependency, with application to mountains, rivers, coasts, and glaciated terrain. Laboratory exercises require field work in lab time. Required one-day, weekend trip. Credit will be granted for only one of GEOG 232 or EESC 222. [3-3-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) MATH 100 and one of EESC 111, EESC 112 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC222 Laboratory In Person Learning Tue 11:00 a.m. - 2:00 p.m.

**GEOG 222-L02** GEOG 0 222 Geomorphology WS1 Landform assemblages and processes of landscape evolution on Earth. Fundamental concepts, including system equilibrium, thresholds, complex response to external forces, and scale dependency, with application to mountains, rivers, coasts, and glaciated terrain. Laboratory exercises require field work in lab time. Required one-day, weekend trip. Credit will be granted for only one of GEOG 232 or EESC 222. [3-3-0] Prerequisite: Either (a) GEOG 108 and GEOG 109; or (b) MATH 100 and one of EESC 111, EESC 112 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC222 Laboratory In Person Learning Thu 11:00 a.m. - 2:00 p.m.

**GEOG 233-001** GEOG 0 233 Climate Change and Society WS1 Critical exploration of climate change as a physical, social, cultural and political challenge. Approaches major climate change themes of knowledge, causes, impacts, responses and governance from a human geography perspective. Emphasizes critical thinking, local-global connections and social justice. [1.5-0-1.5] Lecture In Person Learning Tue 2:00 p.m. - 3:30 p.m.

**GEOG 233-T01** GEOG 0 233 Climate Change and Society WS1 Critical exploration of climate change as a physical, social, cultural and political challenge. Approaches major climate change themes of knowledge, causes, impacts, responses and governance from a human geography perspective. Emphasizes critical thinking, local-global connections and social justice. [1.5-0-1.5] Discussion In Person Learning Wed 2:00 p.m. - 3:30 p.m.

**GEOG 257-001** GEOG 0 257 Seeing our World: An Introduction to Visual Geo WS1 Importance of visual images of the world in historical and contemporary contexts. Questioning the role of visual technologies (mapping, photography, film, video games, and virtual reality) in shaping social attitudes towards social, cultural, and environmental issues. Practical skills in geographic image interpretation and visual communication. Recommended prerequisite: GEOG 109. Prerequisite: One of GEOG 128, GEOG 129. Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

**GEOG 271-001** GEOG 0 271 Geographic Data Analysis WS1 Introduction to descriptive and inferential statistical analysis in geography and Earth sciences. Topics include descriptive statistics, elementary probability, statistics for spatial analysis, hypotheses testing, analysis of variance, correlation, and regression. [3-3-0] Prerequisite: 6 credits of 100- or 200-level courses in GEOG or EESC. Lecture In Person Learning Mon Wed Fri 1:00 p.m. - 2:00 p.m.

**GEOG 271-L01** GEOG 0 271 Geographic Data Analysis WS1 Introduction to descriptive and inferential statistical analysis in geography and Earth sciences. Topics include descriptive statistics, elementary probability, statistics for spatial analysis, hypotheses testing, analysis of variance, correlation, and regression. [3-3-0] Prerequisite: 6 credits of 100- or 200-level courses in GEOG or EESC. Laboratory In Person Learning Fri 8:00 a.m. - 11:00 a.m.

**GEOG 271-L02** GEOG 0 271 Geographic Data Analysis WS1 Introduction to descriptive and inferential statistical analysis in geography and Earth sciences. Topics include descriptive statistics, elementary probability, statistics for spatial analysis, hypotheses testing, analysis of variance, correlation, and regression. [3-3-0] Prerequisite: 6 credits of 100- or 200-level courses in GEOG or EESC. Laboratory In Person Learning Thu 8:00 a.m. - 11:00 a.m.
<table>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>GEOG 314-001</td>
<td>Environmental Impact Assessment: Process, Reg</td>
<td>3-0-0</td>
<td>Geographical expressions and processes of wine, viticulture, and viticulture. Appellation and terror frame investigation of the nature-human interface in wine production and consumption. Geographic approaches include cultural history, global and localized political economies, cultural adaptation to climate, and physical geography.</td>
<td>[3-0-0] Prerequisite: All of GEOG 108, GEOG 128, GEOG 129, and third-year standing. Equivalency: EESC 314</td>
</tr>
<tr>
<td>GEOG 365-001</td>
<td>Parks and Outdoor Recreation</td>
<td>3-0-0</td>
<td>Geographical expressions and processes of wine, viticulture, and viticulture. Appellation and terror frame investigation of the nature-human interface in wine production and consumption. Geographic approaches include cultural history, global and localized political economies, cultural adaptation to climate, and physical geography.</td>
<td>[3-0-0] Prerequisite: All of GEOG 108, GEOG 128, GEOG 129, and third-year standing. Equivalency: EESC 314</td>
</tr>
<tr>
<td>GEOG 445-001</td>
<td>Wine Geographies</td>
<td>3-0-0</td>
<td>Critical, interdisciplinary approach to human-environment relations, development and environmental change. Theoretical insights across geography and anthropology with empirical insights from the Global South and Global North. Power, political economy, struggle over meaning, masculinity, conflict and social justice in understanding environmental change across scales. Credit will be granted for only one of GEOG 445 or ANTH 445.</td>
<td>[1.5-0-1.5] Prerequisite: One of GEOG 128, GEOG 129, ANTH 101, SUST 104. Third-year standing.</td>
</tr>
<tr>
<td>GEOG 458-001</td>
<td>Population Geography</td>
<td>3-0-0</td>
<td>The relationship between population growth, demographic changes, urbanization, and the environment. Demographic patterns, mortality, fertility and family policy, economic development, migration and immigration, planning, and policy issues.</td>
<td>[1.0-0-0] Prerequisite: All of GEOG 128, GEOG 129, and third-year standing.</td>
</tr>
<tr>
<td>GEOG 466-001</td>
<td>Soil Science</td>
<td>3-0-0</td>
<td>Physical, chemical, and biological properties of soils, soil formation and classification. Soil physics and water movement. Soil productivity, conservation, and sustainability. The application of soil science to land use, environmental quality, and sustainable development. Credit will be granted for only one of GEOG 465 or EESC 456.</td>
<td>[3-0-0] Prerequisite: One of EESC 111, EESC 200, GEOG 109, CHEM 111, CHEM 121, PHYS 111, PHYS 112. Third-year standing. Equivalency: EESC 456</td>
</tr>
<tr>
<td>GEOG 466-002</td>
<td>Soil Science</td>
<td>3-0-0</td>
<td>Physical, chemical, and biological properties of soils, soil formation and classification. Soil physics and water movement. Soil productivity, conservation, and sustainability. The application of soil science to land use, environmental quality, global change, and sustainable development. Credit will be granted for only one of GEOG 465 or EESC 456.</td>
<td>[3-0-0] Prerequisite: One of EESC 111, EESC 200, GEOG 109, CHEM 111, CHEM 121, PHYS 111, PHYS 112. Third-year standing. Equivalency: EESC 456</td>
</tr>
<tr>
<td>GEOG 466-003</td>
<td>Soil Science</td>
<td>3-0-0</td>
<td>Physical, chemical, and biological properties of soils, soil formation and classification. Soil physics and water movement. Soil productivity, conservation, and sustainability. The application of soil science to land use, environmental quality, global change, and sustainable development. Credit will be granted for only one of GEOG 465 or EESC 456.</td>
<td>[3-0-0] Prerequisite: One of EESC 111, EESC 200, GEOG 109, CHEM 111, CHEM 121, PHYS 111, PHYS 112. Third-year standing. Equivalency: EESC 456</td>
</tr>
<tr>
<td>GEOG 474-001</td>
<td>Qualitative Research in Human Geography</td>
<td>3-0-0</td>
<td>Theoretical aspects, principles, and methods of qualitative research in human geography.</td>
<td>[1-0-2] Prerequisite: GEOG 171 highly recommended.</td>
</tr>
<tr>
<td>GERM 100-001</td>
<td>Beginners’ German I</td>
<td>3-0-0</td>
<td>Introduction to the language. Ability to communicate accurately in a variety of everyday situations.</td>
<td>[3-0-0] Prerequisite: None.</td>
</tr>
<tr>
<td>GERM 100-002</td>
<td>Beginners’ German I</td>
<td>3-0-0</td>
<td>Introduction to the language. Ability to communicate accurately in a variety of everyday situations.</td>
<td>[3-0-0] Prerequisite: None.</td>
</tr>
<tr>
<td>GISC 380-001</td>
<td>Fundamentals of Geographic Information Science</td>
<td>3-0-0</td>
<td>Spatial data representation; raster and vector models; spatial database structure; coordinate reference frames and projections; spatial statistics; metadata and data standards; associated technologies and data sources. Laboratory exercises require ArcGIS.</td>
<td>Credit will be granted for only one of GISC 380, GEOG 370, GEOG 380, or EESC 380. [3-0-0] Prerequisite: Third-year standing.</td>
</tr>
<tr>
<td>GISC 380-002</td>
<td>Fundamentals of Geographic Information Science</td>
<td>3-0-0</td>
<td>Spatial data representation; raster and vector models; spatial database structure; coordinate reference frames and projections; spatial statistics; metadata and data standards; associated technologies and data sources. Laboratory exercises require ArcGIS.</td>
<td>Credit will be granted for only one of GISC 380, GEOG 370, GEOG 380, or EESC 380. [3-0-0] Prerequisite: Third-year standing.</td>
</tr>
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<td>GISC 380-003</td>
<td>Fundamentals of Geographic Information Science</td>
<td>3-0-0</td>
<td>Spatial data representation; raster and vector models; spatial database structure; coordinate reference frames and projections; spatial statistics; metadata and data standards; associated technologies and data sources. Laboratory exercises require ArcGIS.</td>
<td>Credit will be granted for only one of GISC 380, GEOG 370, GEOG 380, or EESC 380. [3-0-0] Prerequisite: Third-year standing.</td>
</tr>
<tr>
<td>GISC 380-004</td>
<td>Fundamentals of Geographic Information Science</td>
<td>3-0-0</td>
<td>Spatial data representation; raster and vector models; spatial database structure; coordinate reference frames and projections; spatial statistics; metadata and data standards; associated technologies and data sources. Laboratory exercises require ArcGIS.</td>
<td>Credit will be granted for only one of GISC 380, GEOG 370, GEOG 380, or EESC 380. [3-0-0] Prerequisite: Third-year standing.</td>
</tr>
<tr>
<td>GWST 100-001</td>
<td>Gender, Race, Sexuality, and Power I: An Intro</td>
<td>3-0-0</td>
<td>Cross-cultural and historical antecedents to gender studies and feminist thought. The social construction of knowledge and inequality through gender, race, sexuality, and class; the cultural and structural forces that create the dynamic for change and resistance in the personal and political realms of gendered lives.</td>
<td>[3-0-0] Prerequisite: None.</td>
</tr>
</tbody>
</table>

**Notes:**
- Credits follow the format [3-0-0] which indicates 3 lecture credits, 0 lab credits, and 0 additional credits.
- Prerequisites are noted for each course to ensure students have the necessary background knowledge.
- Equivalency: Indicates credits awarded for similar courses at other institutions.
<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>GWST_O 215-001</td>
<td>Gender and Popular Culture</td>
<td>WS</td>
<td>Examines how gender, sexuality and race intersect with representation in a variety of genres in popular culture. Considers the production, content, and reception of media texts. Ideological, institutional, social, and personal implications of these representations, and use of media to provoke change. [3-0-0]</td>
</tr>
<tr>
<td>GWST_O 216-001</td>
<td>Critical Foundations: Feminism and Difference</td>
<td>WS</td>
<td>History of feminist engagements with race, class, nation, and sexuality within an intersectional framework and in the wake of critiques of feminism's exclusivity. GWST 100 and GWST 110 recommended. [3-0-0]</td>
</tr>
<tr>
<td>GWST_O 333-001</td>
<td>Perspectives on Gendered Bodies</td>
<td>WS</td>
<td>Interdisciplinary overview of approaches to gendered embodiment at the intersection of embodiment and of representation. Focus on the relationship of embodiment to social identity. GWST 100 and GWST 110 recommended. [3-0-0] Prerequisite: Third-year standing.</td>
</tr>
<tr>
<td>GWST_O 423-001</td>
<td>Trans-(Gender) Feminisms</td>
<td>WS</td>
<td>Overview of the historical emergence of trans-(gender) feminisms. Focus on debates across trans, queer, and feminist scholarship, methodology, and activism. Consideration of the politics of sex/gender transformation vis-a-vis &quot;race&quot;, &quot;culture&quot;, sexuality, class, and social justice. One of GWST 216, GWST 223 recommended. [3-0-0] Prerequisite: Third-year standing.</td>
</tr>
<tr>
<td>HES_O 100-001</td>
<td>Foundations of Health and Exercise Sciences</td>
<td>WS</td>
<td>The importance of exercise, physical activity, healthy eating, and other health behaviours across the lifespan. Principles of basic exercise prescription, fitness appraisal, behaviour change, and other positive health approaches; implications for personal health/quality of life, professional success, health care. Formerly offered as HMKN 100. Credit will be granted for only one of HES 100 or HMKN 100. [3-0-0] Prerequisite: Registration limited to students in the B.H.E.S. program.</td>
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<tr>
<td>HES_O 100-001</td>
<td>Perspectives on Gendered Bodies</td>
<td>WS</td>
<td>The importance of exercise, physical activity, healthy eating, and other health behaviours across the lifespan. Principles of basic exercise prescription, fitness appraisal, behaviour change, and other positive health approaches; implications for personal health/quality of life, professional success, health care. Formerly offered as HMKN 100. Credit will be granted for only one of HES 100 or HMKN 100. [3-0-0] Prerequisite: Registration limited to students in the B.H.E.S. program.</td>
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<tr>
<td>HES_O 100-001</td>
<td>Laboratories</td>
<td>WS</td>
<td>The importance of exercise, physical activity, healthy eating, and other health behaviours across the lifespan. Principles of basic exercise prescription, fitness appraisal, behaviour change, and other positive health approaches; implications for personal health/quality of life, professional success, health care. Formerly offered as HMKN 100. Credit will be granted for only one of HES 100 or HMKN 100. [3-0-0] Prerequisite: Registration limited to students in the B.H.E.S. program.</td>
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<td>Introduction to Human Anatomy</td>
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Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program. Laboratory In Person Learning Wed 10:00 a.m. - 12:00 p.m.

Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program. Laboratory In Person Learning Wed 12:00 p.m. - 2:00 p.m.

Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program. Laboratory In Person Learning Wed 2:00 p.m. - 4:00 p.m.

Introduce students to the basic structure and functional relationships of human anatomy in relation to movement. Specific structures include neural, muscular and skeletal systems. [3-2-0] Prerequisite: Registration limited to students in the B.H.E.S program. Laboratory In Person Learning Fri 8:00 a.m. - 10:00 a.m.

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Examining the relationships between biological, psychological, social, and economic factors to understand in health outcomes for different individuals and populations. Formerly offered as HEAL 200. Credit will be granted for only one of HES 130 or HEAL 200. [3-0-0] Registration limited to students in the B.H.E.S program. Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

Exercise prescription and testing for both the healthy adult population and for special populations or persons with a disability. Credit will only be granted for one of HES 105, HMKN 191 and HES 106. [3-0-0] Lecture In Person Learning Mon 11:00 a.m. - 2:00 p.m.

Exercise prescription and testing for both the healthy adult population and for special populations or persons with a disability. Credit will only be granted for one of HES 105, HMKN 191 and HES 106. [3-0-0] Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: One of HES 105, HMKN 200 and one of HES 111, HMKN 191 and HES 120. [3-0-0] Lecture In Person Learning Wed Fri 9:30 a.m. - 11:00 a.m.

The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: One of HES 105, HMKN 200 and one of HES 111, HMKN 191 and HES 120. [3-0-0] Lecture In Person Learning Tue 8:00 a.m. - 10:00 a.m.

The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111. Lecture In Person Learning Tue Thu 10:00 a.m. - 12:00 p.m.

The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111. Lecture In Person Learning Tue 12:00 p.m. - 2:00 p.m.

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Laboratory In-Person Learning Thu 2:00 p.m. - 4:00 p.m.

The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.

Laboratory In-Person Learning Fri 12:00 p.m. - 2:00 p.m.

The theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. [3-2-0] Prerequisite: All of HES 101, HES 105, HES 111.

Laboratory In-Person Learning Fri 2:00 p.m. - 4:00 p.m.

Introduction to the research methods commonly encountered in health research, including quantitative and qualitative designs; provides a basis for comprehending more fully the research literature relevant to health studies. Formerly offered as HMKN 206. Credit will be granted for only one of HES 240 or HMKN 206. [3-0-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100, and second-year standing in the B.H.E.S or B.H.K.

Lecture In-Person Learning Tue Thu 5:00 p.m. - 6:30 p.m.

Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.

Lecture In-Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.

Laboratory In-Person Learning Mon 8:00 a.m. - 10:00 a.m.

Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.

Laboratory In-Person Learning Mon 10:00 a.m. - 12:00 p.m.

Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.

Laboratory In-Person Learning Mon 2:00 p.m. - 4:00 p.m.

Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.

Laboratory In-Person Learning Mon 4:00 p.m. - 6:00 p.m.

Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.

Laboratory In-Person Learning Mon 11:00 a.m. - 1:00 p.m.

Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.

Laboratory In-Person Learning Mon 1:00 p.m. - 3:00 p.m.

Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.

Laboratory In-Person Learning Thu 11:00 a.m. - 1:00 p.m.

Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.

Laboratory In-Person Learning Thu 1:00 p.m. - 3:00 p.m.

Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.

Laboratory In-Person Learning Fri 11:00 a.m. - 1:00 p.m.

Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Formerly offered as HMKN 310. Credit will be granted for only one of HES 305 or HMKN 310. [3-2-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105.

Laboratory In-Person Learning Fri 1:00 p.m. - 3:00 p.m.

Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.

Lecture In-Person Learning Wed Fri 3:00 p.m. - 5:00 p.m.

Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.

Lecture In-Person Learning Wed Fri 9:30 a.m. - 11:00 a.m.

Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.

Laboratory In-Person Learning Mon 8:00 a.m. - 10:00 a.m.

Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.

Laboratory In-Person Learning Mon 10:00 a.m. - 12:00 p.m.

Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.

Laboratory In-Person Learning Mon 2:00 p.m. - 4:00 p.m.

Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.

Laboratory In-Person Learning Mon 4:00 p.m. - 6:00 p.m.
Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.

Laboratory In Person Learning Tue 5:00 p.m. - 7:00 p.m.

Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.

Laboratory In Person Learning Thu 11:00 a.m. - 1:00 p.m.

Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.

Laboratory In Person Learning Thu 1:00 p.m. - 3:00 p.m.

Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.

Laboratory In Person Learning Wed 5:00 p.m. - 7:00 p.m.

Functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. Credit will only be granted for one of HES 320 or HMKN 391. [3-2-0] Prerequisite: HES 120.

Laboratory In Person Learning Mon 6:00 p.m. - 8:00 p.m.

The theory and practice of designing community-based programs to promote behavior change based on recent advances in behavioral science. Credit will only be granted for HES 330 or HMKN 303. [3-0-0] Prerequisite: Either (a) HES 231 or (b) HMKN 316;

Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

Introduction to basic statistics and methods relevant to the analysis and interpretation of quantitative data pertaining to health and social well-being. Credit will be granted for only one of HES 340, HMKN 205 or STAT 121. (3-0-0) Prerequisite: Either (a) HES 240 or (b) HMKN 206.

Lecture In Person Learning Tue Thu 8:00 a.m. - 9:30 a.m.

Key technical skills in conducting clinical evaluations by exercise practitioners, including client interviews and communication, physical examination, pharmacological considerations, health and fitness measures and appropriate data recording and documentation. [3-3-0] Prerequisite: HES 211. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.

Lecture In Person Learning Thu 11:00 a.m. - 2:00 p.m.

Key technical skills in conducting clinical evaluations by exercise practitioners, including client interviews and communication, physical examination, pharmacological considerations, health and fitness measures and appropriate data recording and documentation. [3-3-0] Prerequisite: HES 211. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.

Laboratory In Person Learning Wed 9:30 a.m. - 11:30 a.m.

Integrative approach to normal and abnormal responses to exercise as well as the physiological effects of chronic conditions and their clinical management in exercise physiology. [3-0-2] Prerequisite: HES 311. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.

Lecture In Person Learning Tue Thrs 2:00 p.m. - 3:30 p.m.

Integrative approach to normal and abnormal responses to exercise as well as the physiological effects of chronic conditions and their clinical management in exercise physiology. [3-0-2] Prerequisite: HES 311. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.

Discussion In Person Learning Mon 2:00 p.m. - 4:00 p.m.

Overview of behaviour change theories and principles of behaviour change intervention design with a particular focus on individual and community-based programming for those living with a variety of chronic conditions. [3-0-0] Prerequisite: Either (a) HES 231 or (b) HMKN 316. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.

Lecture In Person Learning Thu 5:00 p.m. - 6:30 p.m.

Key considerations for safe, effective and professional practice for health and exercise specialists including legal, ethical and client-care standards. [3-0-0] Prerequisite: All of HES 211, HES 212.

Lecture In Person Learning Mon Wed 12:30 p.m. - 2:00 p.m.

The underlying metabolic events associated with exercise and nutritional challenges. Substrate delivery and skeletal muscle metabolism with respect to exercise. Formerly offered as HMKN 313. Credit will be granted for only one of HES 380 or HMKN 313. [3-0-0] Prerequisite: Either (a) HMKN 200 or (b) HES 105; and either (a) HES 200 or (b) HMKN 323.

Lecture In Person Learning Wed Fri 8:00 a.m. - 9:30 a.m.

Changes in physiological function with age. For students planning to become health professionals. Various dimensions of life, including health and functional capacity, are addressed. Formerly offered as HMKN 321. Credit will be granted for only one of HES 383 or HMKN 331. [3-0-0] Prerequisite: Either (a) HES 105 or (b) HMKN 200; and either (a) HES 203 or (b) HMKN 205.

Lecture In Person Learning Wed Fri 3:30 p.m. - 5:00 p.m.

Practical work experience in a supervised health/human kinetics related work setting with a cooperating agency, private business, or industry. No more than 9 credits in total will be granted for any combination of HMKN 401, HES 402, HMKN 409. Formerly offered as HMKN 401. Credit will be granted for only one of HES 401 or HMKN 401. Pass/Fail. Prerequisite: One of HES 205, HES 240 and one of HMKN 206, HES 340; and fourth-year standing in Human Kinetics and permission of the Undergraduate Chair.

Lecture In Person Learning Arranged Arranged

Advanced 'hands-on' practical work experience in a supervised health-related work setting with a partnered organization. Formerly offered as HMKN 402. Credit will be granted for only one of HES 402 or HMKN 402. Prerequisite: One of HMKN 400, HES 401. and permission of both the Practice Coordinator and the Undergraduate Chair.

Lecture In Person Learning Arranged Arranged

Ethical and legal responsibilities of allied health practitioners in care and service to clients, patients and public relating to codes of conduct, consent, trust, confidentiality, standards of care, negligence, record keeping, beneficence, least harm, dignity and scope of practice. Credit will be granted for only one of HES 471 or HMKN 400. [3-0-0] Prerequisite: HES 371.

Lecture In Person Learning Tue Fri 2:00 p.m. - 3:30 p.m.
HES_O 485-001  HES_O 001 Advanced Circulatory Physiology  WS  Regulation and adaptation of the circulatory systems at rest, during exercise. Focus on adaptations and prescription implications following pathology. Formerly offered as HMKN 441. Credit will be granted for only one of HES 485 or HMKN 441. [0-0-3] Prerequisite: Either (a) HES 240 or (b) HMKN 206; and either (a) HES 305 or (b) HMKN 310, and either (a) HES 311 or (b) HMKN 315; and either (a) HES 340 or (b) HMKN 205. Physiological mechanisms within the central nervous system and muscle fibres which contribute to muscle fatigue. The influence of various factors (e.g., sex, age, disease) on muscle fatigue. Formerly offered as HMKN 443. Credit will be granted for only one of HES 484 or HMKN 441. [3-0-0] Prerequisite: Either (a) HES 240 or (b) HMKN 206; and either (a) HES 305 or (b) HMKN 310; and either (a) HES 311 or (b) HMKN 315; and either (a) HES 340 or (b) HMKN 205. Lecture In Person Learning Thu 11:00 a.m. - 2:00 p.m.

HES_O 486-001  HES_O 001 Muscule Fatigue  WS  Cortical events associated with sensation and motor planning associated with goal-directed movement. Particular focus on plasticity associated with disease and injury. Formerly offered as HMKN 443. Credit will be granted for only one of HES 484 or HMKN 441. [3-0-0] Prerequisite: Either (a) HES 240 or (b) HMKN 206; and either (a) HES 305 or (b) HMKN 310; and either (a) HES 311 or (b) HMKN 315; and either (a) HES 340 or (b) HMKN 205. Lecture In Person Learning Mon Wed 2:00 p.m. - 3:30 p.m.

HES_O 488-001  HES_O 001 Cortical Control of Movement  WS  A research problem in health and exercise sciences under the supervision of a Health and Exercise Sciences faculty member. Students engage in research requiring a written report with a public presentation of the findings. Formerly offered as HES 490. Credit will be granted for only one of HES 490 or HES 495. [0-0-3] Prerequisite: Restricted to students in the B.H.E.S. Honours Program. Independent Study In Person Learning Arranged Arranged

HES_O 490-A.001  HES_O 001 Project in Health and Exercise Sciences  WS  How to analyze and interpret statistical data commonly encountered in health and exercise science research. Content includes the choice of appropriate statistical analyses, cleaning data, correlation, linear regression, multiple and logistic regression, t-tests and analyses of variance. Lecture In Person Learning Mon 11:00 a.m. - 2:00 p.m.

HES_O 490-B.002  HES_O 001 Project in Health and Exercise Sciences  WS 2-2 An in-depth examination of behavior change taxonomies and associated techniques, and how these relate and compare to theories of health behaviour change. Critical analysis of these techniques and theories can be applied will occur through discussion, debate, article synopses, presentations, and written assignments. Lecture In Person Learning Fri 2:00 p.m. - 5:00 p.m.

HINT_O 110-001  HINT_O 001 Applied Research in Health  WS  Basic statistical concepts and procedures with the goal of developing statistical literacy in health care contexts. Includes how descriptive and inferential statistical methods are used to interpret nursing research. [3-0-0] Prerequisite: Any of BIOL 131, BIOL 132, BIOL 133. Online Learning Mon 11:00 a.m. - 2:00 p.m.

HINT_O 231-001  HINT_O 001 Pathophysiology for Health Sciences  WS  Basic pathophysiology associated with selected diseases and disorders that are commonly encountered by health practitioners in Canada. Pathophysiology, etiology, as well as some of the signs and symptoms, diagnostic tests and treatments currently associated with each disorder. Credit will be granted for either HINT 231 or HMKN 335. [3-0-0] Prerequisite: All of BIOL 131, BIOL 132. Lecture Hybrid Learning Mon 2:00 p.m. - 3:30 p.m.

HINT_O 231-002  HINT_O 001 Pathophysiology for Health Sciences  WS  Emerging health issues and trends, evidence-informed approaches and ethical concerns within the context of the global health and global healthcare. Credit will be granted for only one of HINT 320 and NRSG 320 or HEAL 307. [4-0-0] Prerequisite: Third-year standing. Lecture Online Learning Thu 2:00 p.m. - 5:00 p.m.

HINT_O 320-001  HINT_O 001 Global Health  WS  Emerging health issues and trends, evidence-informed approaches and ethical concerns within the context of the global health and global healthcare. Credit will be granted for only one of HINT 320 and NRSG 320 or HEAL 307. [5-0-0] Prerequisite: Third-year standing. Lecture In Person Learning Thu 2:00 p.m. - 5:00 p.m.

HINT_O 331-001  HINT_O 001 Nutrition for Health Sciences  WS  Introduction to the dietary requirements of nutrients and their related sources, metabolism, and functions. Nutrition in the context promoting health, preventing disease, and managing illness will be the focus, incorporating tools and knowledge about healthy food choices and dietary habits based on scientific evidence. Current nutritional issues will also be discussed. Credit will only be granted for one of HES 200, HMKN 323 or HINT 331. [3-0-0] Prerequisite: All of BIOL 131, BIOL 132. Lecture In Person Learning Thu 11:00 a.m. - 2:00 p.m.
Grounded in critical, decolonizing, and equity-advancing theory, research, and practices, this course explores current consensus on what constitutes ethical engagement in global health, collective responses to inherently global issues. Credit will be granted for only one of HGVS 492, HINT 429, or HINT 529. [3-0-0] Restricted to students with third-year standing. Lecture In Person Learning Wed Fri 11:00 a.m. - 2:00 p.m.

HINT 529-001 HINT O 001 Advanced Global Health WS
Grounded in critical, decolonizing, and equity-advancing theory, research, and practices, this course rigorously examines current consensus on what constitutes ethical engagement in global health, collective responses to inherently global issues. Credit will be granted for only one of HGVS 492, HINT 429, or HINT 529. [3-0-0] Restricted to students in a Masters or PhD program. Lecture In Person Learning Wed Fri 11:00 a.m. - 2:00 p.m.

HIST 106-001 HIST O 001 Global Environmental History W1
Historical impacts of humans on the non-human environment, and the ways in which the non-human environment has shaped human history. [3-0-0] Lecture In Person Learning Tue Thu 12:30 p.m - 2:00 p.m.

HIST 110-001 HIST O 001 Survey of the Ancient World W1
Survey of ancient history from the first civilizations in the Near East to the fall of Rome. Includes examinations of the ancient civilizations of Mesopotamia, Egypt, Greece, and Rome. [3-0-0] Lecture In Person Learning Wed Fri 3:30 p.m. - 5:00 p.m.

HIST 112-101 HIST O 011 Canadian Lands and Peoples W1
The people, places, and events central to the development of Canada from Indigenous settlement to the twenty-first century. [3-0-0] Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

HIST 115-001 HIST O 001 World History from First to Second World War W1
Study of the emergence of the contemporary world from the origins of World War I to the aftermath of World War II. [3-0-0] Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

HIST 116-001 HIST O 001 Early Modern Europe 1450-1789 W1
Survey of the major events, systems of thought, and human accomplishments that have contributed to European history. Study includes events dating from approximately 1450, when developments in government, science, industry, art, and philosophy began to accelerate significantly. [3-0-0] Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

HIST 118-001 HIST O 001 History of Science, Medicine, and Technology in W1
History of science, medicine, and technology society from antiquity to the eighteenth century. Credit will be granted for only one of HIST 118 or HIST 215. [3-0-0] Lecture Online Learning Mon Wed 9:30 a.m. - 11:00 a.m.

HIST 145-001 HIST O 001 Contemporary World History W1
Events and forces shaping the world since the mid-twentieth century. [3-0-0] Lecture In Person Learning Tue Thu 12:30 p.m - 2:00 p.m.

HIST 220-001 HIST O 001 History of the Islamic World W1
A historical survey of the various lands, ideas, peoples, and cultures that contributed to the formation of the Islamic world, from the advent of Islam in the 7th century to the contemporary period. [3-0-0] Lecture In Person Learning Mon Wed 12:30 p.m. - 2:00 p.m.

HIST 300-001 HIST O 001 History of Indigenous Peoples of Canada to 1874 W1
The Indigenous peoples (status and non-status) of Canada from contact to the passage of the Indian Act in 1876. Topics include government policies, environment, gender, religion, oral narratives, colonial frontiers, disease, and trade. [3-0-0] Prerequisite: 6 credits of HIST and third-year standing; or 3 credits of HIST, INDS 100, and third-year standing. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

HIST 303-001 HIST O 001 The Hellenistic World from the Mediterranean to W1
The main cultural, political, social, and economic developments in the Hellenistic World from Alexander the Great to the rise of Rome. Credit will be granted for only one of HIST 303 or HIST 386E. [3-0-0] Prerequisite: HIST 110. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

HIST 317-001 HIST O 001 History of Southern Africa W2
Pre-colonial, colonial, and contemporary history emphasizing South Africa. [3-0-0] Prerequisite: 6 credits of HIST; or one of HIST 115, HIST 145, and third-year standing. Lecture In Person Learning Thu 11:00 a.m. - 2:00 p.m.

HIST 337-001 HIST O 001 American Colonial History, 1607-1763 W1
Comparative study of the social, economic, and political characteristics of the 13 colonies as they changed from small European outposts to more mature societies. [3-0-0] Prerequisite: 6 credits of HIST; or HIST 211 and third-year standing. Lecture In Person Learning Mon Wed 8:00 a.m. - 9:30 a.m.

HIST 351-001 HIST O 001 History of Gender and Sexuality in Latin America W1
Sexuality and gender relations from colonial period to the present. Role of family, state, religion, and community in constructing gender roles and sexual identities. [3-0-0] Prerequisite: One of HIST 151, or HIST 240, or third-year standing. Lecture In Person Learning Mon 6:30 p.m. - 9:30 p.m.

HIST 373-001 HIST O 001 History of Gender, Race, and Science in the Atlas W1
The rise of scientific theories of racial and sexual difference and their role in the creation of the early modern Atlantic world [1500-1800], including its economy, culture, and socio-political order. [3-0-0] Prerequisite: 6 credits of HIST; or one of HIST 188, HIST 218 and third-year standing. Lecture In Person Learning Mon Wed 12:30 p.m. - 2:00 p.m.

HIST 381-A_001 HIST O A A_001 Special Topics in Economic History W1
Students should consult the department for the particular topics offered in a given year. [3-0-0] Prerequisite: 3 credits of HIST and third-year standing. Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.

HIST 395-001 HIST O 001 Environmental History of North America W1
Themes and methods of environmental history, focusing primarily on North America from the sixteenth to the twenty-first centuries. [2-0-3] Prerequisite: 6 credits of HIST; or HIST 115 and third-year standing. Lecture Online Learning Mon Wed 9:30 a.m. - 11:00 a.m.

HIST 420-001 HIST O 001 Women in Early Modern Europe W1
Examination of the experiences of women in Western Europe from 1500-1750. [3-0-0] Prerequisite: 6 credits of HIST; or HIST 116 and third-year standing. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

HIST 468-001 HIST O 001 International Relations of the Great Powers of W1
International relations of Britain, France, Germany, Russia, and the United States from the beginning of the 20th century until 1939. Political and diplomatic settlements between the Paris Peace Conference of 1919 and the German invasion of Poland in 1939. [3-0-0] Prerequisite: 6 credits of HIST; or one of HIST 115, HIST 126 and third-year standing; or 6 credits of POLI and third-year standing. Equivalency: POLI433 Lecture In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.

HIST 473-101 HIST O 101 War and Society from the 18th to 20th Century W1
Continuity and change in the relations of war and society, and the connections between the economy, society, the military, and government in peacetime and war; not a course in military history. [3-0-0] Prerequisite: 6 credits of HIST; or one of HIST 115, HIST 116, HIST 126, HIST 145 and third-year standing. Lecture In Person Learning Tue Fri 2:00 p.m. - 3:30 p.m.

HIST 492-101 HIST O 101 History, Theory, and Method W1
Explores selected problems and issues in the theory and practice of historical work. Credit will be granted for only one of HIST 492 or IGS 592. [2-0-3] Prerequisite: 6 credits of HIST or third-year standing. Open to non-history majors with permission of the department head. Equivalency: IGS 592 Seminar In Person Learning Tue 11:00 a.m. - 2:00 p.m.

HIST 494-001 HIST O 001 Decolonization and Africa W1
Overview and analysis of the internal and external factors that explain decolonization in sub-Saharan Africa in the twentieth century. Discussion will focus on the problems of nation-building in the aftermath of decolonization. [1.5-0-1.5] Prerequisite: 6 credits of HIST; or one of HIST 115, HIST 145 and third-year standing. Lecture In Person Learning Mon Wed 2:00 p.m. - 3:30 p.m.

IGS 502-A_001 IGS O A A_001 Seminar in Digital Arts and Humanities W2
Seminar In Person Learning Mon Wed 2:00 p.m. - 3:00 p.m.

IGS 515-A_001 IGS O A A_001 Advanced Qualitative Methods W1
Seminar In Person Learning Thu 2:00 p.m. - 5:00 p.m.

IGS 524-A_001 IGS O A A_001 Proseminar in Interdisciplinary Studies W1-2
This seminar-based course prepares graduate students to excel in their academic, professional and scholarly pursuits by engaging topics related to professionalism and scholarly communication. May be offered for 1, 2, or 3 credits; program requirements for the IGS MA, MSc, or PhD programs require completion of 6 credits in total. Restricted to students in the IGS MA, MSc, or PhD programs. Pass/Fail. Seminar In Person Learning Wed (Alternate weeks) 8:00 a.m. - 11:00 a.m.
Introduction to the challenges and opportunities of interdisciplinary sustainability research, including problem framing, research methods and socio-ecological applications from contributing disciplines.

Will provide the necessary theoretical background on Community-Based Participatory Research (CBPR). Students will learn about a range of strategies and principles of CBPR: advantages and limitations of this approach; skills necessary for participating effectively in CBPR projects.

Examination of conceptual approaches to Global Studies.

Frameworks of governance systems and public policy.

Exploration of the complex relations between power, knowledge and ideas.

Explore selected problems and issues in the theory and practice of historical work. Credit will be granted for only one of IG5 592 or HIST 492. Equivalency: HIST 492

Explore an Indigenous strategy of community discourse as a methodology for inquiry, a technique of understanding an Indigenous strategy of community discourse as a methodology for inquiry, a technique of examining the development of the Mi'kmaq Nation from the fur trade to recent self-government agreements, the course surveys topics such as Mi'kmaq acts of resistance against colonialism, Mi'kmaq language and culture, customary law and legal rulings, land issues and mobility, as well as contemporary identity controversies.

Credit will be granted for only one of INDG 204 or INDG 295H. [3-0-0] Prerequisite: One of INDG 100, INDG 102.

Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]

Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]

Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]

Examining the development of the Mi'kmaq Nation from the fur trade to recent self-government agreements, the course surveys topics such as Mi'kmaq acts of resistance against colonialism, Mi'kmaq language and culture, customary law and legal rulings, land issues and mobility, as well as contemporary identity controversies.

Credit will be granted for only one of INDG 204 or INDG 295H. [3-0-0] Prerequisite: One of INDG 100, INDG 102.

Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]

Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]

Examining the development of the Mi'kmaq Nation from the fur trade to recent self-government agreements, the course surveys topics such as Mi'kmaq acts of resistance against colonialism, Mi'kmaq language and culture, customary law and legal rulings, land issues and mobility, as well as contemporary identity controversies.

Credit will be granted for only one of INDG 204 or INDG 295H. [3-0-0] Prerequisite: One of INDG 100, INDG 102.

Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]

Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]

Examining the development of the Mi'kmaq Nation from the fur trade to recent self-government agreements, the course surveys topics such as Mi'kmaq acts of resistance against colonialism, Mi'kmaq language and culture, customary law and legal rulings, land issues and mobility, as well as contemporary identity controversies.

Credit will be granted for only one of INDG 204 or INDG 295H. [3-0-0] Prerequisite: One of INDG 100, INDG 102.

Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]

Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous people. [2-0-1]
Focuses on Indigenous Peoples’ common experience of colonization, non-recognition, conflicts with nation states, and decolonization. Also covers Indigenous Peoples' international engagement and lobbying in various UN forums, including The UN Declaration on the Rights of Indigenous Peoples. [3-0-0] Prerequisite: One of INDG 100, INDG 102. Third-year standing.

Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

Indigenous perspectives on language and cultural shifts through the critical lenses of Indigenous knowledge and insider views on historical education policies; language and knowledge loss and consequences; revitalization and recovery; and transformational community development for Indigenous education and community empowerment. [3-0-0] Prerequisite: One of INDG 100, INDG 102. Third-year standing.

Lecture  In Person Learning  Wed Fri  2:00 p.m. - 3:30 p.m.

Overview of the contemporary geopolitical, agricultural, and environmental connections between identity, food, place, and cultural and biological diversity from the perspective of Indigenous peoples. North/south flows of genetic resources and key international and regional conventions and agreements are highlighted. [3-0-0] Prerequisite: One of INDG 100, INDG 102. Third-year standing.

Lecture  In Person Learning  Mon Wed  5:00 p.m. - 6:30 p.m.

Examines Indigenous women’s feminist activism and theory in historical and contemporary contexts. Emphasizes resistance against colonization, dispossession, violence and ecological destruction as well as development of strategies and models based on Indigenous concepts and consciousness. Emphasizes relationship building and empowerment between Indigenous women beyond borders. [5-0-3] Prerequisite: One of INDG 100, INDG 102. Third-year standing.

Lecture  In Person Learning  Mon Thu  2:00 p.m. - 3:30 p.m.

Work experience in decolonizing and/or indigenizing efforts. Restricted to students in the Indigenous language fluency degrees or Indigenous Studies major program. [3-4-2] Prerequisite: One of INDG 100, INDG 102. Third-year standing.

Lecture Online Learning  Arranged  Arranged

Development of skills in the perception and transcription of speech sounds in endangered languages, focusing on the diversity within B.C. Indigenous languages. Capacity-building techniques for digital recording, editing, analysis, and archiving; guided by community-based ethical protocols and conservation/revitalization goals. Restricted to students in the Indigenous language fluency degrees. [3-0-0]

Lecture Online Learning  Arranged  Arranged

Study of language shift, including local and global influences of historical, social, cultural, political, and economic factors impacting on language loss, endangerment, retention, and revival. Practical strategies for sustaining and reviving languages, including language documentation and revitalisation. Credit will only be granted for one of INLG 480 and ANTH 473. Prerequisite: INLG 282.

Lecture  Multi-access Learning  Thu  5:00 p.m. - 8:00 p.m.

Introduction to spoken and written modern Japanese, with emphasis on both form (grammar and syntax) and functions. Students who have completed Japanese 12, native and heritage speakers cannot receive credit for JPST 100.

Lecture  In Person Learning  Tue Thu  8:00 a.m. - 9:30 a.m.

Introduction to spoken and written modern Japanese, with emphasis on both form (grammar and syntax) and functions. Students who have completed Japanese 12, native and heritage speakers cannot receive credit for JPST 100.

Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

Introduction to spoken and written modern Japanese, with emphasis on both form (grammar and syntax) and functions. Students who have completed Japanese 12, native and heritage speakers cannot receive credit for JPST 100.

Lecture  In Person Learning  Tue Thu  8:00 a.m. - 9:30 a.m.

Social, historical, political, and environmental dimensions of the development of Traditional and Contemporary Japanese food culture. Taught in English. Credit will not be granted for both JPST 370 and JPST 395A. Prerequisite: Third-year standing.

Lecture  Laboratory Online Learning  Mon  1:00 p.m. - 2:00 p.m.

An introduction to the grammar, syntax, and function of modern spoken and written Korean. For absolute beginners; not available to students who have obtained the equivalent of CEFR Level A1 in the language.

Lecture  In Person Learning  Mon Wed  12:00 p.m. - 1:00 p.m.

Fundamentals of Latin grammar and syntax. Designed for students who need to acquire knowledge of basic Latin in one year for background in their own discipline.

Lecture  In Person Learning  Mon Wed  2:00 p.m. - 3:30 p.m.

Professional development as an additional language educator through a supervised 20-hour practicum including guided lesson observations (10 hours) and focused teaching practice (10 hours). Concurrent seminars develop skills in lesson planning, instructional strategies, reflective practice, classroom leadership, interculturality, and community building. Restricted to students with at least third-year standing. Pass/Fail. [3-0-0]

Lecture  Laboratory Online Learning  Thu (Alternate weeks)  6:30 p.m. - 8:30 p.m.

Project-based design and optimization of manufacturing processes (Casting, bulk deformation, sheet metal, polymer), metrology, measuring cutting forces in machining, CNC machining optimization. [1-4-0, 1-4-0]

Lecture  In Person Learning  Mon  11:00 a.m. - 12:00 p.m.

Project-based design and optimization of manufacturing processes (Casting, bulk deformation, sheet metal, polymer), metrology, measuring cutting forces in machining. CNC machining optimization. [1-4-0, 1-4-0]

Lecture  In Person Learning  Fri  8:00 a.m. - 12:00 p.m.

Functional area of production and operations management. Decision-making, capacity planning, aggregate planning, inventory management, distribution planning, materials requirements planning and quality control.

Lecture  In Person Learning  Tue Thu  3:30 p.m. - 5:00 p.m.

Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2-3-1] Prerequisite: All of APSC 259, APSC 260.

Lecture  Laboratory Online Learning  Wed (Alternate weeks)  11:00 a.m. - 2:00 p.m.

Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2-3-1] Prerequisite: All of APSC 259, APSC 260.

Lecture  Laboratory Online Learning  Wed (Alternate weeks)  11:00 a.m. - 2:00 p.m.

Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2-3-1] Prerequisite: All of APSC 259, APSC 260.

Lecture  Laboratory Online Learning  Mon (Alternate weeks)  8:00 a.m. - 11:00 a.m.

Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding, casting. [2-3-1] Prerequisite: All of APSC 259, APSC 260.

Lecture  Laboratory Online Learning  Mon (Alternate weeks)  8:00 a.m. - 11:00 a.m.

The focus of this course is development of strategies and models based on Indigenous concepts and consciousness. Emphasizes relationship building and empowerment between Indigenous women beyond borders. [5-0-3] Prerequisite: One of INDG 100, INDG 102. Third-year standing.
MANF 377-L1E MANF 455-L1E Manufacturing Processes W1 Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding, metal fabrication, welding, casting. [2-3*-1] Prerequisite: All of APSC 259, APSC 260. Laboratory In Person Learning Tue (Alternate weeks) 12:30 p.m. - 3:30 p.m.

MANF 377-L1F MANF 455-L1F Manufacturing Processes W1 Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding, metal fabrication, welding, casting. [2-3*-1] Prerequisite: All of APSC 259, APSC 260. Laboratory In Person Learning Tue (Alternate weeks) 12:30 p.m. - 3:30 p.m.

MANF 377-L1G MANF 455-L1G Manufacturing Processes W1 Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding, metal fabrication, welding, casting. [2-3*-1] Prerequisite: All of APSC 259, APSC 260. Laboratory In Person Learning Fri (Alternate weeks) 11:00 a.m. - 2:00 p.m.

MANF 377-L1H MANF 455-L1H Manufacturing Processes W1 Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding, metal fabrication, welding, casting. [2-3*-1] Prerequisite: All of APSC 259, APSC 260. Laboratory In Person Learning Fri (Alternate weeks) 11:00 a.m. - 2:00 p.m.

MANF 377-L1I MANF 455-L1I Manufacturing Processes W1 Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding, metal fabrication, welding, casting. [2-3*-1] Prerequisite: All of APSC 259, APSC 260. Laboratory In Person Learning Mon (Alternate weeks) 2:00 p.m. - 5:00 p.m.

MANF 377-L1J MANF 455-L1J Manufacturing Processes W1 Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding, metal fabrication, welding, casting. [2-3*-1] Prerequisite: All of APSC 259, APSC 260. Laboratory In Person Learning Mon (Alternate weeks) 2:00 p.m. - 5:00 p.m.

MANF 377-L1K MANF 455-L1K Manufacturing Processes W1 Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding, metal fabrication, welding, casting. [2-3*-1] Prerequisite: All of APSC 259, APSC 260. Laboratory In Person Learning Thu (Alternate weeks) 2:00 p.m. - 5:00 p.m.

MANF 377-L1L MANF 455-L1L Manufacturing Processes W1 Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding, metal fabrication, welding, casting. [2-3*-1] Prerequisite: All of APSC 259, APSC 260. Laboratory In Person Learning Thu (Alternate weeks) 2:00 p.m. - 5:00 p.m.

MANF 377-T1A MANF 455-T1A Manufacturing Processes W1 Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding, metal fabrication, welding, casting. [2-3*-1] Prerequisite: All of APSC 259, APSC 260. Discussion In Person Learning Thu 2:00 p.m. - 3:00 p.m.

MANF 377-T1B MANF 455-T1B Manufacturing Processes W1 Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding, metal fabrication, welding, casting. [2-3*-1] Prerequisite: All of APSC 259, APSC 260. Discussion In Person Learning Fri 3:00 p.m. - 4:00 p.m.

MANF 377-T1C MANF 455-T1C Manufacturing Processes W1 Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding, metal fabrication, welding, casting. [2-3*-1] Prerequisite: All of APSC 259, APSC 260. Discussion In Person Learning Mon 11:00 a.m. - 12:00 p.m.

MANF 377-T1D MANF 455-T1D Manufacturing Processes W1 Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding, metal fabrication, welding, casting. [2-3*-1] Prerequisite: All of APSC 259, APSC 260. Discussion In Person Learning Thu 3:00 p.m. - 4:00 p.m.

MANF 377-T1E MANF 455-T1E Manufacturing Processes W1 Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding, metal fabrication, welding, casting. [2-3*-1] Prerequisite: All of APSC 259, APSC 260. Discussion In Person Learning Mon 3:00 p.m. - 4:00 p.m.

MANF 377-T1F MANF 455-T1F Manufacturing Processes W1 Metrology, metal forming processes, plastic deformation, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding, metal fabrication, welding, casting. [2-3*-1] Prerequisite: All of APSC 259, APSC 260. Discussion In Person Learning Thu 1:00 p.m. - 2:00 p.m.

MANF 386-001 MANF 455-001 Industrial Automation W1 Principle components of manufacturing automation systems, industrial measurement needs, robotic programming, programmable logical control (PLC) systems and development of PLC programs. [3-2-0] Prerequisite: APSC 246. Lecture In Person Learning Mon Wed Fri 2:00 p.m. - 3:00 p.m.

MANF 386-010 MANF 455-010 Industrial Automation W1 Principle components of manufacturing automation systems, industrial measurement needs, robotic programming, programmable logical control (PLC) systems and development of PLC programs. [3-2-0] Prerequisite: APSC 246. Lecture In Person Learning Thu 5:00 p.m. - 7:00 p.m.

MANF 386-020 MANF 455-020 Industrial Automation W1 Principle components of manufacturing automation systems, industrial measurement needs, robotic programming, programmable logical control (PLC) systems and development of PLC programs. [3-2-0] Prerequisite: APSC 246. Lecture In Person Learning Fri 5:00 p.m. - 7:00 p.m.

MANF 416-001 MANF 455-001 CAD/CAM/CAE W1 CNC machining, Rapid prototyping, G-code, Computer Aided: Design, Manufacturing and Engineering, parametric design and analysis for optimization. Manufacturing engineering students may not use this course to satisfy the requirements of their degree. [3-2-0] Prerequisite: MANF 377. Lecture In Person Learning Tue Thu 8:00 a.m. - 9:30 a.m.

MANF 416-010 MANF 455-010 CAD/CAM/CAE W1 CNC machining, Rapid prototyping, G-code, Computer Aided: Design, Manufacturing and Engineering, parametric design and analysis for optimization. Manufacturing engineering students may not use this course to satisfy the requirements of their degree. [3-2-0] Prerequisite: MANF 377. Laboratory In Person Learning Tue 4:00 p.m. - 6:00 p.m.

MANF 416-020 MANF 455-020 CAD/CAM/CAE W1 CNC machining, Rapid prototyping, G-code, Computer Aided: Design, Manufacturing and Engineering, parametric design and analysis for optimization. Manufacturing engineering students may not use this course to satisfy the requirements of their degree. [3-2-0] Prerequisite: MANF 377. Laboratory In Person Learning Tue 10:00 a.m. - 12:00 p.m.

MANF 416-030 MANF 455-030 Factory Planning W1 Planning of resources, layout and logistics for manufacturing plants; hands-on training on modular production and cyber-physical manufacturing systems in a laboratory scale, virtual manufacturing environments and factory automation. Credit will be granted for only one of MANF 455 or MANF 555. [2-2-0] Prerequisite: MANF 386. Lecture In Person Learning Tue 2:00 p.m. - 4:00 p.m.

MANF 416-040 MANF 455-040 Factory Planning W1 Planning of resources, layout and logistics for manufacturing plants; hands-on training on modular production and cyber-physical manufacturing systems in a laboratory scale, virtual manufacturing environments and factory automation. Credit will be granted for only one of MANF 455 or MANF 555. [2-2-0] Prerequisite: MANF 386. Laboratory In Person Learning Thu 2:00 p.m. - 4:00 p.m.

MANF 460-001 MANF 560-001 Supply Chain Tactics and Strategies W1 Key concepts and techniques to analyze, manage and improve supply chain processes for different industries and markets. Emphasis on assessment of supply chain performance to improve competitiveness. Credit will be granted for only one of MANF 460 or MANF 560. [3-0-0] Prerequisite: Fourth-year B.A.Sc. standing. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.
MANF_O 470-001  MANF_O 001  Production Systems Management II  WS  Modelling and analysis of manufacturing systems and assembly lines, operational contingencies, multiple-product manufacturing systems, scheduling theory and inventory systems. [3-0-0] Prerequisite: MANF 370.  Lecture  In Person Learning  Mon Wed  8:00 a.m. - 9:30 a.m.

MANF_O 516-001  MANF_O 001  Advanced Manufacturing  WS  Product manufacturing, powder metallurgy, Computer-Aided Design (CAD) and Computer-Aided Manufacturing (CAM), Computer Numeric Control (CNC) tools, process planning, micro and nano manufacturing, optical and electron measurement techniques.  Lecture  In Person Learning  Tue Thu  8:00 a.m. - 9:30 a.m.

MANF_O 516-101  MANF_O 001  Advanced Manufacturing  WS  Product manufacturing, powder metallurgy, Computer-Aided Design (CAD) and Computer-Aided Manufacturing (CAM), Computer Numeric Control (CNC) tools, process planning, micro and nano manufacturing, optical and electron measurement techniques.  Laboratory  In Person Learning  Wed  4:00 p.m. - 6:00 p.m.

MANF_O 516-102  MANF_O 001  Advanced Manufacturing  WS  Product manufacturing, powder metallurgy, Computer-Aided Design (CAD) and Computer-Aided Manufacturing (CAM), Computer Numeric Control (CNC) tools, process planning, micro and nano manufacturing, optical and electron measurement techniques.  Laboratory  In Person Learning  Thu  10:00 a.m. - 12:00 p.m.

MANF_O 555-001  MANF_O 001  Factory Planning  WS  Factory-scale automation for production planning and control, manufacturing execution systems, industrial communication, product tracking, database management; hands-on training on cyber-physical manufacturing systems in a laboratory scale, virtual manufacturing environments. Credit will be granted for only one of MANF 555 or MANF 455.  Lecture  In Person Learning  Mon  12:00 p.m. - 2:00 p.m.

MANF_O 555-11A  MANF_O 001  Factory Planning  WS  Factory-scale automation for production planning and control, manufacturing execution systems, industrial communication, product tracking, database management; hands-on training on cyber-physical manufacturing systems in a laboratory scale, virtual manufacturing environments. Credit will be granted for only one of MANF 555 or MANF 455.  Laboratory  In Person Learning  Fri  2:00 p.m. - 4:00 p.m.

MANF_O 560-001  MANF_O 001  Supply Chain Tactics and Strategies  WS  Key concepts and techniques to analyze, manage and improve supply chain processes for different industries and markets; focus on the assessment of supply chain performance and identify key factors to be considered when designing a distribution network; understand the role of cycle inventory and determine the optimal lot size in a supply chain. Credit will be granted for only one of MANF 560 or MANF 460.  Lecture  In Person Learning  Mon Wed  9:30 a.m. - 11:00 a.m.

MATH_O 100-001  MATH_O 001  Differential Calculus with Applications to Physics WS  Equivalency: MATH116.  Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

MATH_O 100-002  MATH_O 001  Differential Calculus with Applications to Physics WS  Equivalency: MATH116.  Lecture  In Person Learning  Wed Fri  2:00 p.m. - 3:30 p.m.

MATH_O 100-003  MATH_O 001  Differential Calculus with Applications to Physics WS  Equivalency: MATH116.  Lecture  In Person Learning  Mon Wed  9:30 a.m. - 11:00 a.m.

MATH_O 100-004  MATH_O 001  Differential Calculus with Applications to Physics WS  Equivalency: MATH116.  Lecture  In Person Learning  Mon Wed  8:00 a.m. - 9:30 a.m.

MATH_O 100-005  MATH_O 001  Differential Calculus with Applications to Physics WS  Equivalency: MATH116.  Lecture  In Person Learning  Tue Thu  8:00 a.m. - 9:30 a.m.

MATH_O 100-006  MATH_O 001  Differential Calculus with Applications to Physics WS  Equivalency: MATH116.  Lecture  In Person Learning  Wed Fri  9:30 a.m. - 11:00 a.m.

MATH_O 100-007  MATH_O 001  Differential Calculus with Applications to Physics WS  Equivalency: MATH116.  Lecture  In Person Learning  Wed Fri  9:30 a.m. - 11:00 a.m.

MATH_O 101-001  MATH_O 001  Integral Calculus with Applications to Physical S V  definite integral, integration techniques, applications, modelling, linear ODE’s. Credit will be granted for only one of MATH 101 or MATH 142. [3-0-0] Prerequisite: One of MATH 100, MATH 116.  Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

MATH_O 116-001  MATH_O 001  Calculus I for Management and Economics WS  Prepares students for a calculus course. Functions and their graphs; inverse functions; algebraic, exponential, logarithmic, trigonometric functions; applications to marginal analysis; elasticity of demand; optimization and curve-sketching, Newtons Method and Taylor polynomials. Credit will be granted for only one of MATH 116 or MATH 100. [3-0-0] Prerequisite: Either (a) a score of 67% or higher in one of MATH 12, PREC 12 or (b) a score of 60% or higher in one of MATH 125, MATH 126.  Lecture  In Person Learning  Wed Fri  9:30 a.m. - 11:00 a.m.

MATH_O 125-001  MATH_O 001  Pre-Calculus WS  Analytic geometry in two and three dimensions, partial and directional derivatives, chain rule, maxima and minima, second derivative test, Lagrange multipliers, multiple integrals with applications. [3-1-0] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103.  Lecture  In Person Learning  Mon Wed  5:00 p.m. - 6:30 p.m.

MATH_O 200-001  MATH_O 001  Calculus III WS  Analytic geometry in two and three dimensions, partial and directional derivatives, chain rule, maxima and minima, second derivative test, Lagrange multipliers, multiple integrals with applications. [3-1-0] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103.  Lecture  In Person Learning  Mon Wed  5:00 p.m. - 6:30 p.m.

MATH_O 200-002  MATH_O 002  Calculus III WS  Analytic geometry in two and three dimensions, partial and directional derivatives, chain rule, maxima and minima, second derivative test, Lagrange multipliers, multiple integrals with applications. [3-1-0] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103.  Lecture  In Person Learning  Tue Thu  6:30 p.m. - 8:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Section</th>
<th>Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH_O 200-L01</td>
<td>L01</td>
<td>Calculus III</td>
<td>W5</td>
<td>Analytic geometry in two and three dimensions, partial and directional derivatives, chain rule, maxima and minima, second derivative test, Lagrange multipliers, multiple integrals with applications. [3-1-0] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Laboratory In Person Learning Mon 8:00 a.m. - 9:00 a.m.</td>
</tr>
<tr>
<td>MATH_O 200-L02</td>
<td>L02</td>
<td>Calculus III</td>
<td>W5</td>
<td>Analytic geometry in two and three dimensions, partial and directional derivatives, chain rule, maxima and minima, second derivative test, Lagrange multipliers, multiple integrals with applications. [3-1-0] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Laboratory In Person Learning Wed 3:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>MATH_O 200-L03</td>
<td>L03</td>
<td>Calculus III</td>
<td>W5</td>
<td>Analytic geometry in two and three dimensions, partial and directional derivatives, chain rule, maxima and minima, second derivative test, Lagrange multipliers, multiple integrals with applications. [3-1-0] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Laboratory In Person Learning Wed 4:00 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>MATH_O 200-L04</td>
<td>L04</td>
<td>Calculus III</td>
<td>W5</td>
<td>Analytic geometry in two and three dimensions, partial and directional derivatives, chain rule, maxima and minima, second derivative test, Lagrange multipliers, multiple integrals with applications. [3-1-0] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Laboratory In Person Learning Fri 3:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>MATH_O 200-L05</td>
<td>L05</td>
<td>Calculus III</td>
<td>W5</td>
<td>Analytic geometry in two and three dimensions, partial and directional derivatives, chain rule, maxima and minima, second derivative test, Lagrange multipliers, multiple integrals with applications. [3-1-0] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Laboratory In Person Learning Fri 1:00 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>MATH_O 200-L06</td>
<td>L06</td>
<td>Calculus III</td>
<td>W5</td>
<td>Analytic geometry in two and three dimensions, partial and directional derivatives, chain rule, maxima and minima, second derivative test, Lagrange multipliers, multiple integrals with applications. [3-1-0] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Laboratory In Person Learning Thu 1:00 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>MATH_O 200-L07</td>
<td>L07</td>
<td>Calculus III</td>
<td>W5</td>
<td>Analytic geometry in two and three dimensions, partial and directional derivatives, chain rule, maxima and minima, second derivative test, Lagrange multipliers, multiple integrals with applications. [3-1-0] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Laboratory In Person Learning Fri 10:00 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>MATH_O 200-L08</td>
<td>L08</td>
<td>Calculus III</td>
<td>W5</td>
<td>Analytic geometry in two and three dimensions, partial and directional derivatives, chain rule, maxima and minima, second derivative test, Lagrange multipliers, multiple integrals with applications. [3-1-0] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Laboratory In Person Learning Wed 10:00 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>MATH_O 200-L09</td>
<td>L09</td>
<td>Calculus III</td>
<td>W5</td>
<td>Analytic geometry in two and three dimensions, partial and directional derivatives, chain rule, maxima and minima, second derivative test, Lagrange multipliers, multiple integrals with applications. [3-1-0] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Laboratory In Person Learning Wed 10:00 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>MATH_O 200-L10</td>
<td>L10</td>
<td>Calculus III</td>
<td>W5</td>
<td>Analytic geometry in two and three dimensions, partial and directional derivatives, chain rule, maxima and minima, second derivative test, Lagrange multipliers, multiple integrals with applications. [3-1-0] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 103. Laboratory In Person Learning Tue 12:00 p.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>MATH_O 220-001</td>
<td>001</td>
<td>Mathematical Proof</td>
<td>W1</td>
<td>Sets and functions; induction; cardinality: properties of the real numbers; sequences, series, and limits. Logic, structure, style, and clarity of proofs emphasized throughout. [3-0-1] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 101. Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.</td>
</tr>
<tr>
<td>MATH_O 220-002</td>
<td>T01</td>
<td>Mathematical Proof</td>
<td>W2</td>
<td>Sets and functions; induction; cardinality: properties of the real numbers; sequences, series, and limits. Logic, structure, style, and clarity of proofs emphasized throughout. [3-0-1] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 101. Discussion In Person Learning Mon 1:00 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>MATH_O 220-003</td>
<td>T02</td>
<td>Mathematical Proof</td>
<td>W1</td>
<td>Sets and functions; induction; cardinality: properties of the real numbers; sequences, series, and limits. Logic, structure, style, and clarity of proofs emphasized throughout. [3-0-1] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 101. Discussion In Person Learning Mon 8:00 a.m. - 9:00 a.m.</td>
</tr>
<tr>
<td>MATH_O 220-004</td>
<td>T03</td>
<td>Mathematical Proof</td>
<td>W1</td>
<td>Sets and functions; induction; cardinality: properties of the real numbers; sequences, series, and limits. Logic, structure, style, and clarity of proofs emphasized throughout. [3-0-1] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 101. Discussion In Person Learning Mon 10:00 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>MATH_O 220-005</td>
<td>T04</td>
<td>Mathematical Proof</td>
<td>W1</td>
<td>Sets and functions; induction; cardinality: properties of the real numbers; sequences, series, and limits. Logic, structure, style, and clarity of proofs emphasized throughout. [3-0-1] Prerequisite: Either (a) MATH 101 or (b) a score of 65% or higher in MATH 101. Discussion In Person Learning Fri 3:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>MATH_O 221-001</td>
<td>001</td>
<td>Matrix Algebra</td>
<td>W1</td>
<td>Systems of linear equations, operations on matrices, determinants, eigenvalues and eigenvectors, diagonalization of symmetric matrices, and vector geometry. [3-0-0] Prerequisite: One of MATH 100, MATH 116. Lecture In Person Learning Mon Wed 6:30 p.m. - 8:00 p.m.</td>
</tr>
<tr>
<td>MATH_O 307-101</td>
<td>101</td>
<td>Applied Linear Algebra</td>
<td>W5</td>
<td>LU-factorization, iterative estimates for eigenvalues, dynamical systems, orthogonality, QR-factorization, and applications of linear algebra. [3-0-0] Prerequisite: MATH 221. Lecture In Person Learning Tue Thurs 11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>MATH_O 311-001</td>
<td>001</td>
<td>Abstract Algebra I</td>
<td>W5</td>
<td>Properties of integers, the integers modulo n, groups, subgroups, cyclic groups, permutation groups, linear groups, quotient groups and homomorphisms, isomorphism theorems, direct products, and an introduction to rings and fields. [3-0-0] Prerequisite: MATH 220. Lecture In Person Learning Mon Wed 8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>MATH_O 319-001</td>
<td>001</td>
<td>Introduction to Partial Differential Equations</td>
<td>W5</td>
<td>Methods of separation of variable, Fourier series, heat, wave and Laplace's equations, boundary value problems, eigenfunction expansions, and Sturm-Liouville problems. [3-0-1] Prerequisite: All of MATH 200, MATH 225. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>MATH_O 319-002</td>
<td>T02</td>
<td>Introduction to Partial Differential Equations</td>
<td>W5</td>
<td>Methods of separation of variable, Fourier series, heat, wave and Laplace's equations, boundary value problems, eigenfunction expansions, and Sturm-Liouville problems. [3-0-1] Prerequisite: All of MATH 200, MATH 225. Discussion In Person Learning Tue 4:00 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>MATH_O 323-001</td>
<td>001</td>
<td>Applied Abstract Algebra</td>
<td>W5</td>
<td>Congruences and groups, introduction to rings and fields, and topics chosen from: lattices, Boolean algebra and applications, balanced incomplete block designs, introduction to cryptography, applications to group theory. [3-0-0] Prerequisite: MATH 221. Corequisite: MATH 311. Lecture In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>MATH_O 327-001</td>
<td>001</td>
<td>Analysis I</td>
<td>W1</td>
<td>The real number system, real Euclidean n-space, open, closed, compact, and connected sets; Bolzano-Weierstrass theorem; sequences and series; continuity and uniform continuity; differentiability and mean-value theorems; Riemann or Riemann-Stieltjes integrals. [3-0-0] Prerequisite: MATH 220. Lecture In Person Learning Tue Thu 8:00 a.m. - 9:30 a.m.</td>
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<tr>
<td>Code</td>
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<td>MGCO_O 405-101</td>
<td>MGCO_O</td>
<td>101</td>
<td>Co-op Education Work Experience V</td>
<td>WS</td>
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<tr>
<td>MGCO_O 406-101</td>
<td>MGCO_O</td>
<td>101</td>
<td>Co-op Education Work Experience VI</td>
<td>WS</td>
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<td>MSMT_O 100-001</td>
<td>MSMT_O</td>
<td>001</td>
<td>Introduction to Business</td>
<td>WS</td>
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<td>MSMT_O 100-L01</td>
<td>MSMT_O</td>
<td>L01</td>
<td>Introduction to Business</td>
<td>WS</td>
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<tr>
<td>MSMT_O 100-L02</td>
<td>MSMT_O</td>
<td>L02</td>
<td>Introduction to Business</td>
<td>WS</td>
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<td>MSMT_O 100-L03</td>
<td>MSMT_O</td>
<td>L03</td>
<td>Introduction to Business</td>
<td>WS</td>
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<td>MSMT_O 100-L04</td>
<td>MSMT_O</td>
<td>L04</td>
<td>Introduction to Business</td>
<td>WS</td>
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<td>L05</td>
<td>Introduction to Business</td>
<td>WS</td>
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<td>MSMT_O 100-L06</td>
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<td>L06</td>
<td>Introduction to Business</td>
<td>WS</td>
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<td>MSMT_O 100-L07</td>
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<td>L07</td>
<td>Introduction to Business</td>
<td>WS</td>
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<td>MSMT_O</td>
<td>W01</td>
<td>Introduction to Business</td>
<td>WS</td>
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<tr>
<td>MSMT_O 110-001</td>
<td>MSMT_O</td>
<td>001</td>
<td>Introduction to Management Thought and Society</td>
<td>WS</td>
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<tr>
<td>MSMT_O 201-001</td>
<td>MSMT_O</td>
<td>001</td>
<td>Introduction to Financial Accounting</td>
<td>WS</td>
</tr>
<tr>
<td>MSMT_O 201-W01</td>
<td>MSMT_O</td>
<td>W01</td>
<td>Introduction to Financial Accounting</td>
<td>WS</td>
</tr>
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</table>

Approved and supervised paid work experience with a public or private organization for a minimum of 455 hours full time. Pre-employment training workshops and co-op assignments are required. Course is restricted to students who have completed all third-year requirements and have secured a work-term with an appropriate employer either independently or through the 'Co-op Office'. Prerequisite: MGCO 405.

Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0] Lecture In Person Learning Mon 12:00 p.m. - 2:00 p.m.

Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0] Laboratory In Person Learning Mon 2:00 p.m. - 3:00 p.m.

Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0] Laboratory In Person Learning Wed 10:00 a.m. - 11:00 a.m.

Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0] Laboratory In Person Learning Tue 1:00 p.m. - 2:00 p.m.

Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0] Laboratory In Person Learning Mon 8:00 a.m. - 9:00 a.m.

Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0] Laboratory In Person Learning Wed 5:00 p.m. - 6:00 p.m.

Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organizational behaviour, operations, business policy, information systems and entrepreneurship. Identifies the steps needed to build and manage successful local, national, and international competitive businesses and organizations. Introduces ethical and policy decisions faced by businesses, organizations and governments. Open to all students. [3-0-0] Laboratory In Person Learning Mon 11:00 a.m. - 12:00 p.m.

Introduces management thought in business and organizations. Utilizes critical thinking in socially and ethically responsible decisions at a corporate and personal level. Includes managing responsibly through people, mass production, ethical and socially-responsible practices, covers start-ups, entrepreneurs, family business, non-profit/for-profit organizations and governments in global regions. Open to all students. [3-0-0] Workshop In Person Learning Tue 5:00 p.m. - 6:00 p.m.

Construction and interpretation of financial statements. [3-0-0] Prerequisite: MSMT 100 and either (a) MATH 100 or (b) MATH 116. Second-year standing and 3 credits of ENGL. Corequisite: MSMT 110. Lecture In Person Learning Mon 8:00 a.m. - 10:00 a.m.

Construction and interpretation of financial statements. [3-0-0] Prerequisite: MSMT 100 and either (a) MATH 100 or (b) MATH 116. Second-year standing and 3 credits of ENGL. Corequisite: MSMT 110. Workshop In Person Learning Fri 10:00 a.m. - 11:00 a.m.
Introduction to organizational Behaviour

Introduction to the strategic and tactical decisions of operations management as it applies to both service and manufacturing sectors. Topics include process and technology choice, process flow, layout of facilities, capacity and resource planning, inventory control, lean systems, quality management, and quality control. [3-0-0] Prerequisite: Either (a) MATH 100 or (b) MATH 116; and one of MGMT 202, MGMT 230, MGMT 240, MGMT 250, MGMT 290. Corequisite: MGMT 201.

Environment of financial reporting, standard-setting process, and conceptual framework that underlies financial reporting in Canada. Focuses primarily on accounting for assets. [3-0-0] Prerequisite: MGMT 201. Corequisite: MGMT 310.

Framework development for analyzing a firm’s investment and financing decisions and a foundation in the basic concepts underlying modern corporate finance. [3-0-0] Prerequisite: Either (a) MATH 100 or (b) MATH 116; and one of MGMT 202, MGMT 230, MGMT 240, MGMT 250, MGMT 290. Corequisite: MGMT 201.

Framework development for analyzing a firm’s investment and financing decisions and a foundation in the basic concepts underlying modern corporate finance. [3-0-0] Prerequisite: Either (a) MATH 100 or (b) MATH 116; and one of MGMT 202, MGMT 230, MGMT 240, MGMT 250, MGMT 290. Corequisite: MGMT 201.

Introduction to the strategic and tactical decisions of operations management as it applies to both service and manufacturing sectors. Topics include process and technology choice, process flow, layout of facilities, capacity and resource planning, inventory control, lean systems, quality management, and quality control. [3-0-0] Prerequisite: Either (a) MATH 100 or (b) MATH 116; and two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290. And 3 credits of STAT.

Introduction to the strategic and tactical decisions of operations management as it applies to both service and manufacturing sectors. Topics include process and technology choice, process flow, layout of facilities, capacity and resource planning, inventory control, lean systems, quality management, and quality control. [3-0-0] Prerequisite: Either (a) MATH 100 or (b) MATH 116; and two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290. And 3 credits of STAT.

Implementation and evaluation of cost systems for management and decision making. Cost issues include: accumulating and analyzing costs using actual and standard approaches, overhead allocation, and cost estimation. Management topics include: pricing, production and investment decisions, revenue analysis, performance evaluation, management incentive systems, and strategy analysis. [3-0-0] Prerequisite: MGMT 202.

Introduction to the strategic and tactical decisions of operations management as it applies to both service and manufacturing sectors. Topics include process and technology choice, process flow, layout of facilities, capacity and resource planning, inventory control, lean systems, quality management, and quality control. [3-0-0] Prerequisite: Either (a) MATH 100 or (b) MATH 116; and two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290. And 3 credits of STAT.

Introduction to the strategic and tactical decisions of operations management as it applies to both service and manufacturing sectors. Topics include process and technology choice, process flow, layout of facilities, capacity and resource planning, inventory control, lean systems, quality management, and quality control. [3-0-0] Prerequisite: Either (a) MATH 100 or (b) MATH 116; and two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290. And 3 credits of STAT.

Introduction to the strategic and tactical decisions of operations management as it applies to both service and manufacturing sectors. Topics include process and technology choice, process flow, layout of facilities, capacity and resource planning, inventory control, lean systems, quality management, and quality control. [3-0-0] Prerequisite: Either (a) MATH 100 or (b) MATH 116; and one of MGMT 202, MGMT 230, MGMT 240, MGMT 250, MGMT 290. Corequisite: MGMT 201.

Introduction to the strategic and tactical decisions of operations management as it applies to both service and manufacturing sectors. Topics include process and technology choice, process flow, layout of facilities, capacity and resource planning, inventory control, lean systems, quality management, and quality control. [3-0-0] Prerequisite: Either (a) MATH 100 or (b) MATH 116; and one of MGMT 202, MGMT 230, MGMT 240, MGMT 250, MGMT 290. Corequisite: MGMT 201.
Develops an understanding of the diverse areas in human resources management. Examines analysis, planning, staffing, performance evaluation, compensation, training and development, labor relations, employee safety, health, human resource management, and an understanding of cultural differences and its impact on the organization. [3-0-0] Prerequisite: MGMT 230 and third-year standing.

Lecture In Person Learning Mon 2:00 p.m. - 5:00 p.m.

Explores the latest concepts and/or issues in information technology management (ITM). Data warehousing, IS security, IT auditing and control, global ITM, and other related topics within the field of ITM. Not intended for topics routinely covered in the curriculum. Credit will be granted for only one of MGMT 429 or MGMT 329 when the subject matter is of the same nature. Prerequisite: Fourth-year standing.

Lecture In Person Learning Tue Thu 4:00 p.m. - 6:00 p.m.

Explores the latest concepts and/or issues in information technology management (ITM). Data warehousing, IS security, IT auditing and control, global ITM, and other related topics within the field of ITM. Not intended for topics routinely covered in the curriculum. Credit will be granted for only one of MGMT 429 or MGMT 329 when the subject matter is of the same nature. Prerequisite: Fourth-year standing.

Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

Lecture In Person Learning Tue Thu 2:00 p.m. - 5:00 p.m.

Examine a marketing perspective the process of conceptualizing, designing, developing, launching and ongoing marketing of new products or services. Topics include reasons for new product failure, barriers to new product adoption, stage gates and project planning tools, idea generation, design trade-off decisions, concept testing, and forecasting. [3-0-0] Prerequisite: All of MGMT 220, MGMT 290. Third-year standing.

Workshop In Person Learning Tue 3:30 p.m. - 5:00 p.m.

Examine a marketing perspective the process of conceptualizing, designing, developing, launching and ongoing marketing of new products or services. Topics include reasons for new product failure, barriers to new product adoption, stage gates and project planning tools, idea generation, design trade-off decisions, concept testing, and forecasting. [3-0-0] Prerequisite: All of MGMT 220, MGMT 290. Third-year standing.

Workshop In Person Learning Thu 2:00 p.m. - 5:00 p.m.

Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignment with organizational mission, how strategic decisions affect the organization structures, processes, culture, resources (both human and financial), and management styles, and how the organization can manage the change process. [3-0-0] Prerequisite: All of MGMT 230, MGMT 360. Third-year standing.

Lecture In Person Learning Mon 8:00 a.m. - 9:30 a.m.

Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignment with organizational mission, how strategic decisions affect the organization structures, processes, culture, resources (both human and financial), and management styles, and how the organization can manage the change process. [3-0-0] Prerequisite: All of MGMT 230, MGMT 360. Third-year standing.

Workshop In Person Learning Thu 5:00 p.m. - 6:30 p.m.

Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignment with organizational mission, how strategic decisions affect the organization structures, processes, culture, resources (both human and financial), and management styles, and how the organization can manage the change process. [3-0-0] Prerequisite: All of MGMT 230, MGMT 360. Third-year standing.

Workshop In Person Learning Thu 11:00 a.m. - 12:30 p.m.

Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignment with organizational mission, how strategic decisions affect the organization structures, processes, culture, resources (both human and financial), and management styles, and how the organization can manage the change process. [3-0-0] Prerequisite: All of MGMT 230, MGMT 360. Third-year standing.

Workshop In Person Learning Thu 11:00 a.m. - 12:30 p.m.

Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignment with organizational mission, how strategic decisions affect the organization structures, processes, culture, resources (both human and financial), and management styles, and how the organization can manage the change process. [3-0-0] Prerequisite: All of MGMT 230, MGMT 360. Third-year standing.

Workshop In Person Learning Fri 2:00 p.m. - 3:30 p.m.

Lecture In Person Learning Mon 11:00 a.m. - 12:30 p.m.

Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.
Understanding of self and the capacity to be in caring relation with others (individual, groups, populations, communities). Reflecting on personal perspectives and experiences to understand ones own attitudes, beliefs, and values. Pass/Fail [1.5-0-0] Prerequisite: First-year BSN-O Standing Corequisite: All of NRSG 111, NRSG 112.

Lecture In Person Learning Tue 8:00 a.m. - 9:30 a.m.

Understanding of self and the capacity to be in caring relation with others (individual, groups, populations, communities). Reflecting on personal perspectives and experiences to understand ones own attitudes, beliefs, and values. Pass/Fail [1.5-0-0] Prerequisite: First-year BSN-O Standing Corequisite: All of NRSG 111, NRSG 112.

Lecture In Person Learning Tue 9:30 a.m. - 11:00 a.m.

Understanding of self and the capacity to be in caring relation with others (individual, groups, populations, communities). Reflecting on personal perspectives and experiences to understand ones own attitudes, beliefs, and values. Pass/Fail [1.5-0-0] Prerequisite: First-year BSN-O Standing Corequisite: All of NRSG 111, NRSG 112.

Lecture In Person Learning Wed 8:00 a.m. - 9:30 a.m.

Understanding of self and the capacity to be in caring relation with others (individual, groups, populations, communities). Reflecting on personal perspectives and experiences to understand ones own attitudes, beliefs, and values. Pass/Fail [1.5-0-0] Prerequisite: First-year BSN-O Standing Corequisite: All of NRSG 111, NRSG 112.

Lecture In Person Learning Wed 9:30 a.m. - 11:00 a.m.

Understanding of self and the capacity to be in caring relation with others (individual, groups, populations, communities). Reflecting on personal perspectives and experiences to understand ones own attitudes, beliefs, and values. Pass/Fail [1.5-0-0] Prerequisite: First-year BSN-O Standing Corequisite: All of NRSG 111, NRSG 112.

Lecture In Person Learning Fri 8:00 a.m. - 9:30 a.m.

Understanding of self and the capacity to be in caring relation with others (individual, groups, populations, communities). Reflecting on personal perspectives and experiences to understand ones own attitudes, beliefs, and values. Pass/Fail [1.5-0-0] Prerequisite: First-year BSN-O Standing Corequisite: All of NRSG 111, NRSG 112.

Seminar In Person Learning Fri 9:30 a.m. - 11:00 a.m.

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133 and Second-Year BSN-O Standing Corequisite: All of NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231.

Seminar In Person Learning Tue 8:00 a.m. - 9:30 a.m.

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133 and Second-Year BSN-O Standing Corequisite: All of NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231.

Seminar In Person Learning Wed 8:00 a.m. - 9:30 a.m.

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133 and Second-Year BSN-O Standing Corequisite: All of NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231.

Seminar In Person Learning Thu 8:00 a.m. - 9:30 a.m.

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133 and Second-Year BSN-O Standing Corequisite: All of NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231.

Seminar In Person Learning Fri 8:00 a.m. - 9:30 a.m.

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133 and Second-Year BSN-O Standing Corequisite: All of NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231.

Laboratory In Person Learning Tue 10:00 a.m. - 1:00 p.m.

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133 and Second-Year BSN-O Standing Corequisite: All of NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231.

Laboratory In Person Learning Tue 10:00 a.m. - 1:00 p.m.

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133 and Second-Year BSN-O Standing Corequisite: All of NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231.

Laboratory In Person Learning Wed 10:00 a.m. - 1:00 p.m.

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133 and Second-Year BSN-O Standing Corequisite: All of NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231.

Laboratory In Person Learning Thu 10:00 a.m. - 1:00 p.m.

Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133 and Second-Year BSN-O Standing Corequisite: All of NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231.

Laboratory In Person Learning Fri 10:00 a.m. - 1:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>NRSG 201-07</td>
<td>Nursing Lab Practice II</td>
<td>1.00</td>
<td>Develops evidence-informed nursing practice through seminar, laboratory, and simulation. Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Laboratory In Person Learning Fri 10:00 a.m. - 1:00 p.m.</td>
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<tr>
<td>NRSG 201-08</td>
<td>Nursing Lab Practice II</td>
<td>1.00</td>
<td>Develops evidence-informed nursing practice through seminar, laboratory, and simulation. Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Laboratory In Person Learning Fri 10:00 a.m. - 1:00 p.m.</td>
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<tr>
<td>NRSG 201-10</td>
<td>Nursing Lab Practice II</td>
<td>1.00</td>
<td>Develops evidence-informed nursing practice through seminar, laboratory, and simulation. Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Laboratory In Person Learning Tue 10:00 a.m. - 1:00 p.m.</td>
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<tr>
<td>NRSG 201-11</td>
<td>Nursing Lab Practice II</td>
<td>1.00</td>
<td>Develops evidence-informed nursing practice through seminar, laboratory, and simulation. Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Laboratory In Person Learning Wed 10:00 a.m. - 1:00 p.m.</td>
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<tr>
<td>NRSG 201-12</td>
<td>Nursing Lab Practice II</td>
<td>1.00</td>
<td>Develops evidence-informed nursing practice through seminar, laboratory, and simulation. Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Laboratory In Person Learning Thu 10:00 a.m. - 1:00 p.m.</td>
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<tr>
<td>NRSG 210-01</td>
<td>Pharmacology for Nursing I</td>
<td>2.00</td>
<td>Principles of pharmacology, including pharmacokinetics and pharmacodynamics of major drug classes using prototype drugs. Develops knowledge and systematic approaches to safely and ethically administer drug therapy. [1.5-0-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSG 201, NRSG 213, NRSG 226, NRSG 236, HINT 231. Lecture In Person Learning Tue 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>NRSG 210-02</td>
<td>Pharmacology for Nursing I</td>
<td>2.00</td>
<td>Principles of pharmacology, including pharmacokinetics and pharmacodynamics of major drug classes using prototype drugs. Develops knowledge and systematic approaches to safely and ethically administer drug therapy. [1.5-0-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSG 201, NRSG 213, NRSG 226, NRSG 236, HINT 231. Lecture In Person Learning Wed 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>NRSG 213-01</td>
<td>Relational Practice III</td>
<td>1.50</td>
<td>Emphasis is on the unique experience of clients and their families in health and illness. Through exploration of relational theories and evidence-informed approaches, students explore strategies to deliver therapeutic, ethical, and holistic care. Pass/Fail [1.5-0-0] Prerequisite: All of NRSG 101, NRSG 126, NRSG 136, NRSG 122, NRSG 123, NRSG 120. and Second-Year BSN-O Standing Corequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Lecture In Person Learning Wed 3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>NRSG 213-02</td>
<td>Relational Practice III</td>
<td>1.50</td>
<td>Emphasis is on the unique experience of clients and their families in health and illness. Through exploration of relational theories and evidence-informed approaches, students explore strategies to deliver therapeutic, ethical, and holistic care. Pass/Fail [1.5-0-0] Prerequisite: All of NRSG 101, NRSG 126, NRSG 136, NRSG 122, NRSG 123, NRSG 120. and Second-Year BSN-O Standing Corequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Lecture In Person Learning Thu 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>NRSG 226-01</td>
<td>Health &amp; Healing II</td>
<td>3.00</td>
<td>Evidence-informed assessment and management of health challenges in both episodic and chronic illness. Concepts will align with NRSG 236 intentional learning activities. [1.5-0-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, HINT 231. Lecture In Person Learning Mon 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>NRSG 226-02</td>
<td>Health &amp; Healing II</td>
<td>3.00</td>
<td>Theory, ethics, and evidence-informed approaches to community health nursing including primary health care, population health, health maintenance and promotion, disease and injury prevention. Exploration of concepts of community- based assessment, planning, intervention and evaluation with community-as-client. [1.5-0-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSG 238. Lecture In Person Learning Mon 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>NRSG 229-01</td>
<td>Mental Health in Nursing</td>
<td>1.50</td>
<td>Evidence-informed assessment and management of mental well-being, assessment and management of episodic and chronic mental health challenges across the life span. Concepts will align with NRSG 239 intentional learning activities. [1.5-0-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSG 239. Lecture In Person Learning Mon 11:00 a.m. - 12:30 p.m.</td>
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<tr>
<td>NRSG 236-P01</td>
<td>Nursing Practice II</td>
<td>1.00</td>
<td>Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, HINT 231. Lecture In Person Learning Fri 9:00 a.m. - 3:00 p.m.</td>
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<tr>
<td>NRSG 236-P02</td>
<td>Nursing Practice II</td>
<td>1.00</td>
<td>Students advance knowledge, skills, and abilities in preparation to practice nursing assessments and safe ethical care in acute care settings. Concepts will align with NRSG 236 intentional learning activities. [0-3-1.5] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226, HINT 231. Lecture In Person Learning Tue 9:00 a.m. - 3:00 p.m.</td>
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<td>NRSG 236-P03</td>
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NRSG_O 236-P01  
NRSG_O  
P14  
Nursing Practice in Community  
WS  
Practicum in community health nursing develops knowledge, skills, and abilities needed to provide safe ethical nursing care within varied community settings with diverse populations. Students will draw on principles of social justice and the social determinants of health to engage in evidence-informed care planning, and documentation. Pass/Fail. [0-6-0]  
Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226. 
Corequisite: NRSG 228.  
In Person Learning  
Tue  
8:00 a.m. - 12:00 p.m.

NRSG_O 236-P02  
NRSG_O  
P15  
Nursing Practice in Community  
WS  
Practicum in community health nursing develops knowledge, skills, and abilities needed to provide safe ethical nursing care within varied community settings with diverse populations. Students will draw on principles of social justice and the social determinants of health to engage in evidence-informed care planning, and documentation. Pass/Fail. [0-6-0]  
Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226. 
Corequisite: NRSG 228.  
In Person Learning  
Tue  
8:00 a.m. - 12:00 p.m.

NRSG_O 236-P03  
NRSG_O  
P16  
Nursing Practice in Community  
WS  
Practicum in community health nursing develops knowledge, skills, and abilities needed to provide safe ethical nursing care within varied community settings with diverse populations. Students will draw on principles of social justice and the social determinants of health to engage in evidence-informed care planning, and documentation. Pass/Fail. [0-6-0]  
Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226. 
Corequisite: NRSG 228.  
In Person Learning  
Wed  
8:00 a.m. - 12:00 p.m.

NRSG_O 236-P04  
NRSG_O  
P17  
Nursing Practice in Community  
WS  
Practicum in community health nursing develops knowledge, skills, and abilities needed to provide safe ethical nursing care within varied community settings with diverse populations. Students will draw on principles of social justice and the social determinants of health to engage in evidence-informed care planning, and documentation. Pass/Fail. [0-6-0]  
Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226. 
Corequisite: NRSG 228.  
In Person Learning  
Wed  
8:00 a.m. - 12:00 p.m.

NRSG_O 236-P05  
NRSG_O  
P18  
Nursing Practice in Community  
WS  
Practicum in community health nursing develops knowledge, skills, and abilities needed to provide safe ethical nursing care within varied community settings with diverse populations. Students will draw on principles of social justice and the social determinants of health to engage in evidence-informed care planning, and documentation. Pass/Fail. [0-6-0]  
Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226. 
Corequisite: NRSG 228.  
In Person Learning  
Thu  
8:00 a.m. - 12:00 p.m.

NRSG_O 236-P06  
NRSG_O  
P19  
Nursing Practice in Community  
WS  
Practicum in community health nursing develops knowledge, skills, and abilities needed to provide safe ethical nursing care within varied community settings with diverse populations. Students will draw on principles of social justice and the social determinants of health to engage in evidence-informed care planning, and documentation. Pass/Fail. [0-6-0]  
Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226. 
Corequisite: NRSG 228.  
In Person Learning  
Fri  
8:00 a.m. - 12:00 p.m.

NRSG_O 236-P07  
NRSG_O  
P20  
Nursing Practice in Community  
WS  
Practicum in community health nursing develops knowledge, skills, and abilities needed to provide safe ethical nursing care within varied community settings with diverse populations. Students will draw on principles of social justice and the social determinants of health to engage in evidence-informed care planning, and documentation. Pass/Fail. [0-6-0]  
Prerequisite: All of NRSG 201, NRSG 210, NRSG 213, NRSG 226. 
Corequisite: NRSG 228.  
In Person Learning  
Fri  
8:00 a.m. - 12:00 p.m.
NRSG 238-P06  
NRSG 239-P01  
P01 Nursing Practice in Community  
W1  
Practicum in community health nursing develops knowledge, skills, and abilities needed to provide safe ethical nursing care. Students will draw on principles of social justice and the social determinants of health to engage in evidenced-based practice, community assessments, health promotion/illness prevention activities, and health teaching. Pass/Fail. [0-4-0]  
Prerequisite: All of BIOL 131, BIOL 133, and Second-Year BSN-O Standing Corequisite: NRSG 228.  
Experiential  
In Person Learning  
Fri  
8:00 a.m. - 12:00 p.m.

NRSG 239-P02  
NRSG 239-P05  
P02 Nursing Practice in Mental Health  
W1  
Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSG 229.  
Pass/Fail. [0-6-0]  
Prerequisite: All of BIOL 131, BIOL 133, and Second-Year BSN-O Standing Corequisite: NRSG 229.  
Experiential  
In Person Learning  
Tue  
8:00 a.m. - 12:00 p.m.

NRSG 239-P05  
NRSG 239-P07  
P05 Nursing Practice in Mental Health  
W1  
Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSG 229.  
Pass/Fail. [0-6-0]  
Prerequisite: All of BIOL 131, BIOL 133, and Second-Year BSN-O Standing Corequisite: NRSG 229.  
Experiential  
In Person Learning  
Thu  
8:00 a.m. - 12:00 p.m.

NRSG 239-P08  
NRSG 301-001  
P08 Nursing Practice in Mental Health  
W1  
Practicum in mental health provides opportunities to acquire knowledge, skills, and attitudes to promote wellness, through safe, ethical nursing care, in a variety of contexts. The focus will be presenting a mental well-being project to a specific target population. Other experiences will provide students an understanding of the mental health nursing process. Intentional learning activities integrate evidence-informed concepts from NRSG 229.  
Pass/Fail. [0-6-0]  
Prerequisite: All of BIOL 131, BIOL 133, and Second-Year BSN-O Standing Corequisite: NRSG 229.  
Experiential  
In Person Learning  
Fri  
8:00 a.m. - 12:00 p.m.

NRSG 301-001  
NRSG 301-010  
001 Nursing Lab Practice IV  
W2  
Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. [0-2-1.5]  
Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Third-year BSN-O Standing Corequisite: All of NRSG 326, NRSG 336.  
Seminar  
In Person Learning  
Mon  
11:00 a.m. - 12:30 p.m.

NRSG 301-010  
NRSG 301-011  
L01 Nursing Lab Practice IV  
W1  
Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. [0-2-1.5]  
Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Third-year BSN-O Standing Corequisite: All of NRSG 326, NRSG 336.  
Laboratory  
In Person Learning  
Mon  
1:00 p.m. - 3:00 p.m.

NRSG 301-011  
NRSG 301-012  
L02 Nursing Lab Practice IV  
W1  
Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. [0-2-1.5]  
Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Third-year BSN-O Standing Corequisite: All of NRSG 326, NRSG 336.  
Laboratory  
In Person Learning  
Mon  
1:00 p.m. - 3:00 p.m.

NRSG 301-013  
NRSG 301-014  
L03 Nursing Lab Practice IV  
W1  
Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. [0-2-1.5]  
Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Third-year BSN-O Standing Corequisite: All of NRSG 326, NRSG 336.  
Laboratory  
In Person Learning  
Mon  
3:30 p.m. - 5:30 p.m.

NRSG 301-014  
NRSG 302-001  
L04 Nursing Lab Practice IV  
W3  
Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. [0-2-1.5]  
Prerequisite: All of NRSG 301, NRSG 336, HINT 231, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSG 327, NRSG 337.  
Laboratory  
In Person Learning  
Mon  
3:30 p.m. - 5:30 p.m.

NRSG 302-001  
NRSG 302-010  
001 Nursing Lab Practice V  
W1  
Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. [0-2-1.5]  
Prerequisite: All of NRSG 301, NRSG 336, HINT 231, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSG 327, NRSG 337.  
Laboratory  
In Person Learning  
Mon  
11:00 a.m. - 12:30 p.m.

NRSG 302-010  
NRSG 302-011  
L01 Nursing Lab Practice V  
W1  
Develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. [0-2-1.5]  
Prerequisite: All of NRSG 301, NRSG 336, HINT 231, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSG 327, NRSG 337.  
Laboratory  
In Person Learning  
Mon  
1:00 p.m. - 3:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Hours</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSG 326</td>
<td>Examination of the philosophy, principles, and evidence-informed practice of a palliative approach to the care of patient/clients with life-limiting chronic illness. Isolated patient care, including end of life and bereavement. This course will pay special attention to ethics and older adults. [3-0-0] Prerequisite: Third-Year BSN-O Standing</td>
<td>0-2-1.5</td>
<td>Laboratory</td>
<td>Mon 3:30 p.m. - 5:30 p.m.</td>
</tr>
<tr>
<td>NRSG 337</td>
<td>Examination of the philosophy, principles, and evidence-informed practice of a palliative approach to the care of patient/clients with life-limiting chronic illness. Isolated patient care, including end of life and bereavement. This course will pay special attention to ethics and older adults. [3-0-0] Prerequisite: Third-Year BSN-O Standing</td>
<td>0-2-1.5</td>
<td>Laboratory</td>
<td>Mon 3:30 p.m. - 5:30 p.m.</td>
</tr>
<tr>
<td>NRSG 338</td>
<td>Evidence-informed assessment and management of complex health challenges in both episodic and chronic illness utilizing a case study approach. [3-0-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232, and Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 336</td>
<td>0-2-1.5</td>
<td>Lecture</td>
<td>Tue 2:00 p.m. - 5:00 p.m.</td>
</tr>
</tbody>
</table>

NRSG 326 develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSG 327, NRSG 337. Laboratory In Person Learning Mon 3:30 p.m. - 5:30 p.m.

NRSG 327 develops evidence-informed nursing practice through seminar, laboratory learning, and simulation. Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute surgical settings. [0-2-1.5] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: All of NRSG 327, NRSG 337. Laboratory In Person Learning Mon 3:30 p.m. - 5:30 p.m.

NRSG 330-001 Palliative Approach to Chronic Illness [WS] 5 Lecture In Person Learning Tue 11:00 a.m. - 2:00 p.m.

NRSG 330-002 Palliative Approach to Chronic Illness [WS] 5 Lecture In Person Learning Tue 2:00 p.m. - 5:00 p.m.

Understanding and respecting the complexities of difference and diversity with clients in nursing practice. A critical exploration of cultural identities and racism from an Indigenous perspective, facilitates development of evidence-informed practice for culturally safe care for all peoples in a variety of contexts (health care, research, institutions, and society). Pasc/Fal: [3-0-0] Prerequisite: Third-Year BSN-O Standing Lecture In Person Learning Tue 11:00 a.m. - 2:00 p.m.

Understanding and respecting the complexities of difference and diversity with clients in nursing practice. A critical exploration of cultural identities and racism from an Indigenous perspective, facilitates development of evidence-informed practice for culturally safe care for all peoples in a variety of contexts (health care, research, institutions, and society). Pasc/Fal: [3-0-0] Prerequisite: Third-Year BSN-O Standing Lecture In Person Learning Tue 11:00 a.m. - 2:00 p.m.

Evidence-informed assessment and management of complex health challenges in both episodic and chronic illness utilizing a case study approach. [3-0-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232, and Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 336 Lecture In Person Learning Mon 8:00 a.m. - 11:00 a.m.

Continuation of NRSG 336. Evidence-informed assessment and management of complex health challenges in both episodic and chronic illness utilizing a case study approach. [3-0-0] over 6 weeks) Prerequisite: All of NRSG 301, NRSG 310, NRSG 326, NRSG 336, HINT 331. Corequisite: All of NRSG 302, NRSG 337 Lecture In Person Learning Mon 8:00 a.m. - 11:00 a.m.

Nursing within a health promotion framework in both community and acute care settings. Evidence-informed guidelines for care of the childbearing family during pregnancy, labour, birth, and postpartum will be drawn on to inform assessment and management of holistic, ethical care. Concepts will align with NRSG 338 intentional learning activities. Restricted to students in the Bachelor of Science in Nursing. [3-0-0] over 6 weeks] Lecture In Person Learning Mon 8:00 a.m. - 11:00 a.m.

Nursing within a health promotion framework in both community and acute care settings. Evidence-informed guidelines for care of the childbearing family during pregnancy, labour, birth, and postpartum will be drawn on to inform assessment and management of holistic, ethical care. Concepts will align with NRSG 338 intentional learning activities. Restricted to students in the Bachelor of Science in Nursing. [3-0-0] over 6 weeks] Lecture In Person Learning Mon 8:00 a.m. - 11:00 a.m.

Child health nursing within a health promotion framework in both community and acute care settings. Family-centered care and interprofessional collaboration will be examined with a focus on understanding the diversity and unique needs of both children and families to inform holistic, ethical care. Concepts will align with NRSG 339 intentional learning activities. Restricted to students in the Bachelor of Science in Nursing. [3-0-0] over 6 weeks] Lecture In Person Learning Mon 8:00 a.m. - 11:00 a.m.

Child health nursing within a health promotion framework in both community and acute care settings. Family-centered care and interprofessional collaboration will be examined with a focus on understanding the diversity and unique needs of both children and families to inform holistic, ethical care. Concepts will align with NRSG 339 intentional learning activities. Restricted to students in the Bachelor of Science in Nursing. [3-0-0] over 6 weeks] Lecture In Person Learning Mon 8:00 a.m. - 11:00 a.m.

This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision making framework. Pasc/Fal: [0-16-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. and Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 336. Experiential In Person Learning Tue 7:00 a.m. - 3:00 p.m.

This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision making framework. Pasc/Fal: [0-16-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. and Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 336. Experiential In Person Learning Tue 7:00 a.m. - 3:00 p.m.

This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision making framework. Pasc/Fal: [0-16-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. and Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 336. Experiential In Person Learning Tue 7:00 a.m. - 3:00 p.m.
This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision-making framework. 

**Prerequisite:** All of NRSG 301, NRSG 326. Third-year BSN-O Standing. Corequisite: All of NRSG 302, NRSG 327.

**Experiential In Person Learning**

**Tue Wed**

**7:00 a.m. - 3:00 p.m.**
This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision-making framework. Pass/Fail. [0-16-0] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336. Third-year BSN-O Standing. Corequisite: All of NRSG 302, NRSG 337.

In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision-making framework. Pass/Fail. [0-16-0] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336. Third-year BSN-O Standing. Corequisite: All of NRSG 302, NRSG 337.

In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision-making framework. Pass/Fail. [0-16-0] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336. Third-year BSN-O Standing. Corequisite: All of NRSG 302, NRSG 337.

In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision-making framework. Pass/Fail. [0-16-0] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336. Third-year BSN-O Standing. Corequisite: All of NRSG 302, NRSG 337.

In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision-making framework. Pass/Fail. [0-16-0] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336. Third-year BSN-O Standing. Corequisite: All of NRSG 302, NRSG 337.

In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision-making framework. Pass/Fail. [0-16-0] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336. Third-year BSN-O Standing. Corequisite: All of NRSG 302, NRSG 337.

In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision-making framework. Pass/Fail. [0-16-0] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336. Third-year BSN-O Standing. Corequisite: All of NRSG 302, NRSG 337.

In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision-making framework. Pass/Fail. [0-16-0] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336. Third-year BSN-O Standing. Corequisite: All of NRSG 302, NRSG 337.

In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision-making framework. Pass/Fail. [0-16-0] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336. Third-year BSN-O Standing. Corequisite: All of NRSG 302, NRSG 337.

In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision-making framework. Pass/Fail. [0-16-0] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336. Third-year BSN-O Standing. Corequisite: All of NRSG 302, NRSG 337.

In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

This early immersion practicum develops advanced knowledge, skills, and abilities for evidence-informed patient care with adults experiencing episodic and chronic health challenges. Ethical dilemmas common to this area of practice will be explored within an ethical decision-making framework. Pass/Fail. [0-16-0] Prerequisite: All of NRSG 301, NRSG 326, NRSG 336. Third-year BSN-O Standing. Corequisite: All of NRSG 302, NRSG 337.

In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.
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<th>Course Code</th>
<th>Course Title</th>
<th>Course Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSG_O 338-P10</td>
<td>Nursing Practice with Childbearing Families</td>
<td>This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety of child health care contexts. Intentional learning activities integrate knowledge from NRSG 328. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-0-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 328. Experiential In Person Learning Fri 7:00 a.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>NRSG_O 339-P01</td>
<td>Nursing Practice in Child Health</td>
<td>This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety of child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-0-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329. Experiential In Person Learning Tue 7:00 a.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>NRSG_O 339-P02</td>
<td>Nursing Practice in Child Health</td>
<td>This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety of child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-0-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329. Experiential In Person Learning Wed 7:00 a.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>NRSG_O 339-P03</td>
<td>Nursing Practice in Child Health</td>
<td>This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety of child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-0-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329. Experiential In Person Learning Thu 7:00 a.m. - 3:00 p.m.</td>
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<tr>
<td>NRSG_O 339-P04</td>
<td>Nursing Practice in Child Health</td>
<td>This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety of child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-0-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329. Experiential In Person Learning Fri 7:00 a.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>NRSG_O 339-P05</td>
<td>Nursing Practice in Child Health</td>
<td>This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety of child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-0-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329. Experiential In Person Learning Tue 7:00 a.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>NRSG_O 339-P06</td>
<td>Nursing Practice in Child Health</td>
<td>This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety of child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-0-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329. Experiential In Person Learning Wed 7:00 a.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>NRSG_O 339-P07</td>
<td>Nursing Practice in Child Health</td>
<td>This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety of child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-0-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329. Experiential In Person Learning Thu 7:00 a.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>NRSG_O 339-P08</td>
<td>Nursing Practice in Child Health</td>
<td>This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed nursing care in a variety of child health care contexts. Intentional learning activities integrate knowledge from NRSG 329. Ethical considerations common to this area of practice will be explored. Restricted to students in the Bachelor of Science in Nursing. Pass/Fail. [0-0-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329. Experiential In Person Learning Fri 7:00 a.m. - 3:00 p.m.</td>
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NRSG_O 421-001 | Capstone Review | A comprehensive review of entry-level nursing knowledge, skills, and abilities in preparation for writing the nursing entry to practice regulatory examination. Through simulation and interactive case studies participants will have opportunities to apply previous learning and clinical reasoning to situations commonly seen in the first year of registered nursing practice. [3-0-0] Prerequisite: Fourth-Year BSN-O Standing Corequisite: All of NRSG 422, NRSG 432. Lecture In Person Learning Tue Thu 7:00 a.m. - 3:00 p.m. |

NRSG_O 422-001 | Leadership | Nursing leadership at various levels of the healthcare system with an emphasis on leadership, decision-making, and change theories. Consider the impact of trends, issues, and ethics on leadership in nursing. [3-0-0] Prerequisite: Fourth-Year BSN-O Standing Corequisite: All of NRSG 421, NRSG 432. Lecture In Person Learning Wed Fri 7:00 a.m. - 3:00 p.m. |

NRSG_O 423-001 | Advanced Clinical Reasoning for Care of the Child | Theory and research for evidence-informed practice for the assessment and care of the complex, unstable, acutely ill patient. Understanding challenging etiology, pathophysiology, manifestations, diagnostics and intervention to inform advanced clinical reasoning. [3-0-0] Prerequisite: NRSG 421, Fourth-Year BSN-O Standing Corequisite: All of NRSG 422, NRSG 432. Lecture In Person Learning Tue Thu 7:00 a.m. - 3:00 p.m. |

NRSG_O 431-P01 | Capstone Acute Care Preceptorship | This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee. Experiential In Person Learning Fri 7:00 a.m. - 3:00 p.m. |

NRSG_O 431-P02 | Capstone Acute Care Preceptorship | This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee. Experiential In Person Learning Wed 7:00 a.m. - 3:00 p.m. |

NRSG_O 431-P03 | Capstone Acute Care Preceptorship | This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee. Experiential In Person Learning Thu 7:00 a.m. - 3:00 p.m. |

NRSG_O 431-P04 | Capstone Acute Care Preceptorship | This specialty practicum develops beginning knowledge, skills, and abilities to provide evidence-informed evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee. Experiential In Person Learning Fri 7:00 a.m. - 3:00 p.m. |
NRSG 431-P05 NRSG_O P05 Capstone Acute Care Preceptorship W1 Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, and the recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged

NRSG 431-P06 NRSG_O P06 Capstone Acute Care Preceptorship W1 Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 8 weeks] Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, and the recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged

NRSG 432-P01 NRSG_O P01 Capstone Community Project W1 The practice course provides opportunity to experience evidenced-informed leadership through application of concepts such as influencing and managing change within the context of emerging global health issues and trends. [72 hours of practice and 24 hours of seminar]. Pass/Fail. [0-8-2] Prerequisite: Fourth-Year BSN-O Standing Corequisite: NRSG 422. Experiential In Person Learning Mon 11.00 a.m. - 2:00 p.m.

NRSG 432-P02 NRSG_O P02 Capstone Community Project W1 The practice course provides opportunity to experience evidenced-informed leadership through application of concepts such as influencing and managing change within the context of emerging global health issues and trends. [72 hours of practice and 24 hours of seminar]. Pass/Fail. [0-8-2] Prerequisite: Fourth-Year BSN-O Standing Corequisite: NRSG 422. Experiential In Person Learning Mon 11.00 a.m. - 2:00 p.m.

NRSG 434_B_P01 NRSG_O B B_P01 Practice Electives W1 Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged

NRSG 434_B_P02 NRSG_O B B_P02 Practice Electives W1 Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged

NRSG 434_B_P03 NRSG_O B B_P03 Practice Electives W1 Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged

NRSG 434_B_P04 NRSG_O B B_P04 Practice Electives W1 Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged

NRSG 434_B_P05 NRSG_O B B_P05 Practice Electives W1 Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged

NRSG 434_B_P06 NRSG_O B B_P06 Practice Electives W1 Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged

NRSG 434_B_P13 NRSG_O B B_P13 Practice Electives W1-2 Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged

NRSG 434_B_P14 NRSG_O B B_P14 Practice Electives W1-2 Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice in varied contexts*. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Pass/Fail. *Dependent on availability. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged

NRSG 434_B_P15 NRSG_O B B_P15 Practice Electives W1-2 Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, NRSG 442. Experiential In Person Learning Arranged Arranged

NRSG 437_B_P01 NRSG_O B B_P01 Mental Health Preceptorship W1 Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks]. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432, NRSG 442. Experiential In Person Learning Arranged Arranged
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Hours</th>
<th>Type</th>
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<tr>
<td>NRSG 437-B</td>
<td>Mental Health Preceptorship</td>
<td>W1</td>
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<tr>
<td>NRSG 437-B</td>
<td>Community Health Nursing Preceptorship</td>
<td>P1</td>
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<td>In Person Learning</td>
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<tr>
<td>NRSG 437-B</td>
<td>Mental Health Preceptorship</td>
<td>W2</td>
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<td>NRSG 437-B</td>
<td>Mental Health Preceptorship</td>
<td>W3</td>
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<td>In Person Learning</td>
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<td>NRSG 437-B</td>
<td>Mental Health Preceptorship</td>
<td>W4</td>
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<td>In Person Learning</td>
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</table>

Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. Preceptored advanced practice experience(s) provides opportunities for evidence-informed practice with the client experiencing challenges with mental health. Application of knowledge, skills, and abilities from related advanced nursing theory course(s). Opportunity to work with interprofessional teams in a variety of settings. 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<table>
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<tr>
<th>Course Code</th>
<th>CRN</th>
<th>Title</th>
<th>Description</th>
<th>Days</th>
<th>Time</th>
<th>Location</th>
<th>Credits</th>
<th>Co/Pre-Reqs</th>
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<tbody>
<tr>
<td>NRSG_O 440-B_P01</td>
<td>B_P01</td>
<td>Research Preceptorship</td>
<td>WS Preceptored advanced practice course provides the opportunity to engage in research with a faculty supervisor. Application of knowledge, skills, and abilities in nursing and health related research. Pass/Fail. [4 credits 120 hours over 4 weeks or 8 credits 240 hours over 8 weeks] Prerequisite: securement of a faculty supervisor and research elective (390) as determined by faculty supervisor. Understanding the predominant approaches in qualitative research. Knowledge and skills in conducting qualitative research, including methodology, research design, data collection, data analysis, and communication of findings. [3-0-0] Co-requisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing.</td>
<td>Expansional</td>
<td></td>
<td>Online Learning</td>
<td>Wed</td>
<td>3:30 p.m. - 5:00 p.m.</td>
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<tr>
<td>NRSG_O 506-001</td>
<td>NRSG_O</td>
<td>Qualitative Research</td>
<td>WS Examines issues and trends in nursing education including implications for the teaching practices of nurse educators. [3-0-0] Co-requisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing.</td>
<td>Lecture</td>
<td>Online Learning</td>
<td>Wed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NRSG_O 522-001</td>
<td>NRSG_O</td>
<td>Introduction to Nursing Education</td>
<td>WS Examines issues and trends in nursing leadership, including implications for management in the Canadian healthcare context. [3-0-0] Co-requisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing.</td>
<td>Lecture</td>
<td>Online Learning</td>
<td>Arranged</td>
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<tr>
<td>NRSG_O 542-001</td>
<td>NRSG_O</td>
<td>Introduction to Nursing Leadership and Manage WS</td>
<td>WS Examines issues and trends in nursing leadership, including implications for management in the Canadian healthcare context. [3-0-0] Co-requisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing.</td>
<td>Lecture</td>
<td>Online Learning</td>
<td>Arranged</td>
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</tr>
<tr>
<td>NRSG_O 580-001</td>
<td>NRSG_O</td>
<td>Philosophy of Evidence in Nursing</td>
<td>WS Philosophical foundation upon which students can create informed claims about knowledge, theory and evidence regarding phenomena of concern to the discipline. This course is restricted to students in the PhD in Nursing program (PHD-O, NRSG) unless permission is given by the program coordinator. Prerequisite: NRSG 500.</td>
<td>Independent Study</td>
<td>Online Learning</td>
<td>Tue</td>
<td>10:00 a.m. - 12:00 p.m.</td>
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<tr>
<td>NRSG_O 598-001</td>
<td>NRSG_O</td>
<td>Scholarly Project</td>
<td>WS Examines issues and trends in nursing leadership, including implications for management in the Canadian healthcare context. [3-0-0] Co-requisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing.</td>
<td>Independent Study</td>
<td>Online Learning</td>
<td>Arranged</td>
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<tr>
<td>NRSG_O 599-101</td>
<td>NRSG_O</td>
<td>Research Thesis</td>
<td>WS Examines issues and trends in nursing leadership, including implications for management in the Canadian healthcare context. [3-0-0] Co-requisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing.</td>
<td>Thesis</td>
<td>Online Learning</td>
<td>Arranged</td>
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<tr>
<td>NRSG_O 599-102</td>
<td>NRSG_O</td>
<td>Research Thesis</td>
<td>WS Examines issues and trends in nursing leadership, including implications for management in the Canadian healthcare context. [3-0-0] Co-requisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing.</td>
<td>Thesis</td>
<td>Online Learning</td>
<td>Arranged</td>
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<tr>
<td>NRSG_O 601-101</td>
<td>NRSG_O</td>
<td>Doctoral Seminar</td>
<td>WS Examines issues and trends in nursing leadership, including implications for management in the Canadian healthcare context. [3-0-0] Co-requisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing.</td>
<td>Seminar</td>
<td>Online Learning</td>
<td>Wed (Alternate weeks)</td>
<td>8:00 a.m. - 9:30 a.m.</td>
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<tr>
<td>NRSG_O 699-001</td>
<td>NRSG_O</td>
<td>Doctoral Dissertation</td>
<td>WS Examines issues and trends in nursing leadership, including implications for management in the Canadian healthcare context. [3-0-0] Co-requisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing.</td>
<td>Thesis</td>
<td>Online Learning</td>
<td>Arranged</td>
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<tr>
<td>NSWL_O 332-001</td>
<td>NSWL_O</td>
<td>Language Practice and Pedagogy: Creative, Conv WS</td>
<td>WS Intensive language immersion class demonstrating, in and through practice, traditional Syilx visual arts. The language of instruction is Nsyilxcn. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<tr>
<td>NSWL_O 332-011</td>
<td>NSWL_O</td>
<td>Language Applications: Literature and Perform WS</td>
<td>WS Emphasis on the language domains of literature and performing arts, and a diverse range of language learning skills that advance competency in conversational fluency, pronunciation, comprehension, vocabulary, oral traditions, literacy, grammatical understanding, and the cultural contextualization of language use in these domains. The language of instruction is Nsyilxcn. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Arranged</td>
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</tr>
<tr>
<td>NSWL_O 352-011</td>
<td>NSWL_O</td>
<td>Language Applications: Literature and Perform WS</td>
<td>WS Emphasis on the language domains of literature and performing arts, and a diverse range of language learning skills that advance competency in conversational fluency, pronunciation, comprehension, vocabulary, oral traditions, literacy, grammatical understanding, and the cultural contextualization of language use in these domains. The language of instruction is Nsyilxcn. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<tr>
<td>NSWL_O 352-011</td>
<td>NSWL_O</td>
<td>Language Applications: Literature and Perform WS</td>
<td>WS Emphasis on the language domains of literature and performing arts, and a diverse range of language learning skills that advance competency in conversational fluency, pronunciation, comprehension, vocabulary, oral traditions, literacy, grammatical understanding, and the cultural contextualization of language use in these domains. The language of instruction is Nsyilxcn. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<tr>
<td>NSWL_O 439-001</td>
<td>NSWL_O</td>
<td>Capstone: Language Immersion</td>
<td>WS Project designed to provide students an intensive language immersion experience on a specific topic or domain. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program. Corequisite: INDG 499.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<tr>
<td>NSWL_O 439-011</td>
<td>NSWL_O</td>
<td>Capstone: Language Immersion</td>
<td>WS Project designed to provide students an intensive language immersion experience on a specific topic or domain. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program. Corequisite: INDG 499.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<tr>
<td>PHEL_O 111-001</td>
<td>PHEL_O</td>
<td>Introduction to Philosophy I</td>
<td>WS Introduction to outstanding philosophers and their systems. Ethics, political philosophy, metaphysics, and philosophy of religion. [3-0-0]</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>9:30 a.m. - 11:00 a.m.</td>
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<tr>
<td>PHEL_O 111-002</td>
<td>PHEL_O</td>
<td>Introduction to Philosophy I</td>
<td>WS Introduction to outstanding philosophers and their systems. Ethics, political philosophy, metaphysics, and philosophy of religion.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>11:00 a.m. - 12:30 p.m.</td>
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<tr>
<td>PHEL_O 120-001</td>
<td>PHEL_O</td>
<td>Introduction to Logic and Critical Thinking</td>
<td>WS Tools for dealing with both everyday and more technical arguments and concepts. Analysis and resolution of confusions, ambiguities, and fallacies. This course is restricted to students with fewer than 90 credits. [3-0-0]</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
<td>9:30 a.m. - 11:00 a.m.</td>
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<tr>
<td>PHEL_O 120-002</td>
<td>PHEL_O</td>
<td>Introduction to Logic and Critical Thinking</td>
<td>WS Tools for dealing with both everyday and more technical arguments and concepts. Analysis and resolution of confusions, ambiguities, and fallacies. This course is restricted to students with fewer than 90 credits.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>12:30 p.m. - 2:00 p.m.</td>
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<tr>
<td>PHEL_O 121-001</td>
<td>PHEL_O</td>
<td>Introduction to Philosophy II</td>
<td>WS Introduction to outstanding philosophers and their systems. Theory of knowledge, logic, and contemporary philosophy. [3-0-0]</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>11:00 a.m. - 12:30 p.m.</td>
<td></td>
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<tr>
<td>PHEL_O 120-001</td>
<td>PHEL_O</td>
<td>Symbolic Logic I</td>
<td>WS Sentential and predicate logic. Translation from natural language; truth tables and interpretations; systems of natural deduction up to relational predicate logic with identity; alternative proof methods. Some sections may use computer-based materials and tests. [3-0-0]</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>2:00 p.m. - 3:30 p.m.</td>
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<tr>
<td>PHEL_O 230-001</td>
<td>PHEL_O</td>
<td>Ethics</td>
<td>WS Theories of obligation and value; moral reasoning; normative ethics, descriptive ethics, and metaethics. Readings in classic and contemporary texts. [3-0-0] Prerequisite: Second-year standing.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
<td>3:30 p.m. - 5:00 p.m.</td>
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<tr>
<td>PHEL_O 233-001</td>
<td>PHEL_O</td>
<td>Biomedical Ethics</td>
<td>WS Moral problems arising in the health sciences. Topics may include abortion, death and euthanasia, genetic engineering, behaviour modification, compulsory treatment, experimentation with human beings and animals, and/or the relationship between professionals and their patients, subjects, or clients. Credit will be granted for only one of PHEL 233 or PHEL 433. [3-0-0] Prerequisite: Second-year standing.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>11:00 a.m. - 12:30 p.m.</td>
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PHIL-O 331-001  Computer Ethics
001  Computer Ethics
WS  Ethical and professional issues facing those who work with computers. Piracy, hacking, responsibility, and liability for the use of software; cyberpornography and freedom of information; computerized invasion of privacy; computers in the workplace; the use of artificial intelligence; and expert systems. [3-0-0] Prerequisite: Third-year standing in an Arts program and 3 credits of PHIL, or third-year standing in a Science program.
Lecture  In Person Learning  Wed  8:00 a.m. - 9:30 a.m.

PHIL-O 331-002  Computer Ethics
002  Computer Ethics
WS  Ethical and professional issues facing those who work with computers. Piracy, hacking, responsibility, and liability for the use of software; cyberpornography and freedom of information; computerized invasion of privacy; computers in the workplace; the use of artificial intelligence; and expert systems. [3-0-0] Prerequisite: Third-year standing in an Arts program and 3 credits of PHIL, or third-year standing in a Science program.
Lecture  In Person Learning  Mon  9:30 a.m. - 11:00 a.m.

PHIL-O 345-001  Theory of Knowledge
001  Theory of Knowledge
WS  Examines the criteria of knowing, problems of perception, and theories of truth. [3-0-0] Prerequisite: Third-year standing and 6 credits of PHIL.
Lecture  In Person Learning  Wed  8:00 a.m. - 9:30 a.m.

PHIL-O 418-H 001  Philosophy in the 20th Century
H  Philosophy in the 20th Century
WS  Intensive study of a major philosopher such as Wittgenstein, Russell, or Heidegger, or a school such as pragmatism or logical empiricism. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL.
Lecture  In Person Learning  Mon  6:30 p.m. - 8:00 p.m.

PHIL-O 425-001  Philosophy of Language
001  Philosophy of Language
WS  Philosophical approaches to reference, meaning, and truth, given their correlation with linguistic expressions and speech. Topics may include interpretation and translation, literal and figurative language, pragmatics and the norms of conversation, the nature of language. [3-0-0] Prerequisite: Third-year standing and 6 credits of PHIL, including one of PHYS 120, PHYS 125.
Lecture  In Person Learning  Wed  11:00 a.m. - 12:30 p.m.

PHIL-O 435-001  Environmental Ethics
001  Environmental Ethics
WS  Central contemporary philosophical approaches to global political systems and governance. Clarifying the meaning of basic political concepts (e.g., citizenship, civil society, liberty and human rights) in both a global context and when necessary outside the traditional framework of the nation state. [3-0-0] Prerequisite: Third-year standing and 3 credits of PHIL.
Lecture  In Person Learning  Tue  Thu  12:30 p.m. - 2:00 p.m.

PHYS-O 111-001  Introductory Physics for the Physical Sciences I
001  Introductory Physics for the Physical Sciences I
WS  Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of MATH 100, MATH 116.
Lecture  In Person Learning  Tue  Thu  3:30 p.m. - 5:00 p.m.

PHYS-O 111-002  Introductory Physics for the Physical Sciences I
002  Introductory Physics for the Physical Sciences I
WS  Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of MATH 100, MATH 116.
Laboratory  In Person Learning  Tue  Alternate weeks  9:00 a.m. - 12:00 p.m.

PHYS-O 111-003  Introductory Physics for the Physical Sciences I
003  Introductory Physics for the Physical Sciences I
WS  Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of MATH 100, MATH 116.
Laboratory  In Person Learning  Tue  Alternate weeks  12:30 p.m. - 3:30 p.m.

PHYS-O 111-004  Introductory Physics for the Physical Sciences I
004  Introductory Physics for the Physical Sciences I
WS  Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of MATH 100, MATH 116.
Laboratory  In Person Learning  Wed  Alternate weeks  9:30 a.m. - 12:30 p.m.

PHYS-O 111-005  Introductory Physics for the Physical Sciences I
005  Introductory Physics for the Physical Sciences I
WS  Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of MATH 100, MATH 116.
Laboratory  In Person Learning  Wed  Alternate weeks  1:00 p.m. - 4:00 p.m.
Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.

Laboratory In Person Learning Wed (Alternate weeks) 6:30 p.m. - 9:30 p.m.

Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.

Laboratory In Person Learning Thu (Alternate weeks) 9:00 a.m. - 12:00 p.m.

Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.

Laboratory In Person Learning Thu (Alternate weeks) 12:30 p.m. - 3:30 p.m.

Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.

Laboratory In Person Learning Tue (Alternate weeks) 9:00 a.m. - 12:00 p.m.

Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.

Laboratory In Person Learning Tue (Alternate weeks) 12:30 p.m. - 3:30 p.m.

Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.

Laboratory In Person Learning Tue (Alternate weeks) 6:30 p.m. - 9:30 p.m.

Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, PREC 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.

Laboratory In Person Learning Wed (Alternate weeks) 9:30 a.m. - 12:30 p.m.
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<tr>
<th>Code</th>
<th>Section</th>
<th>Title</th>
<th>Day</th>
<th>Time</th>
<th>Type</th>
<th>Location</th>
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<th>Notes</th>
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<tr>
<td>PHYS_O 111-L15</td>
<td>L15</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>W1</td>
<td>10:00 a.m. - 11:00 a.m.</td>
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<td>L16</td>
<td>Introductory Physics for the Physical Sciences I</td>
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<td>In Person Learning</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Thu (Alternate weeks) 9:00 a.m. - 12:00 p.m.</td>
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<td>PHYS_O 111-L17</td>
<td>L17</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>W1</td>
<td>1:00 p.m. - 2:00 p.m.</td>
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<td>In Person Learning</td>
<td>Wed</td>
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<td>PHYS_O 111-L18</td>
<td>L18</td>
<td>Introductory Physics for the Physical Sciences I</td>
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<td>3:00 p.m. - 4:00 p.m.</td>
<td>Discussion</td>
<td>In Person Learning</td>
<td>Wed (Alternate weeks) 6:30 p.m. - 9:30 p.m.</td>
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<td>PHYS_O 111-T01</td>
<td>T01</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>W1</td>
<td>8:00 a.m. - 9:00 a.m.</td>
<td>Discussion</td>
<td>In Person Learning</td>
<td>Wed</td>
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<td>PHYS_O 111-T02</td>
<td>T02</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>W1</td>
<td>10:00 a.m. - 11:00 a.m.</td>
<td>Discussion</td>
<td>In Person Learning</td>
<td>Wed</td>
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<td>PHYS_O 111-T03</td>
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<td>Introductory Physics for the Physical Sciences I</td>
<td>W1</td>
<td>1:00 p.m. - 2:00 p.m.</td>
<td>Discussion</td>
<td>In Person Learning</td>
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<td>PHYS_O 111-T04</td>
<td>T04</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>W1</td>
<td>10:00 a.m. - 11:00 a.m.</td>
<td>Discussion</td>
<td>In Person Learning</td>
<td>Thu</td>
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<td>PHYS_O 111-T05</td>
<td>T05</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>W1</td>
<td>5:00 p.m. - 6:00 p.m.</td>
<td>Discussion</td>
<td>In Person Learning</td>
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<td>T06</td>
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<td>Tue</td>
<td>Thu</td>
<td>5:00 p.m. - 6:00 p.m.</td>
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<td>Tue</td>
<td>Thu</td>
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<td>PHYS 111-XM1</td>
<td>XM1</td>
<td>5</td>
<td>Tue Thu</td>
<td>Thu</td>
<td>5:00 p.m. - 6:00 p.m.</td>
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<tr>
<td>PHYS 111-XM2</td>
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<td>5</td>
<td>Tue Thu</td>
<td>Thu</td>
<td>5:00 p.m. - 6:00 p.m.</td>
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<tr>
<td>PHYS 112-001</td>
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<td>5</td>
<td>Tue Thu</td>
<td>Thu</td>
<td>5:00 p.m. - 6:00 p.m.</td>
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<tr>
<td>PHYS 112-002</td>
<td>002</td>
<td>5</td>
<td>Tue Thu</td>
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<td>5:00 p.m. - 6:00 p.m.</td>
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<tr>
<td>PHYS 112-003</td>
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<tr>
<td>PHYS 112-004</td>
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<td>5</td>
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<td>PHYS 112-005</td>
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<td>PHYS 112-006</td>
<td>006</td>
<td>5</td>
<td>Tue Thu</td>
<td>Thu</td>
<td>5:00 p.m. - 6:00 p.m.</td>
<td>Lecture</td>
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Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.

Mechanics primarily for students majoring in the physical sciences (e.g. physics, chemistry, mathematics, computer science, geology, physical geography) or engineering. Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the physical sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of PHYS 11, PHYS 12 and one of MATH 12, MATH 125, MATH 126. Physics 12 is strongly recommended. Corequisite: One of MATH 100, MATH 116.

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<p>| PHYS 112-L03 | PHYS_O | L03 | Introductory Physics for the Life Sciences I | WS | Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. (3-3*-1) Prerequisite: One of MATH 12, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 140 is strongly recommended. | Laboratory | In Person Learning | Tue (Alternate weeks) | 6:30 p.m. - 9:30 p.m. |
| PHYS 112-L04 | PHYS_O | L04 | Introductory Physics for the Life Sciences I | WS | Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. (3-3*-1) Prerequisite: One of MATH 12, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 140 is strongly recommended. | Laboratory | In Person Learning | Wed (Alternate weeks) | 2:30 p.m. - 5:30 p.m. |
| PHYS 112-L05 | PHYS_O | L05 | Introductory Physics for the Life Sciences I | WS | Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. (3-3*-1) Prerequisite: One of MATH 12, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 140 is strongly recommended. | Laboratory | In Person Learning | Wed (Alternate weeks) | 6:30 p.m. - 9:30 p.m. |
| PHYS 112-L06 | PHYS_O | L06 | Introductory Physics for the Life Sciences I | WS | Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. (3-3*-1) Prerequisite: One of MATH 12, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 140 is strongly recommended. | Laboratory | In Person Learning | Thu (Alternate weeks) | 2:30 p.m. - 5:30 p.m. |
| PHYS 112-L07 | PHYS_O | L07 | Introductory Physics for the Life Sciences I | WS | Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. (3-3*-1) Prerequisite: One of MATH 12, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 140 is strongly recommended. | Laboratory | In Person Learning | Thu (Alternate weeks) | 6:30 p.m. - 9:30 p.m. |
| PHYS 112-L08 | PHYS_O | L08 | Introductory Physics for the Life Sciences I | WS | Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. (3-3*-1) Prerequisite: One of MATH 12, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 140 is strongly recommended. | Laboratory | In Person Learning | Wed (Alternate weeks) | 9:30 a.m. - 12:30 p.m. |
| PHYS 112-L09 | PHYS_O | L09 | Introductory Physics for the Life Sciences I | WS | Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. (3-3*-1) Prerequisite: One of MATH 12, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 140 is strongly recommended. | Laboratory | In Person Learning | Tue (Alternate weeks) | 2:30 p.m. - 5:30 p.m. |
| PHYS 112-L10 | PHYS_O | L10 | Introductory Physics for the Life Sciences I | WS | Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. (3-3*-1) Prerequisite: One of MATH 12, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 140 is strongly recommended. | Laboratory | In Person Learning | Tue (Alternate weeks) | 6:30 p.m. - 9:30 p.m. |
| PHYS 112-L11 | PHYS_O | L11 | Introductory Physics for the Life Sciences I | WS | Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. (3-3*-1) Prerequisite: One of MATH 12, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 140 is strongly recommended. | Laboratory | In Person Learning | Wed (Alternate weeks) | 2:30 p.m. - 5:30 p.m. |</p>
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Time</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS_112-L12</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>W1 6:30 p.m. - 9:30 p.m.</td>
<td>Laboratory In Person Learning Wed (Alternate weeks)</td>
</tr>
<tr>
<td>PHYS_112-L13</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>W1 2:30 p.m. - 5:30 p.m.</td>
<td>Laboratory In Person Learning Thu (Alternate weeks)</td>
</tr>
<tr>
<td>PHYS_112-L14</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>W1 6:30 p.m. - 9:30 p.m.</td>
<td>Laboratory In Person Learning Thu (Alternate weeks)</td>
</tr>
<tr>
<td>PHYS_112-L15</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>W1 9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Wed (Alternate weeks)</td>
</tr>
<tr>
<td>PHYS_112-L16</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>W1 2:30 p.m. - 5:30 p.m.</td>
<td>Laboratory In Person Learning Tue (Alternate weeks)</td>
</tr>
<tr>
<td>PHYS_112-L17</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>W1 6:30 p.m. - 9:30 p.m.</td>
<td>Laboratory In Person Learning Wed (Alternate weeks)</td>
</tr>
<tr>
<td>PHYS_112-L18</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>W1 2:30 p.m. - 5:30 p.m.</td>
<td>Laboratory In Person Learning Wed (Alternate weeks)</td>
</tr>
<tr>
<td>PHYS_112-L19</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>W1 6:30 p.m. - 9:30 p.m.</td>
<td>Laboratory In Person Learning Wed (Alternate weeks)</td>
</tr>
</tbody>
</table>

Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of MATH 12, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 140 is strongly recommended.

MATH 100 is strongly recommended.

MATH 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 140 is strongly recommended.

MATH 100 is strongly recommended.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Section</th>
<th>Lecture</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 112-L21</td>
<td>L21</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>2:30 p.m. - 5:30 p.m.</td>
<td>Wed (Alternate weeks)</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>PHYS 112-L22</td>
<td>L22</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>2:30 p.m. - 5:30 p.m.</td>
<td>Wed (Alternate weeks)</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>PHYS 112-L23</td>
<td>L23</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>2:30 p.m. - 5:30 p.m.</td>
<td>Wed (Alternate weeks)</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>PHYS 112-L24</td>
<td>L24</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>2:30 p.m. - 5:30 p.m.</td>
<td>Wed (Alternate weeks)</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>PHYS 112-L25</td>
<td>L25</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>2:30 p.m. - 5:30 p.m.</td>
<td>Wed (Alternate weeks)</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>PHYS 112-T01</td>
<td>T01</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>2:30 p.m. - 5:30 p.m.</td>
<td>Wed (Alternate weeks)</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>PHYS 112-T02</td>
<td>T02</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>2:30 p.m. - 5:30 p.m.</td>
<td>Wed (Alternate weeks)</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>PHYS 112-T03</td>
<td>T03</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>2:30 p.m. - 5:30 p.m.</td>
<td>Wed (Alternate weeks)</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>PHYS 112-T04</td>
<td>T04</td>
<td>Introductory Physics for the Life Sciences I</td>
<td>2:30 p.m. - 5:30 p.m.</td>
<td>Wed (Alternate weeks)</td>
<td>In Person Learning</td>
</tr>
</tbody>
</table>

Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of MATH 12, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 140 is strongly recommended.

Laboratory

Thur (Alternate weeks) 6:30 p.m. - 9:30 p.m.

Laboratory

Wed (Alternate weeks) 9:30 a.m. - 12:30 p.m.

Laboratory

Tue (Alternate weeks) 3:30 p.m. - 5:30 p.m.

Laboratory

Tue (Alternate weeks) 6:30 p.m. - 9:30 p.m.

Laboratory

Wed (Alternate weeks) 2:30 p.m. - 5:30 p.m.

Laboratory

Fri 10:00 a.m. - 11:00 a.m.

Laboratory

Tue 1:00 p.m. - 2:00 p.m.

Laboratory

Fri 4:00 p.m. - 5:00 p.m.

Laboratory

Mon 2:00 p.m. - 3:00 p.m.
Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of MATH 12, Precalculus 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Discussion | In Person Learning | Fri | 8:00 a.m. - 9:00 a.m.

Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of MATH 12, Precalculus 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Discussion | In Person Learning | Mon | 9:00 a.m. - 10:00 a.m.

Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of MATH 12, Precalculus 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Discussion | In Person Learning | Thu | 1:00 p.m. - 2:00 p.m.

Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of MATH 12, Precalculus 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Discussion | In Person Learning | Tue | 4:00 p.m. - 5:00 p.m.

Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of MATH 12, Precalculus 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Discussion | In Person Learning | Wed | 5:00 p.m. - 6:00 p.m.

Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of MATH 12, Precalculus 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Discussion | In Person Learning | Wed | 5:00 p.m. - 6:00 p.m.

Mechanics primarily for students majoring in the life sciences (e.g. biochemistry, biology, microbiology, pharmacy, human kinetics, human geography or psychology). Particle kinematics and dynamics, work and energy, momentum, gravitation, rigid body motion, fluid statics and dynamics with applications to the biological sciences. Credit will be granted for only one of PHYS 111 and PHYS 112. Students with Physics 12 may opt out of the tutorial by self-enrolling in the XM2 tutorial section. [3-3*-1] Prerequisite: One of MATH 12, Precalculus 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Discussion | In Person Learning | Wed | 5:00 p.m. - 6:00 p.m.
**PHYS O 112-1X1**  
**PHYS O 112-1X2**  
**PHYS O 215-101**  
**PHYS O 291-001**  
**PHYS O 291-101**  
**PHYS O 301-102**  
**PHYS O 301-001**  
**PHYS O 301-501**  
**PHYS O 304-001**  
**PHYS O 324-001**  
**PHYS O 331-001**  
**PHYS O 331-101**  
**PHYS O 402-101**  
**PHYS O 403-001**  
**PHYS O 448-A_001**  
**PHYS O 448-A_002**  
**PHYS O 448-B_101**  

**Introductory Physics for the Life Sciences I**  
**Directed Studies in Physics**  
**Lecture**  
**In Person Learning**  
**Waves**  
**Thermodynamics**  
**Introduction to Electronics**  
**Introduction to Electronics**  
**Thermodynamics**  
**Electricity and Magnetism**  
**Electricity and Magnetism**  
**Introduction to Quantum Mechanics**  
**Waves**  
**Experimental Physics I**  
**Experimental Physics I**  
**Advanced Quantum Mechanics**  
**Statistical Mechanics**  
**Directed Studies in Physics**  
**Directed Studies in Physics**  
**Directed Studies in Physics**  

**In Person Learning**  
**Laboratory**  
**Arranged**  

**9:30 a.m. - 11:00 a.m.**  
**Mon Wed**  
**9:00 a.m. - 12:00 p.m.**  
**11:00 a.m. - 12:00 p.m.**  
**9:30 a.m. - 11:00 a.m.**  
**Thermodynamics at an intermediate level. Temperature, heat and work, the First Law, heat transfer, heat engines, entropy, and the Second Law. [3-0-0] Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122.**  

**Design and analysis of analog AC circuits, digital circuits, and analog-to-digital conversion methods. Basic physics laboratory skills including data collection, presentation of results, and analysis of uncertainties. [2-3-0] Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122.**  

**Electric fields and potentials of static charge distributions, current, fields of moving charges, magnetic field, electromagnetic induction, Maxwell’s equations. [3-0-0] Prerequisite: MATH 117 and one of PHYS 121, PHYS 122.**  

**Electric fields and potentials of static charge distributions, current, fields of moving charges, magnetic field, electromagnetic induction, Maxwell’s equations. [3-0-0] Prerequisite: MATH 117 and one of PHYS 121, PHYS 122.**  

**The beginnings of quantum mechanics, wave mechanics and the Schroedinger equation, one-dimensional potentials, the postulates of quantum mechanics, and applications to three-dimensional systems. [4-0-0] Prerequisite: All of MATH 225, PHYS 200.**  

**Intermediate treatment of wave production, propagation, reception. Acoustics, electrical transmission lines, electromagnetics, scalar wave equation. Finite difference time domain computer simulation, boundary conditions, normal modes, input impedance, energy density, power flux/propagation across boundaries at normal and oblique incidence, sonic transducers, alternating current sources, and antennae. [3-0-0] Prerequisite: MATH 200 and one of PHYS 200, PHYS 216.**  

**Selected advanced physics experiments in solid-state physics, fluid dynamics, particle physics, astrophysics, optics, nonlinear dynamics or electromagnetic. Experimental design, construction, and formal presentation of results. [0-3-1.5] Prerequisite: All of PHYS 231, PHYS 232.**  

**The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration.**  

**The investigation of a specific topic in physics may be undertaken under the direction of a Physics department staff member. Prerequisite: Permission of the department head. The credit value for this course will be determined in consultation with the student prior to the registration.**  

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POLI_O 449-A_001 PHYS_O A A_001 Special Topics in Medical Physics
The investigation of specific topics in medical physics may be undertaken under the direction of a Medical Physics department faculty member. Prerequisite: Permission of the department head and registration in the Medical Physics graduate program.

POLI_O 549-001 PHYS_O 001 Master's Thesis
Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0.1-0.5] Lecture In Person Learning Fri 9:30 a.m. - 11:00 a.m.

POLI_O 549-201 PHYS_O 201 Master's Thesis
Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0.1-0.5] Lecture In Person Learning Arranged

POLI_O 649-001 PHYS_O 001 Doctoral Dissertation
Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0.1-0.5] Lecture In Person Learning Arranged

POLI_O 649-201 PHYS_O 201 Doctoral Dissertation
Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0.1-0.5] Lecture In Person Learning Arranged

POLI_O 100-001 POLI_O 001 Introduction to Politics
Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0.1-0.5] Discussion In Person Learning Fri 9:30 a.m. - 11:00 a.m.

POLI_O 100-T01 POLI_O T01 Introduction to Politics
Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0.1-0.5] Discussion In Person Learning Thu 9:30 a.m. - 11:00 a.m.

POLI_O 100-T02 POLI_O T02 Introduction to Politics
Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0.1-0.5] Discussion In Person Learning Thu 8:00 a.m. - 9:30 a.m.

POLI_O 100-T03 POLI_O T03 Introduction to Politics
Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0.1-0.5] Discussion In Person Learning Mon 5:00 p.m. - 6:30 p.m.

POLI_O 100-T04 POLI_O T04 Introduction to Politics
Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0.1-0.5] Discussion In Person Learning Thu 9:30 a.m. - 11:00 a.m.

POLI_O 100-T05 POLI_O T05 Introduction to Politics
Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0.1-0.5] Discussion In Person Learning Thu 8:00 a.m. - 9:30 a.m.

POLI_O 100-T06 POLI_O T06 Introduction to Politics
Introduction to the broad field of political science. Noteworthy issues from the subfields of political science will be addressed, including Canadian politics, global politics, comparative politics and political philosophy. [1.5-0.1-0.5] Discussion In Person Learning Fri 3:30 p.m. - 5:00 p.m.

POLI_O 201-001 POLI_O 001 Introduction to Philosophy, Politics and Economics
The relationship of ethics, economics and politics to the advocacy, formulation, legislation and administration of public policy. Credit will be granted for only one of POLI 223 or POLI 201. [3-0-0] Equivalency: POLI 223. Lecture In Person Learning Thu 2:00 p.m. - 3:30 p.m.

POLI_O 203-001 POLI_O 001 Introduction to Law and Politics
Examination of the fundamentals of law and politics, including the judicial system, legal institutions, constitutional and administrative law. [3-0-0] Lecture In Person Learning Thu 3:30 p.m. - 5:00 p.m.

POLI_O 250-001 POLI_O 001 Introduction to Political Theory
Critical introduction to some major ideologies and traditions of Western political thought that examine their philosophical origins as well as their implications for political life. Credit will be granted for only one of POLI 240 or POLI 250. Equivalency: POLI 240. [3-0-0] Lecture In Person Learning Mon Wed 8:00 a.m. - 9:30 a.m.

POLI_O 309-A_001 POLI_O A A_001 Topics in Political Science
Examination of selected topics in current political science and/or policy. Repeatable for up to 6 credits with different topics. Credit will be granted for only one of POLI 391 and POLI 309 when the subject matter is of the same nature. [3-0-0] Prerequisite: 3 credits of 100- or 200-level POLI. Equivalency: POLI 391. Lecture In Person Learning Wed Fri 2:00 p.m. - 3:30 p.m.
POLI 314-001
Politics of China
001
WS
Comparative study of Chinese politics, including an analysis of Chinese society, the Chinese Communist party, government structure, and political and economic reform. [3-0-0] Prerequisite: One of POLI 210 or POLI 220.
Lecture
In Person Learning
Wed Fri
9:30 a.m. - 11:00 a.m.

POLI 318-001
Politics of Mexico and Central America
001
WS
Analysis of politics in Mexico, Central America, and selected Caribbean countries. [3-0-0] Prerequisite: One of POLI 210 or POLI 220.
Lecture
In Person Learning
Thu
8:00 a.m. - 11:00 a.m.

POLI 322-001
Authoritarianism
001
WS
Examination of how political science conceptualizes authoritarianism, and the distinctive nature of politics in authoritarian regimes. [3-0-0] Prerequisite: One of POLI 210 or POLI 220.
Lecture
In Person Learning
Tue Thu
12:30 p.m. - 2:00 p.m.

POLI 325-001
Electoral Systems, Parties, and Elections
001
WS
Examination of relationships between electoral systems, political parties, and elections. Credit will be granted for only one of POLI 464-N or POLI 325 when the subject matter is the same nature. [3-0-0] Prerequisite: One of POLI 210 or POLI 220 and one of POLI 330 or POLI 302.
Lecture
In Person Learning
Tue
2:00 p.m. - 5:00 p.m.

POLI 354-001
Classical Political Theory
001
WS
Political philosophy of classical and medieval political theorists. [3-0-0] Prerequisite: One of POLI 240 or POLI 250.
Lecture
In Person Learning
Tue Thu
11:00 a.m. - 12:30 p.m.

POLI 367-001
Contemporary Fascism
001
WS
The interrelation of technology and politics, with reference to international and domestic factors and implications of technological change, including data and privacy concerns. [3-0-0] Prerequisite: One of POLI 202, 210, 220, 230, 240, 250, or 270.
Lecture
In Person Learning
Mon Thu
2:00 p.m. - 3:30 p.m.

POLI 380-001
Technology and Politics
001
WS
Evolution of gerontics. Strategies for intervention and prevention. Case studies. Gerontology from the perspectives of psychology, sociology, anthropology, political science/international relations. [3-0-0] Prerequisite: One of POLI 210 or POLI 220 and one of POLI 270 or POLI 212.
Lecture
In Person Learning
Fri
11:00 a.m. - 2:00 p.m.

POLI 383-001
Gerontology: An Interdisciplinary Perspective
001
WS
Analysis of governmental policies and international political bargaining in regard to such issues as international investment, trade, and monetary relations. Credit will be granted for only one of POLI 366 or POLI 387. [3-0-0] Prerequisite: One of POLI 201 or POLI 223 and one of POLI 270 or POLI 211.
Lecture
In Person Learning
Mon
11:00 a.m. - 2:00 p.m.

PSYO 111-001
Introduction to Psychology: Basic Processes
001
WS
Survey of topics in psychology which relate to basic processes. Methods and statistics, the nervous system and physiological processes, sensation and perception, learning, cognition, and memory. [3-0-0] Prerequisite: All of PSYC 101, PSYC 102, or PSYC 100.
Lecture
Online Learning
Wed Fri
12:30 p.m. - 2:00 p.m.

PSYO 111-002
Introduction to Psychology: Basic Processes
002
WS
Survey of topics in psychology which relate to basic processes. Methods and statistics, the nervous system and physiological processes, sensation and perception, learning, cognition, and memory. [3-0-0] Prerequisite: All of PSYC 101, PSYC 102, or PSYC 100.
Lecture
In Person Learning
Tue Thu
9:30 a.m. - 11:00 a.m.

PSYO 111-003
Introduction to Psychology: Basic Processes
003
WS
Survey of topics in psychology which relate to basic processes. Methods and statistics, the nervous system and physiological processes, sensation and perception, learning, cognition, and memory. [3-0-0] Prerequisite: All of PSYC 101, PSYC 102, or PSYC 100.
Lecture
In Person Learning
Fri
6:30 p.m. - 9:30 p.m.

PSYO 111-004
Introduction to Psychology: Basic Processes
004
WS
Survey of topics in psychology which relate to basic processes. Methods and statistics, the nervous system and physiological processes, sensation and perception, learning, cognition, and memory. [3-0-0] Prerequisite: All of PSYC 101, PSYC 102, or PSYC 100.
Lecture
Online Learning
Tue Thu
12:30 p.m. - 2:00 p.m.

PSYO 121-001
Psychological Functioning
001
WS
Survey of topics in psychology which relate to personal functioning. Methods and statistics, motivation and emotion, life span development, social processes, personality, psychopathology, and psychotherapy. [3-0-0] Prerequisite: PSYO 111.
Lecture
In Person Learning
Thu
6:30 p.m. - 9:30 p.m.

PSYO 219-001
Cognition
001
WS
A brief introduction to how the mind works from a cognitive perspective. Topics will be drawn from memory, decision making, reasoning, attention, object perception, and speech and language. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.
Lecture
Online Learning
Tue Thu
5:00 p.m. - 6:30 p.m.

PSYO 220-101
Life Span Development
101
WS
Lifespan Development
Introduction to the field of lifespan developmental psychology. Examination of the physical, cognitive, and psychosocial development of the individual from conception through later adulthood. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.
Lecture
In Person Learning
Mon Wed
2:00 p.m. - 3:30 p.m.

PSYO 252-001
Social Psychology
001
WS
Introduction to social psychology. Attitudes, opinions and beliefs, persuasion, mass communication, group processes, prejudice, interpersonal attraction, conformity, aggression, and conflict. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.
Lecture
Online Learning
Thu
11:00 a.m. - 2:00 p.m.

PSYO 270-001
Research Methods and Design
001
WS
Introduction to research methods and design
Introduction to the procedures and difficulties in the design and critical evaluation of research in experimental psychology. Various research designs and basic statistics. A required course for students majoring in Psychology, restricted to students majoring in Psychology. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.
Lecture
In Person Learning
Mon Wed Fri
8:00 a.m. - 9:00 a.m.

PSYO 270-002
Research Methods and Design
002
WS
Introduction to research methods and design
A critical survey of the basic experimental findings and theory of the learning process with emphasis on the theoretical formulation of the necessary conditions for learning, retention, and transfer of training. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299, or 6 credits of 200-level Psychology.
Lecture
In Person Learning
Tue Thu
11:00 a.m. - 12:30 p.m.

PSYO 313-001
Visual Perception
001
WS
Visual Perception
Examines how our brain enables us to see. Topics will focus on visual processing involved in perceiving objects, colours, movement, and depth. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299, or 6 credits of 200-level Psychology.
Lecture
In Person Learning
Mon Wed Fri
3:00 p.m. - 4:00 p.m.
PSYO_0 115-001  PSYO_ 001  Psychology of Touch I  WS  Focuses primarily on the sensory aspect of touch. Topics include: tactual perception in historical perspective, sensory and physiological bases of touch, the psychophysics of touch, thermal sensitivity, pain responsiveness, and the introduction of the haptic system and its components. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 278, PSYO 298, PSYO 299. or 6 credits of 200-level Psychology. Lecture  In Person Learning  Mon Wed Fri  8:00 a.m. - 9:00 a.m.

PSYO_0 117-001  PSYO_ 001  Psychology of Creativity  WS  Experimental and theoretical approaches used by psychologists to investigate the interplay of internal and external factors involved in the creative process. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 6 credits of 200-level Psychology. Lecture  Online Learning  Tue Thu  3:30 p.m. - 5:00 p.m.

PSYO_0 122-001  PSYO_ 001  Adolescent Development  WS  Survey of developmental psychology, focusing on the adolescent segment of the lifespan. It examines physical, cognitive, personality, and social aspects of adolescent development. [3-0-0] Prerequisite: Two and one of PSYO 219, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 278, PSYO 298, PSYO 299. or 3 credits of 200-level Psychology. Lecture  Online Learning  Tue Thu  2:00 p.m. - 3:30 p.m.

PSYO_0 143-001  PSYO_ 001  Basic Clinical Diagnostics  WS  Detailed introduction to general principles underlying scientific study of mental health and psychopathology. Critical theoretical and methodological issues related to the assessment, diagnosis, and treatment of psychological disorders. Psychological disorders used to illustrate general ideas and principles discussed. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 278, PSYO 298, PSYO 299. or 6 credits of 200-level Psychology. Lecture  In Person Learning  Tue Thu  8:00 a.m. - 9:30 a.m.

PSYO_0 148-001  PSYO_ 001  Health Psychology  WS  The psychology of happiness and well being. Current research designs, techniques, empirical findings, and theories in positive psychology. Practical experience with some of the interventions and strategies used in positive psychology. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 6 credits of 200-level Psychology. Lecture  In Person Learning  Mon Wed  9:30 a.m. - 11:00 a.m.

PSYO_0 149-101  PSYO_ 010  Positive Psychology  WS  Academic overview of human sexuality from a biological, psychological, and behavioral perspective. Examination of the difficulties of research in the area of human sexuality, biological foundations of sexuality, human reproduction, birth control, and psychosexual development. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121, and third-year standing or co-registration in PSYO 270. Lecture  Online Learning  Mon Wed  5:00 p.m. - 6:30 p.m.

PSYO_0 153-001  PSYO_ 001  Psychological Aspects of Human Sexuality I  WS  The implications of theory and research in psychology for the criminal justice system. Topics include the definition and measurement of crime with a review of psychological and biosocial factors associated with selected criminal behaviour. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. And third-year standing or co-registration in PSYO 270. Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

PSYO_0 155-001  PSYO_ 001  Forensic Psychology I  WS  Examination of sophisticated research designs and associated statistical methods. Direct research experience involving design, collection, and analysis of data in a formal research report; familiarity with use of computer programs to analyze research results. [3-0-0] Prerequisite: A score of 80% or higher in PSYO 270 and a score of 80% or higher in PSYO 271. and permission from the department head. Consequence: Enrolment in a three-hour laboratory section is required. Lecture  In Person Learning  Tue Thu  12:30 p.m. - 2:00 p.m.

PSYO_0 172-001  PSYO_ 001  Research Methods and Statistics  WS  Examination of sophisticated research designs and associated statistical methods. Direct research experience involving design, collection, and analysis of data in a formal research report; familiarity with use of computer programs to analyze research results. [3-0-0] Prerequisite: A score of 80% or higher in PSYO 270 and a score of 80% or higher in PSYO 271. and permission of the department head. Consequence: Enrolment in a three-hour laboratory section is required. Laboratory  In Person Learning  Wed  11:00 a.m. - 2:00 p.m.

PSYO_0 172-101  PSYO_ 010  Research Methods and Statistics  WS  Theoretical and applied issues fundamental to psychological counselling and other helping professions. Development of basic interviewing skills. [3-0-0] Prerequisite: Fourth-year standing. At least 6 credits of 300-level Psychology, including at least 3 credits from the Mental Health and Wellness breadth area. Students will be screened for entry into this course through a selection interview. Lecture  In Person Learning  Mon  11:00 a.m. - 2:00 p.m.

PSYO_0 140-001  PSYO_ 001  Introduction to Counselling and Interviewing  WS  A survey of advanced topics in statistics and research methodology, including: philosophy of science, research designs, psychomotor measurement, statistical reasoning, meta-analysis, regression, multivariate analysis of variance, factor analysis, structural equation modelling, multilevel modelling, multivariate frequency analysis, and the analysis of change. [3-0-0] Lecture  In Person Learning  Mon  11:00 a.m. - 2:00 p.m.

PSYO_0 150-001  PSYO_ 001  Contemporary Theories of Psychology  WS  A survey of advanced topics in statistics and research methodology, including: philosophy of science, research designs, psychomotor measurement, statistical reasoning, meta-analysis, regression, multivariate analysis of variance, factor analysis, structural equation modelling, multilevel modelling, multivariate frequency analysis, and the analysis of change. [3-0-0] Lecture  In Person Learning  Mon  11:00 a.m. - 2:00 p.m.

PSYO_0 157-001  PSYO_ 001  Advanced Statistics and Research Methods  WS-2  Core principles of clinical assessment; test interpretation; interviewing techniques; developmental factors in interpretation; integrative report writing. Restricted to the Graduate Clinical Psychology Program. [3-0-0] Lecture  In Person Learning  Wed Fri  11:00 a.m. - 12:30 p.m.

PSYO_0 162-001  PSYO_ 001  Clinical Diagnostics  WS  Basic knowledge of the phenomenology of behavioural disorders in adults and children. [3-0-0] Lecture  In Person Learning  Thu  2:00 p.m. - 5:00 p.m.

PSYO_0 164-001  PSYO_ 001  Psychological Assessment I  WS  Introduction to psychotherapy, including biological and current models of therapy, as well as introducing the use of Cognitive Behavioral Therapy and motivational enhancement therapy. Restricted to the Graduate Clinical Psychology Program. [3-0-0] Lecture  In Person Learning  Mon  8:00 a.m. - 11:00 a.m.

PSYO_0 030-C_201  PSYO_ 001  Clinical Psychology Practicum (Masters)  WS-2  Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program. The credit value for this course will be determined in consultation with the student prior to the registration. Experiential  In Person Learning  Arranged Arranged

PSYO_0 159-001  PSYO_ 001  Master’s Thesis  WS  Pass/Fail.  Thesis  In Person Learning  Arranged Arranged

PSYO_0 159-201  PSYO_ 001  Master’s Thesis  WS-2  Pass/Fail.  Thesis  In Person Learning  Arranged Arranged
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<tr>
<th>CRN</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Days</th>
<th>Credits</th>
<th>Hours</th>
<th>Type</th>
<th>Location</th>
<th>Repeat Code</th>
<th>Notes</th>
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<tr>
<td>PSYO_625-001</td>
<td>PSYO_O</td>
<td>001 Internship Preparation</td>
<td>W1-2</td>
<td></td>
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<td>Seminar</td>
<td>In Person Learning</td>
<td>Mon</td>
<td>11:00 a.m. - 2:00 p.m.</td>
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<td>PSYO_630-C_001</td>
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<td>C_C_001 Clinical Psychology Practicum (Doctoral)</td>
<td>W1-2</td>
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<td>Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program.</td>
<td>Experiential</td>
<td>In Person Learning</td>
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<td>PSYO_630-E_201</td>
<td>PSYO_O</td>
<td>E_E_201 Clinical Psychology Practicum (Doctoral)</td>
<td>W1-2</td>
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<td>Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program.</td>
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<td>In Person Learning</td>
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<td>G_G_001 Clinical Psychology Practicum (Doctoral)</td>
<td>W1-2</td>
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<td>Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program.</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<td>PSYO_630-H_201</td>
<td>PSYO_O</td>
<td>H_H_201 Clinical Psychology Practicum (Doctoral)</td>
<td>W1-2</td>
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<td>Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program.</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<td>PSYO_630-I_201</td>
<td>PSYO_O</td>
<td>I_I_201 Clinical Psychology Practicum (Doctoral)</td>
<td>W1-2</td>
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<td>Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program.</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<td>PSYO_630-K_201</td>
<td>PSYO_O</td>
<td>K_K_201 Clinical Psychology Practicum (Doctoral)</td>
<td>W1-2</td>
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<td>Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program.</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<td>PSYO_630-L_201</td>
<td>PSYO_O</td>
<td>L_L_201 Clinical Psychology Practicum (Doctoral)</td>
<td>W1-2</td>
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<td>Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program.</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<td>PSYO_630-N_001</td>
<td>PSYO_O</td>
<td>N_N_001 Clinical Psychology Practicum (Doctoral)</td>
<td>W1-2</td>
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<td>Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program.</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<td>PSYO_630-P_201</td>
<td>PSYO_O</td>
<td>P_P_201 Clinical Psychology Practicum (Doctoral)</td>
<td>W1-2</td>
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<td>Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program.</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<td>PSYO_630-Q_201</td>
<td>PSYO_O</td>
<td>Q_Q_201 Clinical Psychology Practicum (Doctoral)</td>
<td>W1-2</td>
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<td>Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program.</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<td>PSYO_630-R_201</td>
<td>PSYO_O</td>
<td>R_R_201 Clinical Psychology Practicum (Doctoral)</td>
<td>W1-2</td>
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<td>Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program.</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<tr>
<td>PSYO_630-S_001</td>
<td>PSYO_O</td>
<td>S_S_001 Clinical Psychology Practicum (Doctoral)</td>
<td>W1-2</td>
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<td>Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program.</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<td>PSYO_630-T_001</td>
<td>PSYO_O</td>
<td>T_T_001 Clinical Psychology Practicum (Doctoral)</td>
<td>W1-2</td>
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<td>Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program.</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<td>PSYO_630-Y_001</td>
<td>PSYO_O</td>
<td>Y_Y_001 Clinical Psychology Practicum (Doctoral)</td>
<td>W1-2</td>
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<td>Focus on clinical skills. Students work under the supervision of a clinical faculty member. Training contracts are established at the start of the term. Restricted to the Graduate Clinical Psychology Program.</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<td>PSYO_630-Y_001</td>
<td>PSYO_O</td>
<td>001 Doctoral Dissertation</td>
<td>W1-2</td>
<td>Pass/Fail</td>
<td>Thesis</td>
<td>In Person Learning</td>
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<td>PSYO_630-Y_001</td>
<td>PSYO_O</td>
<td>001 Doctoral Dissertation</td>
<td>W1-2</td>
<td>Pass/Fail</td>
<td>Thesis</td>
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<td>001 Clinical Psychology Internship</td>
<td>W1-2</td>
<td></td>
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Methods to assess efficiency of health-related programs; theoretical and practical empirical methods for conducting, analyzing and interpreting applied economic evaluations in the context of health and healthcare. Credit will be granted for only one of MGMT 471, MGMT 571, SECH 400 or SECH 500. Prerequisite: Third-year standing. Equivalency: MGMT 471.

Lecture In Person Learning Thu 2:00 p.m. - 5:00 p.m.

Methods to assess the efficiency of health-related programs; theoretical and practical empirical methods for conducting, analyzing and interpreting applied economic evaluations in the context of health and healthcare. Credit will be granted for only one of MGMT 471, MGMT 571, SECH 400 or SECH 500. Prerequisite: MGMT 571.

Studies how society influences human behaviour. How is society organized and structured? How does it affect the way we think and act? What is the relationship between individuals and society? What is our social nature? Why is there inequality in the world? [3-0-0]

Lecture In Person Learning Thu 2:00 p.m. - 5:00 p.m.

Studies how society influences human behaviour. How is society organized and structured? How does it affect the way we think and act? What is the relationship between individuals and society? What is our social nature? Why is there inequality in the world? [3-0-0]

Lecture Mon Wed 2:00 p.m. - 3:30 p.m.

Lecture Mon Wed 6:30 p.m. - 8:00 p.m.

In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

In Person Learning Wed Fri 3:30 p.m. - 5:00 p.m.

In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

In Person Learning Tue Thu 6:30 p.m. - 8:00 p.m.

In Person Learning Tue Thu 2:00 p.m. - 5:00 p.m.

In Person Learning Tue Thu 2:00 p.m. - 5:00 p.m.

In Person Learning Tue Thu 11:00 a.m. - 2:00 p.m.

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In Person Learning Tue Thu 11:00 a.m. - 2:00 p.m.

In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

In Person Learning Tue Thu 11:00 a.m. - 2:00 p.m.

In Person Learning Tue Thu 11:00 a.m. - 2:00 p.m.

In Person Learning Tue Thu 11:00 a.m. - 2:00 p.m.
<p>| SOCW_O 517-001 | SOCW_O 001 Social Work and Indigenous Peoples in Canada | Overview of historical and current issues confronting social work with First Nations, Mts, and Inuit individuals, families, and communities within Canada including but not limited to child protection; critical assessment of theories for social work practice with Canada’s Indigenous peoples. Prerequisite: Restricted to students in the M.S.W. program. | Lecture | In Person Learning | Mon | 2:00 p.m. - 5:00 p.m. |
| SOCW_O 517-002 | SOCW_O 002 Social Work and Indigenous Peoples in Canada | Overview of historical and current issues confronting social work with First Nations, Mts, and Inuit individuals, families, and communities within Canada including but not limited to child protection; critical assessment of theories for social work practice with Canada’s Indigenous peoples. Prerequisite: Restricted to students in the M.S.W. program. | Lecture | In Person Learning | Wed | 2:00 p.m. - 5:00 p.m. |
| SOCW_O 517-003 | SOCW_O 003 Social Work and Indigenous Peoples in Canada | Overview of historical and current issues confronting social work with First Nations, Mts, and Inuit individuals, families, and communities within Canada including but not limited to child protection; critical assessment of theories for social work practice with Canada’s Indigenous peoples. Prerequisite: Restricted to students in the M.S.W. program. | Lecture | In Person Learning | Thu | 11:00 a.m. - 2:00 p.m. |
| SOCW_O 519-P03 | SOCW_O P03 Social Work Field Education I | Development, application, and integration of core social work knowledge and skills in social work practice settings. Pass/Fail. Prerequisite: Restricted to students in the M.S.W. program. | Experiential | In Person Learning | Arranged | Arranged |
| SOCW_O 551-001 | SOCW_O 001 Advanced Clinical Social Work Theory and Practice | Integrates theory and practice with attention to relational principles and a complex analysis of personal and social problems. Consideration of the dynamic interaction between the individual and the social world, and the possibility of intervention at multiple levels. Prerequisite: Restricted to students in the M.S.W. program. | Lecture | In Person Learning | Mon | 2:00 p.m. - 5:00 p.m. |
| SOCW_O 551-002 | SOCW_O 002 Advanced Clinical Social Work Theory and Practice | Integrates theory and practice with attention to relational principles and a complex analysis of personal and social problems. Consideration of the dynamic interaction between the individual and the social world, and the possibility of intervention at multiple levels. Prerequisite: Restricted to students in the M.S.W. program. | Lecture | In Person Learning | Tue | 11:00 a.m. - 2:00 p.m. |
| SOCW_O 551-003 | SOCW_O 003 Advanced Clinical Social Work Theory and Practice | Integrates theory and practice with attention to relational principles and a complex analysis of personal and social problems. Consideration of the dynamic interaction between the individual and the social world, and the possibility of intervention at multiple levels. Prerequisite: Restricted to students in the M.S.W. program. | Lecture | In Person Learning | Thu | 5:00 p.m. - 8:00 p.m. |
| SOCW_O 555-002 | SOCW_O 002 Research Knowledge and Evidence in Clinical Soil | Knowledge and skills for utilizing empirical evidence to guide clinical social work practice. Prerequisite: Restricted to students in the M.S.W. program. | Lecture | In Person Learning | Mon | 11:00 a.m. - 2:00 p.m. |
| SOCW_O 553-003 | SOCW_O 003 Research Knowledge and Evidence in Clinical Soil | Knowledge and skills for utilizing empirical evidence to guide clinical social work practice. Prerequisite: Restricted to students in the M.S.W. program. | Lecture | In Person Learning | Wed | 5:00 p.m. - 8:00 p.m. |
| SOCW_O 554-001 | SOCW_O 001 Mental Health and Mental Illness | Explores relevant mental health issues to social work practice in a broad range of settings. Critically examines social work's role in providing effective, evidence-based, theoretically sound interventions and treatments. Prerequisite: Restricted to students in the M.S.W. program. | Lecture | In Person Learning | Mon | 5:00 p.m. - 8:00 p.m. |
| SOCW_O 554-002 | SOCW_O 002 Mental Health and Mental Illness | Explores relevant mental health issues to social work practice in a broad range of settings. Critically examines social work's role in providing effective, evidence-based, theoretically sound interventions and treatments. Prerequisite: Restricted to students in the M.S.W. program. | Lecture | In Person Learning | Wed | 11:00 a.m. - 2:00 p.m. |
| SOCW_O 554-003 | SOCW_O 003 Mental Health and Mental Illness | Explores relevant mental health issues to social work practice in a broad range of settings. Critically examines social work's role in providing effective, evidence-based, theoretically sound interventions and treatments. Prerequisite: Restricted to students in the M.S.W. program. | Lecture | In Person Learning | Thu | 2:00 p.m. - 5:00 p.m. |
| SOCW_O 559-P03 | SOCW_O P03 Social Work Field Education II | Provides 2nd year Foundation and Advanced One-Year track students an opportunity to apply and integrate theory and practice in clinical social work practice settings. Pass/Fail. Prerequisite: Restricted to students in the M.S.W. program. | Experiential | In Person Learning | Arranged | Arranged |
| SOCW_O 598-001 | SOCW_O 001 Graduating Paper | A scholarly paper in an area of interest that conforms to the demands of a peer-reviewed social work journal. Pass/Fail. | Independent Study | In Person Learning | Arranged | Arranged |
| SOCW_O 598-003 | SOCW_O 003 Graduating Paper | A scholarly paper in an area of interest that conforms to the demands of a peer-reviewed social work journal. Pass/Fail. | Independent Study | In Person Learning | Arranged | Arranged |
| SOCW_O 599-P01 | SOCW_O 001 Thesis | An independent research or scholarly project which aims to develop knowledge and practice implications for clinical social work practice. Pass/Fail. | Thesis | In Person Learning | Arranged | Arranged |
| SOCW_O 599-P03 | SOCW_O 003 Thesis | An independent research or scholarly project which aims to develop knowledge and practice implications for clinical social work practice. Pass/Fail. | Thesis | In Person Learning | Arranged | Arranged |
| SPAN_O 101-001 | SPAN_O 001 Beginners’ Spanish I | Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR). | Lecture | In Person Learning | Mon Wed Fri | 1:00 p.m. - 2:00 p.m. |
| SPAN_O 101-002 | SPAN_O 002 Beginners’ Spanish I | Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR). | Lecture | In Person Learning | Mon Wed Fri | 2:00 p.m. - 3:00 p.m. |
| SPAN_O 101-003 | SPAN_O 003 Beginners’ Spanish I | Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR). | Lecture | In Person Learning | Mon Wed Fri | 9:00 a.m. - 10:00 a.m. |
| SPAN_O 101-004 | SPAN_O 004 Beginners’ Spanish I | Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR). | Lecture | In Person Learning | Mon Wed Fri | 2:00 p.m. - 3:00 p.m. |
| SPAN_O 101-005 | SPAN_O 005 Beginners’ Spanish I | Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR). | Lecture | In Person Learning | Mon Wed Fri | 4:00 p.m. - 5:00 p.m. |
| SPAN_O 101-006 | SPAN_O 006 Beginners’ Spanish I | Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR). | Lecture | In Person Learning | Mon Wed Fri | 1:00 p.m. - 2:00 p.m. |
| SPAN_O 101-007 | SPAN_O 007 Beginners’ Spanish I | Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR). | Lecture | In Person Learning | Mon Wed Fri | 3:00 p.m. - 4:00 p.m. |
| SPAN_O 101-008 | SPAN_O 008 Beginners’ Spanish I | Development of listening, speaking, reading, and writing in Spanish. Corresponds to the first half of level A1 of the Common European Framework of Reference for Languages (CEFR). | Lecture | In Person Learning | Mon Wed Fri | 9:00 a.m. - 10:00 a.m. |
| SPAN_O 201-001 | SPAN_O 001 Advanced Beginners’ Spanish I | Grammer, introduction to composition, oral practice, and reading. Corresponds to the first half of level A2 of the Common European Framework of Reference for Languages (CEFR). Prerequisite: Either (a) a score of 70% or higher in Spanish 12, or (b) SPAN 102. | Lecture | In Person Learning | Mon Wed Fri | 1:00 p.m. - 2:00 p.m. |
| SPAN_O 201-002 | SPAN_O 002 Advanced Beginners’ Spanish I | Grammer, introduction to composition, oral practice, and reading. Corresponds to the first half of level A2 of the Common European Framework of Reference for Languages (CEFR). Prerequisite: Either (a) a score of 70% or higher in Spanish 12, or (b) SPAN 102. | Lecture | In Person Learning | Mon Wed Fri | 10:00 a.m. - 11:00 a.m. |</p>
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Days</th>
<th>Time</th>
<th>Type</th>
<th>Location</th>
<th>Instructor Name</th>
<th>Notes</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>SPAN_O 201-003</td>
<td>Advanced Beginners' Spanish I</td>
<td>WS</td>
<td>003</td>
<td>In Person Learning</td>
<td>Mon Wed Fri</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed Fri</td>
<td>11:00 a.m. - 12:00 p.m.</td>
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<tr>
<td>SPAN_O 301-001</td>
<td>Intermediate Spanish I</td>
<td>WS</td>
<td>001</td>
<td>In Person Learning</td>
<td>Mon Wed Fri</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed Fri</td>
<td>11:00 a.m. - 12:00 p.m.</td>
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<tr>
<td>SPAN_O 303-001</td>
<td>Conversational Spanish</td>
<td>WS</td>
<td>001</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>9:30 a.m. - 11:00 a.m.</td>
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<tr>
<td>SPAN_O 419-001</td>
<td>Introduction to Translation and Interpretation I</td>
<td>WS</td>
<td>001</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed Fri</td>
<td>12:30 p.m. - 2:00 p.m.</td>
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<tr>
<td>STAT_O 124-001</td>
<td>Business Statistics</td>
<td>WS</td>
<td>001</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed Fri</td>
<td>9:30 a.m. - 11:00 a.m.</td>
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<tr>
<td>STAT_O 203-001</td>
<td>Introduction to Probability</td>
<td>WS</td>
<td>001</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
<td>11:00 a.m. - 12:30 p.m.</td>
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<tr>
<td>STAT_O 303-001</td>
<td>Intermediate Probability</td>
<td>WS</td>
<td>001</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
<td>12:30 p.m. - 2:00 p.m.</td>
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<tr>
<td>STAT_O 400-001</td>
<td>Statistical Communication and Consulting</td>
<td>WS</td>
<td>001</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
<td>2:00 p.m. - 3:30 p.m.</td>
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<tr>
<td>STAT_O 408-001</td>
<td>Environmetrics</td>
<td>WS</td>
<td>001</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
<td>9:30 a.m. - 11:00 a.m.</td>
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<tr>
<td>STM_C 435-001</td>
<td>Special Topics in Language Practice and Pedagogy</td>
<td>WS</td>
<td>001</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>Lecture</td>
<td>Online Learning</td>
<td>Arranged</td>
<td>Arranged</td>
</tr>
<tr>
<td>SUST_O 100-001</td>
<td>Sustainability: People, Place, and Process</td>
<td>WS</td>
<td>001</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed Fri</td>
<td>11:00 a.m. - 12:30 p.m.</td>
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<tr>
<td>SUST_O 104-001</td>
<td>Introduction to Environmental Humanities</td>
<td>WS</td>
<td>101</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
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<tr>
<td>SUST_O 104-001</td>
<td>Introduction to Environmental Humanities</td>
<td>WS</td>
<td>001</td>
<td>Discussion</td>
<td>Mon Wed Fri</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Arranged</td>
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<tr>
<td>SUST_O 200-001</td>
<td>Application, Practice and Management Approach</td>
<td>WS</td>
<td>001</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed Fri</td>
<td>5:00 p.m. - 6:30 p.m.</td>
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<tr>
<td>SUST_O 201-001</td>
<td>Introduction to Research in Sustainability and Geosciences</td>
<td>WS</td>
<td>001</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed Fri</td>
<td>12:00 p.m. - 2:00 p.m.</td>
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<tr>
<td>SUST_O 201-001</td>
<td>Introduction to Research in Sustainability and Geosciences</td>
<td>WS</td>
<td>001</td>
<td>Discussion</td>
<td>Fri</td>
<td>In Person Learning</td>
<td>Fri</td>
<td>10:00 a.m. - 11:00 a.m.</td>
<td>Introduction to research skills required to conduct, critically assess, and present research in geography and sustainability. Develops research skills from problem definition through to design and execution of research projects, including how to identify and categorize scholarly articles; identify research questions; and, collect, analyze, and present data and research findings. Credit will be granted for only one of SUST 201, GEOG 201, or GEOG 371. Prerequisite: GEOG 201.</td>
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<td>Course Code</td>
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<td>Credits</td>
<td>Description</td>
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<td>SUST 201</td>
<td>Introduction to Research in Sustainability and Ge</td>
<td>0.02</td>
<td>Introduces skills required to conduct, critically assess, and present research in geography and sustainability. Develops research skills from problem definition through design and execution of research projects, including how to identify and categorize scholarly articles; identify research questions; and, collect, analyze, and present data and research findings. Credit will be granted for only one of SUST 201, GEOG 201, or GEOG 371. (2.0-1) Equivalency: GEOG 201</td>
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<tr>
<td>SUST 202</td>
<td>Community Service Learning</td>
<td>0.01</td>
<td>Apply sustainability learning and knowledge to the broader community by preparing to undertake a project with a community partner. Skills development for work with community and other organizations, communication styles, managing workplace challenges. Restricted to students in the Bachelor of Sustainability program. (0-0-1) Prerequisite: SUST 202.</td>
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<tr>
<td>SUST 302</td>
<td>Community Service Learning</td>
<td>0.01</td>
<td>Apply sustainability learning and knowledge to the broader community through a self-directed project involving at least 30 hours of community service. Development of personal sustainability goals. Restricted to students in the Bachelor of Sustainability program. (0-0-1) Prerequisite: SUST 202.</td>
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<tr>
<td>SUST 304</td>
<td>Place-based Methods for Interdisciplinary Research</td>
<td>0.01</td>
<td>A practice-led methods course that draws on interdisciplinary sustainability literatures on place. Includes a focus on ethics, values, social equity, accessibility and inclusion in addressing multi-scale, multi-stakeholder problems related to sustainability. Restricted to students in the Bachelor of Sustainability program. (1-0-2) Prerequisite: SUST 200.</td>
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<tr>
<td>SUST 305</td>
<td>Performance Impromptu</td>
<td>0.01</td>
<td>A physical approach to impromptu as it relates to the creation of live performance events. (3 hours/week studio)</td>
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<tr>
<td>SUST 306</td>
<td>The Art of Public Speaking</td>
<td>0.01</td>
<td>Explores how live performances (stand-up comedy, circus, puppetry, performance art, theatre, dance and music) engage an audience and reveal the shifting dynamics of public communication.</td>
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<tr>
<td>THTR 103</td>
<td>Acting for Stage and Screen</td>
<td>0.01</td>
<td>An introduction to acting techniques pertaining to the style of psychological realism for stage and screen. Credit will be granted for only one of THTR 103 or FILM 103. (3 hours/week studio) Equivalency: FILM 103</td>
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<tr>
<td>THTR 104</td>
<td>The Art of Public Speaking</td>
<td>0.01</td>
<td>A physical approach to impromptu as it relates to the creation of live performance events. (3 hours/week studio)</td>
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<tr>
<td>THTR 180</td>
<td>Theatre Appreciation: The Power of Live Perform</td>
<td>0.01</td>
<td>The theory and practice of producing a short narrative motion picture for the purpose of developing narrative film literacy. Credit will be granted for only one of THTR 303, CULT 303, CULT 216 or FILM 303. VISA 206, VISA 261, VISA 271, CULT 210, THTR 103, CRWR 250, or FILM 100 recommended. Prerequisite: Third-year standing. Equal to: CULT 303, FILM 303</td>
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<tr>
<td>THTR 303</td>
<td>Narrative Film Production</td>
<td>0.01</td>
<td>History, theory, and practice of performance art as a visual medium, a global language, and a political force. Explores a wide range of experimental and interdisciplinary performance art practices, including key contributions by Indigenous artists. Credit will be granted for only one of THTR 309, ARTH 309, CULT 309, or WRLD 309. Prerequisite: Third-year standing. Equal to: ARTH 309, CULT 309, WRLD 309</td>
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<tr>
<td>VISA 090</td>
<td>Safety Training</td>
<td>0.01</td>
<td>Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.</td>
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<tr>
<td>VISA 090</td>
<td>Safety Training</td>
<td>0.02</td>
<td>Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.</td>
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<tr>
<td>VISA 090</td>
<td>Safety Training</td>
<td>0.03</td>
<td>Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.</td>
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<tr>
<td>VISA 090</td>
<td>Safety Training</td>
<td>0.04</td>
<td>Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.</td>
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<tr>
<td>VISA 090</td>
<td>Safety Training</td>
<td>0.05</td>
<td>Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.</td>
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<tr>
<td>VISA 090</td>
<td>Safety Training</td>
<td>0.06</td>
<td>Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.</td>
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<tr>
<td>VISA 090</td>
<td>Safety Training</td>
<td>0.07</td>
<td>Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.</td>
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<tr>
<td>VISA 090</td>
<td>Safety Training</td>
<td>0.08</td>
<td>Develops students' competence in using the tools in the woodshop and metalshop through demonstrations and the completion of a small project. This non-credit course is required in order to work in these facilities. Pass/Fail.</td>
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In Person Learning
5:00 p.m. - 8:00 p.m.
Studio W_001

In Person Learning
Tue 8:00 a.m. - 11:00 a.m.
W1 W_002 W_003

In Person Learning
9:00 a.m. - 1:00 p.m.
Studio W1

In Person Learning
Drawing and Two-Dimensional Art Practices I
Advanced Practice in Photography
W1 Mon

Safety Training
W1

In Person Learning
2:00 p.m. - 6:00 p.m.

In Person Learning
001

3:30 p.m. - 7:30 p.m.
W1 A_001

In Person Learning
Studio

In Person Learning
Thu 2:00 p.m. - 6:00 p.m.

In Person Learning
Pass/Fail.

Lecture In Person Learning Thu 1:00 p.m. - 5:00 p.m.

In Person Learning
Fri 9:00 a.m. - 1:00 p.m.

Lecture In Person Learning Thu 1:00 p.m. - 5:00 p.m.

Lecture Online Learning Tue 11:00 a.m. - 2:00 p.m.

Lecture In Person Learning Tue 9:00 a.m. - 1:00 p.m.

Lecture In Person Learning Fri 2:00 p.m. - 6:00 p.m.

Lecture In Person Learning Thu 2:00 p.m. - 6:00 p.m.

Lecture In Person Learning Tue 1:00 p.m. - 5:00 p.m.

Lecture In Person Learning Thu 5:00 p.m. - 8:00 p.m.

Lecture In Person Learning Mon 2:00 p.m. - 5:00 p.m.

Prerequisite: VISA 103.
[2-2-0]

Prerequisite: VISA 103.
[2-2-0]

Prerequisite: VISA 103.
[2-2-0]

Prerequisite: One of VISA 106, VISA 108.
[2-2-0]

Prerequisite: One of VISA 103, VISA 147. or permission of the instructor.
[2-2-0]

Prerequisite: VISA 137. [2-1-0]

Prerequisite: VISA 101, VISA 106, VISA 108.
[2-2-0]

Prerequisite: VISA 101, VISA 106, VISA 108.
[2-2-0]

Prerequisite: VISA 101, VISA 106, VISA 108.
[2-2-0]

Prerequisite: One of VISA 103, VISA 147. or permission of the instructor.
[2-2-0]

Prerequisite: VISA 106, VISA 108.
[2-2-0]

Prerequisite: VISA 106, VISA 108.
[2-2-0]

Prerequisite: VISA 106, VISA 108.
[2-2-0]

Prerequisite: VISA 106, VISA 108.
[2-2-0]

Prerequisite: One of VISA 103, VISA 147. or permission of the instructor.
[2-2-0]

Prerequisite: One of VISA 106, VISA 108.
[2-2-0]

Prerequisite: One of VISA 106, VISA 108.
[2-2-0]

Prerequisite: One of VISA 106, VISA 108.
[2-2-0]

Prerequisite: One of VISA 106, VISA 108.
[2-2-0]

Prerequisite: One of VISA 106, VISA 108.
[2-2-0]

Prerequisite: One of VISA 106, VISA 108.
[2-2-0]

Prerequisite: One of VISA 106, VISA 108.
[2-2-0]

Prerequisite: One of VISA 106, VISA 108.
[2-2-0]

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