<table>
<thead>
<tr>
<th>Course Section</th>
<th>Course Subject</th>
<th>Special Topic</th>
<th>Section Number</th>
<th>Section Title</th>
<th>Term</th>
<th>Description</th>
<th>Instructional Format</th>
<th>Delivery Mode</th>
<th>Scheduled Days</th>
<th>Scheduled Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH_O 100-101</td>
<td>ANTH_O</td>
<td>101</td>
<td>Introduction to Cultural Anthropology</td>
<td>W2</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>9:30 a.m. - 11:00 a.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOC_O 109-101</td>
<td>BIOC_O</td>
<td>101</td>
<td>Pharmacology II</td>
<td>W2</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>8:00 a.m. - 9:30 a.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 261-001</td>
<td>APSC_O</td>
<td>001</td>
<td>Theory of Structures</td>
<td>W2</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>8:00 a.m. - 9:30 a.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOC_O 402-001</td>
<td>BIOC_O</td>
<td>001</td>
<td>Proteins: Structure and Function</td>
<td>W2</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>11:00 a.m. - 12:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH_O 100-102</td>
<td>ANTH_O</td>
<td>102</td>
<td>Introduction to Cultural Anthropology</td>
<td>W2</td>
<td>Lecture</td>
<td>Online Learning</td>
<td>Mon Wed</td>
<td>11:00 a.m. - 12:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH_O 100-103</td>
<td>ANTH_O</td>
<td>103</td>
<td>Introduction to Cultural Anthropology</td>
<td>W2</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed Fri</td>
<td>9:00 a.m. - 10:00 a.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH_O 205-101</td>
<td>ANTH_O</td>
<td>101</td>
<td>Gender, Sexuality, and the Body</td>
<td>W2</td>
<td>Lecture</td>
<td>Online Learning</td>
<td>Wed Fri</td>
<td>12:30 p.m. - 2:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH_O 277-101</td>
<td>ANTH_O</td>
<td>101</td>
<td>Anthropology of Reading and Writing</td>
<td>W2</td>
<td>Lecture</td>
<td>Online Learning</td>
<td>Mon Wed</td>
<td>11:00 a.m. - 12:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH_O 319-101</td>
<td>ANTH_O</td>
<td>101</td>
<td>Settling Down: An Archaeology of Early State Soc</td>
<td>W2</td>
<td>Lecture</td>
<td>Online Learning</td>
<td>Tue Thu</td>
<td>2:00 p.m. - 3:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 260-T2A</td>
<td>APSC_O</td>
<td>T2A</td>
<td>Mechanics of Materials I</td>
<td>W2</td>
<td>Discussion</td>
<td>Online Learning</td>
<td>Wed</td>
<td>4:00 p.m. - 5:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 260-T2B</td>
<td>APSC_O</td>
<td>T2B</td>
<td>Mechanics of Materials I</td>
<td>W2</td>
<td>Discussion</td>
<td>Online Learning</td>
<td>Wed</td>
<td>11:00 a.m. - 12:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 260-T2C</td>
<td>APSC_O</td>
<td>T2C</td>
<td>Mechanics of Materials I</td>
<td>W2</td>
<td>Discussion</td>
<td>Online Learning</td>
<td>Mon</td>
<td>10:00 a.m. - 11:00 a.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 260-T2D</td>
<td>APSC_O</td>
<td>T2D</td>
<td>Mechanics of Materials I</td>
<td>W2</td>
<td>Discussion</td>
<td>Online Learning</td>
<td>Mon</td>
<td>10:00 a.m. - 11:00 a.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 260-T2E</td>
<td>APSC_O</td>
<td>T2E</td>
<td>Mechanics of Materials I</td>
<td>W2</td>
<td>Discussion</td>
<td>Online Learning</td>
<td>Tue</td>
<td>5:00 p.m. - 6:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 260-T2F</td>
<td>APSC_O</td>
<td>T2F</td>
<td>Mechanics of Materials I</td>
<td>W2</td>
<td>Discussion</td>
<td>Online Learning</td>
<td>Wed</td>
<td>10:00 a.m. - 11:00 a.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 260-T2G</td>
<td>APSC_O</td>
<td>T2G</td>
<td>Mechanics of Materials I</td>
<td>W2</td>
<td>Discussion</td>
<td>Online Learning</td>
<td>Wed</td>
<td>10:00 a.m. - 11:00 a.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 260-T2H</td>
<td>APSC_O</td>
<td>T2H</td>
<td>Mechanics of Materials I</td>
<td>W2</td>
<td>Discussion</td>
<td>Online Learning</td>
<td>Wed</td>
<td>8:00 a.m. - 9:00 a.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 260-T2I</td>
<td>APSC_O</td>
<td>T2I</td>
<td>Mechanics of Materials I</td>
<td>W2</td>
<td>Discussion</td>
<td>Online Learning</td>
<td>Tue</td>
<td>11:00 a.m. - 12:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 260-T2J</td>
<td>APSC_O</td>
<td>T2J</td>
<td>Mechanics of Materials I</td>
<td>W2</td>
<td>Discussion</td>
<td>Online Learning</td>
<td>Tue</td>
<td>6:00 p.m. - 7:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 260-T2K</td>
<td>APSC_O</td>
<td>T2K</td>
<td>Mechanics of Materials I</td>
<td>W2</td>
<td>Discussion</td>
<td>Online Learning</td>
<td>Wed</td>
<td>11:00 a.m. - 12:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 261-01A</td>
<td>APSC_O</td>
<td>T1A</td>
<td>Theory of Structures</td>
<td>W2</td>
<td>Corequisite: APSC 260</td>
<td>Discussion</td>
<td>Online Learning</td>
<td>Mon</td>
<td>8:00 a.m. - 10:00 a.m.</td>
<td></td>
</tr>
</tbody>
</table>


ARTH_O 203-101 ARTH_O 101 Global Contemporary Art W2 The contemporary global art scene with an emphasis on strategies for understanding the complexity of art production from 1895 to the present. Credit will be granted for only one of ARTH 203 or ARTH 302. [3-0-0] Lecture Online Learning Thu 9:30 a.m. - 11:00 a.m.

ARTH_O 396-101 ARTH_O 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 Tue Thu 2:00 p.m. - 5:00 p.m.

APSC_O 173-202 APSC_O 202 Engineering Analysis II 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. Lecture In Person Learning Wed Fri 9:30 a.m. - 11:00 a.m.

APSC_O 178-202 APSC_O 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. Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

APSC_O 183-101 APSC_O 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 Tue Thu 12:00 p.m. - 1:00 p.m.

APSC_O 183-102 APSC_O 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 Tue Thu 11:00 a.m. - 12:00 p.m.

APSC_O 253-202 APSC_O 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*-2*] Prerequisite: All of APSC 180, APSC 181, APSC 248.

ANTH_O 103-101 ANTH_O 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 kind and hunting and gathering culture, to the emergence of civilization and state-level societies. [3-0-0] Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

ANTH_O 170-101 ANTH_O 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] Lecture In Person Learning Wed Fri 8:00 a.m. - 9:30 a.m.

ANTH_O 200-101 ANTH_O 101 Public Anthropology: Engagement and Advocacy 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: Either (a) one of ANTH 100, ANTH 103 or (b) ANTH 170. Second-year standing. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

ANTH_O 295-T, 101 ANTH_O T 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 Tue Thu 12:30 p.m. - 2:00 p.m.

ANTH_O 311-101 ANTH_O 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.

ANTH_O 330-101 ANTH_O 101 Psychological Distress, Mental Health, and Well- W2 Introduction to the field of psychological anthropology, focusing on how the concepts and experiences of mental health and illness are shaped by cultural, historical, and political economic contexts. Different systems of knowledge and diverse understandings of normality and pathology; emotions and embodiment; illness and healing; self, subjectivity, and personhood will be examined. ANTH 227 is strongly recommended. [3-0-0] Prerequisite: ANTH 100. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

ANTH_O 355-101 ANTH_O 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 Fri 9:30 a.m. - 11:00 a.m.

APSC_O 181-T2 APSC_O 101 Dynamics W2 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 173, APSC 180. Corequisite: APSC 173. Discussion Online Learning Wed Fri 12:00 p.m. - 2:00 p.m.

APSC_O 278-T2 APSC_O 101 Electric and Magnetic Fields 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 173, APSC 179, APSC 248. Discussion Online Learning Mon 12:00 p.m. - 1:00 p.m.

BIOC_O 403-101 BIOC_O 101 Enzymology W2 Enzyme kinetics: steady-state kinetic analyses, fast-reaction methods, kinetic isotope effects. Catalytic mechanisms: coenzymology, radical-mediated reactions, catalytic rate enhancements. Special topics: enzyme evolution, multifunctional enzymes, biocatalysis, protein engineering. Credit will be granted for only one of BIOC 403, CHEM 403, CHEM 413, CHEM 569. [3-0-0] Prerequisite: One of BIOC 304, BIOC 311. Equivalency: CHEM403 Lecture In Person Learning Wed Fri 9:00 a.m. - 10:00 a.m.

ANTH_O 370-101 ANTH_O 101 Morphology, Syntax, and Semantics W2 Cross-cultural exploration of grammar focusing on the structure of words, organization of words into phrases and sentences, coding of meaning in grammar, methods used in grammatical analysis, and history of grammatical theory. [3-0-0] Prerequisite: ANTH 170. Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.
**APSC 201-T2D** Technical Communication  
W2  
Lecture In Person Learning  
Mon Wed 3:30 p.m. - 5:00 p.m.

**APSC 201-T24** Technical Communication  
W2  
Lecture In Person Learning  
Wed Fri 9:30 a.m. - 11:00 a.m.

**ANTH 401-T2D** Contemporary Theory in Anthropology  
W2  
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 500 or ANTH 401. [3-0-0] Prerequisite: ANTH 100 and third-year standing.  
Lecture In Person Learning  
Tue Thu 9:30 a.m. - 11:00 a.m.

**APSC 181-T2B** Dynamics  
W2  
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 6:00 p.m. - 8:00 p.m.

**APSC 181-T2C** Dynamics  
W2  
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  
Thu 6:00 p.m. - 8:00 p.m.

**ANTH 418-101** Travel, Migration and the Politics of Mobility  
W2  
A critical examination of selected topics in the field of tourism, migration and mobility studies drawing on contemporary ethnography and current issues. [3-0-0] Prerequisite: ANTH 101 and third-year standing. ANTH 218 is recommended.  
Lecture In Person Learning  
Wed Fri 3:30 p.m. - 5:00 p.m.

**ANTH 475-101** Anthropology, History, and Tradition  
W2  
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. [0-0-3] Prerequisite: ANTH 100. 6 credits of ANTH at the 200-level or beyond; and third-year standing.  
Seminar In Person Learning  
Mon Wed 2:00 p.m. - 3:30 p.m.

**APSC 181-T2E** Dynamics  
W2  
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.

**APSC 181-T2F** Dynamics  
W2  
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  
Thu 10:00 a.m. - 12:00 p.m.

**APSC 278-T2B** Electric and Magnetic Fields  
W2  
Electric fields and forces, electric potential, capacitance, DC circuits, magnetic fields and forces, Faraday’s law, induction, waves, light, and optics. Corequisite: APSC 173.  
Discussion In Person Learning  
Thu 2:00 p.m. - 3:00 p.m.

**ANTH 490-M_101** Topics in Anthropology  
W2  
Intensive examination of selected topics in anthropology. Consult the department for this year’s offerings and prerequisites. [3-0-0] Prerequisite: ANTH 100. 6 credits of ANTH at the 300 or 400 level; and third-year standing.  
Lecture In Person Learning  
Wed Thu 11:00 a.m. - 12:30 p.m.

**APSC 181-T2A** Dynamics  
W2  
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 8:00 a.m. - 10:00 a.m.

**APSC 110-T2C** Co-operative Education Work Term I  
W2  
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

**APSC 110-T2E** Co-operative Education Work Term I  
W2  
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

**APSC 110-T2F** Co-operative Education Work Term I  
W2  
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

**APSC 110-T2M** Co-operative Education Work Term I  
W2  
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

**APSC 178-T2A** Electricity, Magnetism, and Waves  
W2  
Electric fields and forces, electric potential, capacitance, DC circuits, magnetic fields and forces, Faraday’s law, induction, waves, light, and optics. [3-0-1] Prerequisite: APSC 176. Corequisite: APSC 173.  
Discussion Online Learning  
Arranged

**APSC 178-T2B** Electricity, Magnetism, and Waves  
W2  
Electric fields and forces, electric potential, capacitance, DC circuits, magnetic fields and forces, Faraday’s law, induction, waves, light, and optics. [3-0-1] Prerequisite: APSC 176. Corequisite: APSC 173.  
Discussion Online Learning  
Arranged

**APSC 178-T2C** Electricity, Magnetism, and Waves  
W2  
Electric fields and forces, electric potential, capacitance, DC circuits, magnetic fields and forces, Faraday’s law, induction, waves, light, and optics. [3-0-1] Prerequisite: APSC 176. Corequisite: APSC 173.  
Discussion Online Learning  
Arranged

**APSC 178-T2E** Electricity, Magnetism, and Waves  
W2  
Electric fields and forces, electric potential, capacitance, DC circuits, magnetic fields and forces, Faraday’s law, induction, waves, light, and optics. [3-0-1] Prerequisite: APSC 176. Corequisite: APSC 173.  
Discussion Online Learning  
Arranged
In Person Learning

Co-operative Education Work Term III

Arranged

Discussion

Online 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 172. Corequisite: APSC 173.

Electric fields and forces, electric potential, capacitance, DC circuits, magnetic fields and forces, Faraday’s law, inducance, waves, light, and optics. [3-0-1] Prerequisite: APSC 172. Corequisite: APSC 173.

Electric fields and forces, electric potential, capacitance, DC circuits, magnetic fields and forces, Faraday’s law, inducance, waves, light, and optics. [3-0-1] Prerequisite: APSC 172. Corequisite: APSC 173.

Online Learning

Arranged

Arranged

Electric fields and forces, electric potential, capacitance, DC circuits, magnetic fields and forces, Faraday’s law, inducance, waves, light, and optics. [3-0-1] Prerequisite: APSC 172. Corequisite: APSC 173.

Electric fields and forces, electric potential, capacitance, DC circuits, magnetic fields and forces, Faraday’s law, inducance, waves, light, and optics. [3-0-1] Prerequisite: APSC 172. Corequisite: APSC 173.

Online Learning

Arranged

Arranged

Electric fields and forces, electric potential, capacitance, DC circuits, magnetic fields and forces, Faraday’s law, inducance, waves, light, and optics. [3-0-1] Prerequisite: APSC 172. Corequisite: APSC 173.

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*]

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*]

Electric fields and forces, electric potential, capacitance, DC circuits, magnetic fields and forces, Faraday’s law, inducance, waves, light, and optics. [3-0-1] Prerequisite: APSC 172. Corequisite: APSC 173.

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*]

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*]

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*]

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*]

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*]
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Type</th>
<th>Terms</th>
<th>Co-operative Education Work Term IV</th>
<th>Co-operative Education Work Term V</th>
<th>Co-operative Education Work Term VI</th>
<th>Co-operative Education Work Term VII</th>
</tr>
</thead>
<tbody>
<tr>
<td>APSC_O 410-72E</td>
<td>Co-operative Education Work Term IV</td>
<td>72</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 410-72F</td>
<td>Co-operative Education Work Term IV</td>
<td>72</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 410-72M</td>
<td>Co-operative Education Work Term IV</td>
<td>72M</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 411-72C</td>
<td>Co-operative Education Work Term V</td>
<td>72C</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 411-72E</td>
<td>Co-operative Education Work Term V</td>
<td>72E</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 411-72F</td>
<td>Co-operative Education Work Term V</td>
<td>72F</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 411-72M</td>
<td>Co-operative Education Work Term V</td>
<td>72M</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 412-72C</td>
<td>Co-operative Education Work Term VI</td>
<td>72C</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 412-72E</td>
<td>Co-operative Education Work Term VI</td>
<td>72E</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 412-72F</td>
<td>Co-operative Education Work Term VI</td>
<td>72F</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 412-72M</td>
<td>Co-operative Education Work Term VI</td>
<td>72M</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 510-002</td>
<td>Engineering Internship I</td>
<td>002</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_O 511-001</td>
<td>Engineering Internship II</td>
<td>001</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOC_O 448-A_101</td>
<td>Directed Studies in Biochemistry</td>
<td>A</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOC_O 448-A_102</td>
<td>Directed Studies in Biochemistry</td>
<td>A</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOC_O 448-A_103</td>
<td>Directed Studies in Biochemistry</td>
<td>A</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOC_O 448-A_104</td>
<td>Directed Studies in Biochemistry</td>
<td>A</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Name</td>
<td>Type</td>
<td>Credit</td>
<td>Description</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
<td>------</td>
<td>--------</td>
<td>-------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL_448-A_105</td>
<td>Directed Studies in Biochemistry</td>
<td>Independent Study</td>
<td>W2</td>
<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. The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL_448-A_106</td>
<td>Directed Studies in Biochemistry</td>
<td>Independent Study</td>
<td>W2</td>
<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. The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL_448-C_101</td>
<td>Directed Studies in Biochemistry</td>
<td>Independent Study</td>
<td>W2</td>
<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. The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL_448-C_102</td>
<td>Directed Studies in Biochemistry</td>
<td>Independent Study</td>
<td>W2</td>
<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. The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL_448-C_103</td>
<td>Directed Studies in Biochemistry</td>
<td>Independent Study</td>
<td>W2</td>
<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. The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL_448-C_104</td>
<td>Directed Studies in Biochemistry</td>
<td>Independent Study</td>
<td>W2</td>
<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. The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL_448-C_105</td>
<td>Directed Studies in Biochemistry</td>
<td>Independent Study</td>
<td>W2</td>
<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. The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL_448-C_106</td>
<td>Directed Studies in Biochemistry</td>
<td>Independent Study</td>
<td>W2</td>
<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. The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL_448-C_107</td>
<td>Directed Studies in Biochemistry</td>
<td>Independent Study</td>
<td>W2</td>
<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. The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL_448-C_108</td>
<td>Directed Studies in Biochemistry</td>
<td>Independent Study</td>
<td>W2</td>
<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. The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_171-201</td>
<td>Engineering Drawing and CAD/CAM</td>
<td>Lecture</td>
<td>W2</td>
<td>Orthographic projections, axonometric and perspective projections, dimensioning and tolerances, computer-aided design and modeling, introduction to rapid prototyping, team-based design project. [3-0-2]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_173-201</td>
<td>Engineering Analysis II</td>
<td>Lecture</td>
<td>W2</td>
<td>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]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSC_177-201</td>
<td>Engineering Computation and Instrumentation</td>
<td>Lecture</td>
<td>W2</td>
<td>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]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 253-T0B APSC_O T0B Fluid Mechanics I W2 Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Lecture In Person Learning Thu (Alternate weeks) 9:30 a.m. - 11:00 a.m.

Laboratory In Person Learning Tue (Alternate weeks) 12:00 p.m. - 2:00 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*-1] Prerequisite: APSC 178.

Laboratory In Person Learning Wed (Alternate weeks) 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.

Laboratory In Person Learning Fri (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC 253-T08 APSC_O T08 Fluid Mechanics I W2 Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Lecture In Person Learning Thu (Alternate weeks) 9:30 a.m. - 11:00 a.m.

Laboratory In Person Learning Tue (Alternate weeks) 12:00 p.m. - 2:00 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*-1] Prerequisite: APSC 178.

Laboratory In Person Learning Tue (Alternate weeks) 12:00 p.m. - 2:00 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*-1] Prerequisite: APSC 178.

Laboratory In Person Learning Mon (Alternate weeks) 8:00 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*-1] Prerequisite: APSC 178.

Laboratory In Person Learning Mon (Alternate weeks) 8:00 a.m. - 10:00 a.m.
APSC_0 215-T1H  APSC_0  T1H  Electric Circuits and Power  W2  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 factor. AC power analysis using phasors. Three-phase AC power systems. [3-2*-1] Prerequisite: APSC 178.  Discussion  In Person Learning  Wed  5:00 p.m. - 6:00 p.m.

APSC_0 173-T2C  APSC_0  T2C  Engineering Analysis II  W2  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.  Discussion  In Person Learning  Wed  2:00 p.m. - 3:00 p.m.

APSC_0 173-T2H  APSC_0  T2H  Engineering Analysis II  W2  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.  Discussion  In Person Learning  Wed  8:00 a.m. - 9:00 a.m.

APSC_0 215-T1C  APSC_0  T1C  Electric Circuits and Power  W2  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 factor. AC power analysis using phasors. Three-phase AC power systems. [3-2*-1] Prerequisite: APSC 178.  Discussion  In Person Learning  Wed  1:00 p.m. - 2:00 p.m.

APSC_0 215-T1E  APSC_0  T1E  Electric Circuits and Power  W2  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 factor. AC power analysis using phasors. Three-phase AC power systems. [3-2*-1] Prerequisite: APSC 178.  Discussion  In Person Learning  Wed  10:00 a.m. - 11:00 a.m.

APSC_0 173-T2D  APSC_0  T2D  Engineering Analysis II  W2  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.  Discussion  In Person Learning  Thu  10:00 a.m. - 11:00 a.m.

APSC_0 173-T2I  APSC_0  T2I  Engineering Analysis II  W2  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.  Discussion  In Person Learning  Thu  1:00 p.m. - 2:00 p.m.

APSC_0 213-T0A  APSC_0  T0A  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*-0]  Discussion  In Person Learning  Fri  11:00 a.m. - 12:00 p.m.

APSC_0 213-T0D  APSC_0  T0D  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*-2] Prerequisite: All of APSC 180, APSC 181, APSC 248.  Discussion  In Person Learning  Thu  12:00 p.m. - 1:00 p.m.

APSC_0 213-T0E  APSC_0  T0E  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*-2] Prerequisite: All of APSC 180, APSC 181, APSC 248.  Discussion  In Person Learning  Thu  2:00 p.m. - 3:00 p.m.

APSC_0 215-T1D  APSC_0  T1D  Electric Circuits and Power  W2  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 factor. AC power analysis using phasors. Three-phase AC power systems. [3-2*-1] Prerequisite: APSC 178.  Discussion  In Person Learning  Tue  11:00 a.m. - 12:00 p.m.

APSC_0 215-T1J  APSC_0  T1J  Electric Circuits and Power  W2  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 factor. AC power analysis using phasors. Three-phase AC power systems. [3-2*-1] Prerequisite: APSC 178.  Discussion  In Person Learning  Mon  2:00 p.m. - 3:00 p.m.

APSC_0 173-T2E  APSC_0  T2E  Engineering Analysis II  W2  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.  Discussion  In Person Learning  Wed  2:00 p.m. - 3:00 p.m.

ASTR_0 120-101  ASTR_0  I01  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 structure of the 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, 123, 13-3*-1 Prerequisite: One of Foundations of Mathematics 12, Pre-Calculus 11, Principles of Mathematics 11; and Physics 11.  Lecture  In Person Learning  Thu  11:00 a.m. - 12:30 p.m.

ASTR_0 121-101  ASTR_0  I01  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. [3-3*-0] Prerequisite: Foundations of Mathematics 11 is strongly recommended.  Lecture  In Person Learning  Thu  11:00 a.m. - 12:30 p.m.

ASTR_0 123-101  ASTR_0  I01  Astronomy II (Non Lab)  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. Does not satisfy science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 120, 121, 122. [3-0-0] Prerequisite: Foundations of Mathematics 11 is strongly recommended.  Lecture  In Person Learning  Thu  11:00 a.m. - 12:30 p.m.

APSC_0 173-T2G  APSC_0  T2G  Engineering Analysis II  W2  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.  Discussion  In Person Learning  Mon  1:00 p.m. - 2:00 p.m.

APSC_0 213-T0C  APSC_0  T0C  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.  Discussion  In Person Learning  Fri  9:00 a.m. - 10:00 a.m.

APSC_0 177-202  APSC_0  202  Engineering Computation and Instrumentation  W2  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  2:00 p.m. - 3:30 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Catalog</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APSC 178</td>
<td>APSC 178</td>
<td>3-0-1</td>
<td>Prerequisite: APSC 176.</td>
<td></td>
</tr>
<tr>
<td>APSC 248</td>
<td>APSC 248</td>
<td>3-0-1</td>
<td>Prerequisite: APSC 176.</td>
<td></td>
</tr>
<tr>
<td>BIOL 116</td>
<td>BIOL 116</td>
<td>3-0-1</td>
<td>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. [3-0-1] Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.</td>
<td></td>
</tr>
<tr>
<td>BIOL 125</td>
<td>BIOL 125</td>
<td>3-0-1</td>
<td>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. [3-0-1] Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.</td>
<td></td>
</tr>
<tr>
<td>APSC 278</td>
<td>APSC 278</td>
<td>3-0-1</td>
<td>Prerequisite: APSC 176. Credit will be granted for only one of APSC 278 or ENGR 365. [3-0-1] Prerequisite: All of ENGR 365, APSC 178. Corequisite: APSC 179.</td>
<td></td>
</tr>
<tr>
<td>BIOL 200</td>
<td>BIOL 200</td>
<td>3-0-1</td>
<td>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 278, APSC 284.</td>
<td></td>
</tr>
<tr>
<td>APSC 176</td>
<td>APSC 176</td>
<td>3-0-1</td>
<td>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: APSC 170, APSC 180. Corequisite: APSC 173.</td>
<td></td>
</tr>
<tr>
<td>APSC 181</td>
<td>APSC 181</td>
<td>3-0-1</td>
<td>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: APSC 170, APSC 180. Corequisite: APSC 173.</td>
<td></td>
</tr>
<tr>
<td>APSC 204</td>
<td>APSC 204</td>
<td>3-0-1</td>
<td>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: APSC 170, APSC 180. Corequisite: APSC 173.</td>
<td></td>
</tr>
<tr>
<td>APSC 207</td>
<td>APSC 207</td>
<td>3-0-1</td>
<td>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: APSC 170, APSC 180. Corequisite: APSC 173.</td>
<td></td>
</tr>
<tr>
<td>APSC 208</td>
<td>APSC 208</td>
<td>3-0-1</td>
<td>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: APSC 170, APSC 180. Corequisite: APSC 173.</td>
<td></td>
</tr>
<tr>
<td>APSC 309</td>
<td>APSC 309</td>
<td>3-0-1</td>
<td>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: APSC 170, APSC 180. Corequisite: APSC 173.</td>
<td></td>
</tr>
<tr>
<td>APSC 181-T2D</td>
<td>APSC 181-T2D</td>
<td>3-0-1</td>
<td>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: APSC 170, APSC 180. Corequisite: APSC 173.</td>
<td></td>
</tr>
<tr>
<td>APSC 181-T2H</td>
<td>APSC 181-T2H</td>
<td>3-0-1</td>
<td>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: APSC 170, APSC 180. Corequisite: APSC 173.</td>
<td></td>
</tr>
<tr>
<td>APSC 181-T2J</td>
<td>APSC 181-T2J</td>
<td>3-0-1</td>
<td>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: APSC 170, APSC 180. Corequisite: APSC 173.</td>
<td></td>
</tr>
<tr>
<td>APSC 201-206</td>
<td>APSC 201-206</td>
<td>3-0-1</td>
<td>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: APSC 170, APSC 180. Corequisite: APSC 173.</td>
<td></td>
</tr>
<tr>
<td>APSC 278-T2A</td>
<td>APSC 278-T2A</td>
<td>3-0-1</td>
<td>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: APSC 170, APSC 180. Corequisite: APSC 173.</td>
<td></td>
</tr>
</tbody>
</table>

APSC_O 278-27D APSC_O 27D Electric and Magnetic Fields 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 ENGK 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 L2A 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-L2B APSC_O 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 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 p.m. - 2:00 p.m.

APSC_O 183-L2V APSC_O 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 p.m. - 2:00 p.m.

APSC_O 262-001 APSC_O 001 Digital Logic Design W2 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 178. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.
APSC O 270-001  APSC O 001 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. Lecture In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.

BIOC O 305-101  BIOC O 101 Molecular Biochemistry II W2 Metabolic pathways with a mechanistic perspective including regulation and control of carbohydrate, lipid, amino acid, and nucleotide catalolism and anabolism. Oxidative- and photo-phosphorylation. The biochemistry and molecular biology of signal transduction, replication, DNA repair, transcription, translation, and gene regulation. Credit will only be granted for one of BIOC 305 or BIOC 319. [3-0-0] Prerequisite: All of BIOC 304, BIOC 200. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

ASTR O 120-501  ASTR O 501 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 weekly labs; 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*-1] Prerequisite: One of Foundations of Mathematics 12, Pre-Calculus 11, Principles of Mathematics 11; and Physics 11. Seminar In Person Learning Fri 12:00 p.m. - 1:00 p.m.

ARTH O 102-101  ARTH O 101 Art and Visual Cultures of the World II W2 Introduction to art and visual cultures of major world regions from the early modern period to the present. [3-0-0] Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

ARTH O 315-101  ARTH O 101 History of 20th-Century Art W3 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 Mogul Empire, the roles of Hindus, 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 ARTH 375, DHUM 375, or WRDL 375. Prerequisite: Third-year standing. Equivalency: DHUM 375, WRDL 375. Lecture In Person Learning Mon Wed 6:00 p.m. - 7:30 p.m.

ARTH O 385-101  ARTH O 101 African Dress and Fashion W2 An examination of historical and contemporary African dress and fashion emphasizing sociocultural and political contexts, transcultural, and global identities. [3-0-0] Prerequisite: Third-year standing. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

ARTH O 451-101  ARTH O 101 Politics of Exhibition and Representation W2 Politics of exhibition and representation of world arts and visual cultures in contexts of colonialism and postcolonial action. Prerequisite: Third-year standing. Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

APSC O 253-1A  APSC O 1A 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. Laboratory In Person Learning Fri (Alternate weeks) 2:00 p.m. - 4:00 p.m.

APSC O 253-1B  APSC O 1B 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. Laboratory In Person Learning Fri (Alternate weeks) 2:00 p.m. - 4:00 p.m.

APSC O 253-1C  APSC O 1C 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. Laboratory In Person Learning Thu (Alternate weeks) 1:00 p.m. - 3:00 p.m.

APSC O 253-1D  APSC O 1D 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. Laboratory In Person Learning Thu (Alternate weeks) 1:00 p.m. - 3:00 p.m.

APSC O 253-1E  APSC O 1E 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. Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.

APSC O 253-1F  APSC O 1F 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. Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.

APSC O 253-1G  APSC O 1G 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. Laboratory In Person Learning Thu (Alternate weeks) 3:00 p.m. - 5:00 p.m.

APSC O 253-1H  APSC O 1H 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. Laboratory In Person Learning Thu (Alternate weeks) 3:00 p.m. - 5:00 p.m.

APSC O 253-1I  APSC O 1I 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. Laboratory In Person Learning Tue (Alternate weeks) 2:00 p.m. - 4:00 p.m.

APSC O 253-1J  APSC O 1J 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. Laboratory In Person Learning Tue (Alternate weeks) 2:00 p.m. - 4:00 p.m.

APSC O 253-1K  APSC O 1K 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. Laboratory In Person Learning Wed (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC O 253-1L  APSC O 1L 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. Laboratory In Person Learning Wed (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC O 253-1M  APSC O 1M 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. Laboratory In Person Learning Mon (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC O 253-1N  APSC O 1N 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. Laboratory In Person Learning Mon (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC O 253-1O  APSC O 1O 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. Laboratory In Person Learning Mon (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC O 253-1P  APSC O 1P 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. Laboratory In Person Learning Mon (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC O 253-1Q  APSC O 1Q 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. Laboratory In Person Learning Mon (Alternate weeks) 12:00 p.m. - 2:00 p.m.
<table>
<thead>
<tr>
<th>Code</th>
<th>Section</th>
<th>Title</th>
<th>Days</th>
<th>Time</th>
<th>Type</th>
<th>Location</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL_O</td>
<td>125-L01</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>12:30 p.m. - 3:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Mon</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>125-L02</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>3:30 p.m. - 6:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Mon</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>125-L03</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>6:30 p.m. - 9:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Mon</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>125-L04</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>125-L05</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>12:30 p.m. - 3:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>125-L06</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>3:30 p.m. - 6:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>125-L07</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>6:30 p.m. - 9:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Wed</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>125-L08</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Wed</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>125-L09</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>12:30 p.m. - 3:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Wed</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>125-L10</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>3:30 p.m. - 6:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Wed</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>125-L11</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>6:30 p.m. - 9:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
</tbody>
</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. [3-3-0] Prerequisite: BIOL 116. Corequisite: One of CHEM 113, CHEM 123 is recommended.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Section</th>
<th>Section Code</th>
<th>Title</th>
<th>Days</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 125-L13</td>
<td>L13</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>12:30 p.m. - 3:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning Thu</td>
</tr>
<tr>
<td>BIOL 125-L14</td>
<td>L14</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>3:30 p.m. - 6:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning Thu</td>
</tr>
<tr>
<td>BIOL 125-L15</td>
<td>L15</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>6:30 p.m. - 9:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning Thu</td>
</tr>
<tr>
<td>BIOL 125-L16</td>
<td>L16</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning Fri</td>
</tr>
<tr>
<td>BIOL 125-L17</td>
<td>L17</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>12:30 p.m. - 3:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning Mon</td>
</tr>
<tr>
<td>BIOL 125-L18</td>
<td>L18</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>3:30 p.m. - 6:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning Mon</td>
</tr>
<tr>
<td>BIOL 125-L19</td>
<td>L19</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>6:30 p.m. - 9:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning Mon</td>
</tr>
<tr>
<td>BIOL 125-L20</td>
<td>L20</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning Tue</td>
</tr>
<tr>
<td>BIOL 125-L21</td>
<td>L21</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>12:30 p.m. - 3:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning Tue</td>
</tr>
<tr>
<td>BIOL 125-L22</td>
<td>L22</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>3:30 p.m. - 6:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning Tue</td>
</tr>
<tr>
<td>BIOL 125-L23</td>
<td>L23</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>6:30 p.m. - 9:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning Tue</td>
</tr>
<tr>
<td>BIOL 125-L24</td>
<td>L24</td>
<td>Biology for Science Majors II</td>
<td>W2</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory</td>
<td>In Person Learning Wed</td>
</tr>
</tbody>
</table>
BIO112 | L2S | L2S | Biology for Science Majors II | W2 | 8:00 a.m. - 10:00 a.m. | In Person Learning | Tue (Alternate weeks) | 12:00 p.m. - 2:00 p.m.

APSC 255-11A | APSC_O | L1A | Electric Circuits and Power | W2 | 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. [3-2*-1] Prerequisite: APSC 178. | Laboratory | In Person Learning | Wed | 12:30 p.m. - 2:30 p.m.

APSC 255-11B | APSC_O | L1B | Electric Circuits and Power | W2 | 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. [3-2*-1] Prerequisite: APSC 178. | Laboratory | In Person Learning | Tue (Alternate weeks) | 5:00 p.m. - 7:00 p.m.

APSC 255-11C | APSC_O | L1C | Electric Circuits and Power | W2 | 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. [3-2*-1] Prerequisite: APSC 178. | Laboratory | In Person Learning | Mon (Alternate weeks) | 8:00 a.m. - 10:00 a.m.

APSC 255-11D | APSC_O | L1D | Electric Circuits and Power | W2 | 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. [3-2*-1] Prerequisite: APSC 178. | Laboratory | In Person Learning | Mon (Alternate weeks) | 8:00 a.m. - 10:00 a.m.

APSC 255-11E | APSC_O | L1E | Electric Circuits and Power | W2 | 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. [3-2*-1] Prerequisite: APSC 178. | Laboratory | In Person Learning | Tue (Alternate weeks) | 12:00 p.m. - 2:00 p.m.

APSC 255-11F | APSC_O | L1F | Electric Circuits and Power | W2 | 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. [3-2*-1] Prerequisite: APSC 178. | Laboratory | In Person Learning | Tue (Alternate weeks) | 12:00 p.m. - 2:00 p.m.

APSC 255-11G | APSC_O | L1G | Electric Circuits and Power | W2 | 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. [3-2*-1] Prerequisite: APSC 178. | Laboratory | In Person Learning | Thu (Alternate weeks) | 2:00 p.m. - 4:00 p.m.

APSC 255-11H | APSC_O | L1H | Electric Circuits and Power | W2 | 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. [3-2*-1] Prerequisite: APSC 178. | Laboratory | In Person Learning | Thu (Alternate weeks) | 2:00 p.m. - 4:00 p.m.

APSC 255-11I | APSC_O | L1I | Electric Circuits and Power | W2 | 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. [3-2*-1] Prerequisite: APSC 178. | Laboratory | In Person Learning | Mon (Alternate weeks) | 10:00 a.m. - 12:00 p.m.

APSC 255-11J | APSC_O | L1J | Electric Circuits and Power | W2 | 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. [3-2*-1] Prerequisite: APSC 178. | Laboratory | In Person Learning | Tue (Alternate weeks) | 2:00 p.m. - 4:00 p.m.

APSC 255-11K | APSC_O | L1K | Electric Circuits and Power | W2 | 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. [3-2*-1] Prerequisite: APSC 178. | Laboratory | In Person Learning | Tue (Alternate weeks) | 2:00 p.m. - 4:00 p.m.

APSC 255-11L | APSC_O | L1L | Electric Circuits and Power | W2 | 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. [3-2*-1] Prerequisite: APSC 178. | Laboratory | In Person Learning | Tue (Alternate weeks) | 2:00 p.m. - 4:00 p.m.

APSC 255-11M | APSC_O | L1M | Electric Circuits and Power | W2 | 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. [3-2*-1] Prerequisite: APSC 178. | Laboratory | In Person Learning | Thu (Alternate weeks) | 6:00 p.m. - 8:00 p.m.

APSC 255-11N | APSC_O | L1N | Electric Circuits and Power | W2 | 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. [3-2*-1] Prerequisite: APSC 178. | Laboratory | In Person Learning | Thu (Alternate weeks) | 6:00 p.m. - 8:00 p.m.
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 178.

Laboratory In Person Learning Mon (Alternate weeks) 2:00 p.m. - 4:00 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 (FPGAs), counters, finite state machines, digital system designs. [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 (FPGAs), counters, finite state machines, digital system designs. [3-2*-0] Prerequisite: APSC 178.

Laboratory In Person Learning Mon (Alternate weeks) 6:00 p.m. - 8:00 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 (FPGAs), counters, finite state machines, digital system designs. [3-2*-0] Prerequisite: APSC 178.

Laboratory In Person Learning Mon (Alternate weeks) 8:00 p.m. - 10:00 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 (FPGAs), counters, finite state machines, digital system designs. [3-2*-0] Prerequisite: APSC 178.

Laboratory In Person Learning Mon (Alternate weeks) 10:00 p.m. - 12:00 a.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 (FPGAs), counters, finite state machines, digital system designs. [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 (FPGAs), counters, finite state machines, digital system designs. [3-2*-0] Prerequisite: APSC 178.

Laboratory In Person Learning Thu (Alternate weeks) 2:00 p.m. - 4:00 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 (FPGAs), counters, finite state machines, digital system designs. [3-2*-0] Prerequisite: APSC 178.

Laboratory In Person Learning Mon (Alternate weeks) 4:00 p.m. - 6:00 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 (FPGAs), counters, finite state machines, digital system designs. [3-2*-0] Prerequisite: APSC 178.

Laboratory In Person Learning Mon (Alternate weeks) 6:00 p.m. - 8:00 p.m.

APSC_O 258-L2A APSC_O L2A Applications of Engineering Design W3 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. - 5:30 p.m.

APSC_O 258-L2B APSC_O L2B Applications of Engineering Design W3 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 5:30 p.m. - 7:30 p.m.

APSC_O 258-L2C APSC_O L2C Applications of Engineering Design W3 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 7:30 p.m. - 9:30 p.m.

APSC_O 258-L2D APSC_O L2D Applications of Engineering Design W3 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 9:30 p.m. - 11:30 p.m.

APSC_O 258-L2E APSC_O L2E Applications of Engineering Design W3 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 11:30 p.m. - 1:30 a.m.

APSC_O 258-L2F APSC_O L2F Applications of Engineering Design W3 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 1:30 a.m. - 3:30 a.m.

APSC_O 258-L2G APSC_O L2G Applications of Engineering Design W3 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 3:30 a.m. - 5:30 a.m.

APSC_O 258-L2H APSC_O L2H Applications of Engineering Design W3 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 5:30 a.m. - 7:30 a.m.

APSC_O 258-L2I APSC_O L2I Applications of Engineering Design W3 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 7:30 a.m. - 9:30 a.m.

APSC_O 258-L2J APSC_O L2J Applications of Engineering Design W3 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 9:30 a.m. - 11:30 a.m.

APSC_O 258-L2K APSC_O L2K Applications of Engineering Design W3 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 11:30 a.m. - 1:30 p.m.

APSC_O 270-L1A APSC_O L1A Signals and Communication Systems W3 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 (Alternate weeks) 2:30 p.m. - 4:30 p.m.

APSC_O 270-L1B APSC_O L1B Signals and Communication Systems W3 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 (Alternate weeks) 4:30 p.m. - 6:30 p.m.
**APSC_O 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_O 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_O 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_O 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 178, APSC 248.  
Laboratory In Person Learning Fri (Alternate weeks) 12:30 p.m. - 2:30 p.m.

**BIOC_O 278-001**  
**APSC_O**  
**L01** Electric and Magnetic Fields  
**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: BIOL 200, BIOL 228, CHEM 204, CHEM 214. Corequisite: BIOL 366. Equivalency: BIOL393

**BIOC_O 393-001**  
**ARTH_O**  
**L01** Art in Canada 1900-1970  
**W2**  
Artistic 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_O 393-010**  
**BIOC_O**  
**L01** Biochemistry Laboratory  
**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 BIOL 117. BIOL 117/122 cannot be used in place of BIOC 116/125 for those degree programs that require BIOL 116/125. Credit will be granted for either BIOC 117/122 or BIOL 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]  
Laboratory In Person Learning Thu 9:30 a.m. - 11:00 a.m.

**BIOC_O 393-011**  
**BIOC_O**  
**L02** Biochemistry Laboratory  
**W2**  
Human organ systems. Recommended for Arts or Education students, in conjunction with BIOL 117. BIOL 117/122 cannot be used in place of BIOC 116/125 for those degree programs that require BIOL 116/125. Credit will be granted for either BIOC 117/122 or BIOL 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]  
Laboratory In Person Learning Thu 11:00 a.m. - 12:30 p.m.

**BIOC_O 393-012**  
**BIOC_O**  
**L03** Biochemistry Laboratory  
**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 BIOL 117. BIOL 117/122 cannot be used in place of BIOC 116/125 for those degree programs that require BIOL 116/125. Credit will be granted for either BIOC 117/122 or BIOL 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]  
Laboratory In Person Learning Thu 11:00 a.m. - 12:30 p.m.

**BIOC_O 393-013**  
**BIOC_O**  
**L04** Biochemistry Laboratory  
**W2**  
Human organ systems. Recommended for Arts or Education students, in conjunction with BIOL 117. BIOL 117/122 cannot be used in place of BIOC 116/125 for those degree programs that require BIOL 116/125. Credit will be granted for either BIOC 117/122 or BIOL 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]  
Laboratory In Person Learning Thu 11:00 a.m. - 12:30 p.m.

**BIOC_O 393-014**  
**BIOC_O**  
**L05** Biochemistry Laboratory  
**W2**  
Human organ systems. Recommended for Arts or Education students, in conjunction with BIOL 117. BIOL 117/122 cannot be used in place of BIOC 116/125 for those degree programs that require BIOL 116/125. Credit will be granted for either BIOC 117/122 or BIOL 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]  
Laboratory In Person Learning Thu 11:00 a.m. - 12:30 p.m.

**BIOC_O 393-015**  
**BIOC_O**  
**L06** Biochemistry Laboratory  
**W2**  
Human organ systems. Recommended for Arts or Education students, in conjunction with BIOL 117. BIOL 117/122 cannot be used in place of BIOC 116/125 for those degree programs that require BIOL 116/125. Credit will be granted for either BIOC 117/122 or BIOL 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]  
Laboratory In Person Learning Thu 11:00 a.m. - 12:30 p.m.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL_O 495-L01</td>
<td>Biotechnology Laboratory II: Gene Expression</td>
<td>4-0</td>
<td>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 BIOC 407 or BIOL 507. [3-4-0] Prerequisite: One of CHEM 214, CHEM 215.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Section</td>
<td>Type</td>
<td>Title</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>BIOL_O 125-XMT</td>
<td>BIOL_O</td>
<td>Laboratory</td>
<td>Biology for Science Majors II</td>
</tr>
<tr>
<td>BIOL_O 133-101</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL_O 133-L01</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL_O 133-L02</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL_O 133-L03</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL_O 133-L04</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL_O 133-L05</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL_O 133-L06</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL_O 133-L07</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL_O 133-L08</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL_O 133-L09</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL_O 133-L11</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL_O 133-L12</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL_O 133-L13</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Human Anatomy and Physiology II</td>
</tr>
<tr>
<td>BIOL_O 133-XMT</td>
<td>BIOL_O</td>
<td>XMT</td>
<td>Biology for Science Majors II</td>
</tr>
<tr>
<td>BIOL_O 200-101</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Cell Biology</td>
</tr>
<tr>
<td>BIOL_O 201-101</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>Introduction to Evolution and Ecology</td>
</tr>
<tr>
<td>BIOL_O 210-001</td>
<td>BIOL_O</td>
<td>Laboratory</td>
<td>Comparative study of bryophytes, pteridophytes, gymnosperms, and angiosperms, integrating form, function, and ecology. [3-3-0] Prerequisite: BIOL 125 or (b) all of BIOL 117, BIOL 122.</td>
</tr>
<tr>
<td>BIOL_O 210-L01</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>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.</td>
</tr>
<tr>
<td>BIOL_O 210-L02</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>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.</td>
</tr>
<tr>
<td>BIOL_O 210-L03</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>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.</td>
</tr>
<tr>
<td>BIOL_O 210-L04</td>
<td>BIOL_O</td>
<td>Lecture</td>
<td>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.</td>
</tr>
<tr>
<td>Code</td>
<td>Instructor</td>
<td>Time</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
<td>---------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>BIOL 232-101</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 11:00 a.m.</td>
<td>Lecture on Human Infectious Disease. Principles of infection in humans.</td>
</tr>
<tr>
<td>BIOL 265-101</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Lecture on Principles of Genetics. Mendelian genetics, gene expression, recombinant DNA, and molecular techniques.</td>
</tr>
<tr>
<td>BIOL 306-101</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Lecture on Ecology of Animals. Integrates recent advances in the study of animal ecology.</td>
</tr>
<tr>
<td>BIOL 312-101</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Lecture on Virology. Introduction to the study of viruses.</td>
</tr>
<tr>
<td>BIOL 318-002</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Lecture on Immunology. Introduction to the study of immune system.</td>
</tr>
<tr>
<td>BIOL 319-101</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Lecture on Biochemistry. The structural, biochemical, and functional changes that characterize clinically-important diseases of the nervous system.</td>
</tr>
<tr>
<td>BIOL 350-101</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Lecture on Clinical Neuroscience. Comparative course concerning the evolution and advantage of systems design in a variety of animals.</td>
</tr>
<tr>
<td>BIOL 356-101</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Lecture on Comparative Animal Physiology. Introduction to concepts of immunology.</td>
</tr>
<tr>
<td>BIOL 363-101</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Lecture on Developmental Biology. Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates.</td>
</tr>
<tr>
<td>BIOL 363-L01</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory on Developmental Biology. Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates.</td>
</tr>
<tr>
<td>BIOL 363-L02</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory on Developmental Biology. Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates.</td>
</tr>
<tr>
<td>BIOL 363-L03</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory on Developmental Biology. Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates.</td>
</tr>
<tr>
<td>BIOL 363-L04</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory on Developmental Biology. Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates.</td>
</tr>
<tr>
<td>BIOL 363-L05</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory on Developmental Biology. Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates.</td>
</tr>
<tr>
<td>BIOL 363-XMT</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory on Developmental Biology. Principles of animal development. Embryonic development of key invertebrates is compared to vertebrates.</td>
</tr>
<tr>
<td>BIOL 370-001</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Lecture on African Savanna Biology. Study of African savannah life including early hominins.</td>
</tr>
<tr>
<td>BIOL 381-101</td>
<td>BIOL_O</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Lecture on Environmental Microbiology. Introduction to the diverse roles of microbes in natural and artificial environments.</td>
</tr>
</tbody>
</table>

**Prerequisites:**
- BIOL 228 and one of CHEM 203, CHEM 213.
- BIOL 201.
- BIOL 354.
- BIOL 200.
- BIOL 311.
- BIOL 201.
- BIOL 235 or (b) HINT 231.
- BIOL 200.
- BIOL 235 or (b) HINT 231.
BIOL_O 393-L01 BIOL_O 101 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 BIOL 393 or BIOL 412. [3-0-0] Prerequisite: BIOL 308 and one of BIOL 202, STAT 230. Lecture In Person Learning Tue Thu 7:00 a.m. - 8:30 a.m. BIOL_O 393-L02 BIOL_O 102 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 BIOL 393 or BIOL 412. [3-0-0] Prerequisite: BIOL 308 and one of BIOL 202, STAT 230. Lecture In Person Learning Tue Thu 7:00 a.m. - 8:30 a.m. BIOL_O 393-L03 BIOL_O 103 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 BIOL 393 or BIOL 412. [3-0-0] Prerequisite: BIOL 308 and one of BIOL 202, STAT 230. Lecture In Person Learning Tue Thu 7:00 a.m. - 8:30 a.m. BIOL_O 393-L04 BIOL_O 104 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 BIOL 393 or BIOL 412. [3-0-0] Prerequisite: BIOL 308 and one of BIOL 202, STAT 230. Lecture In Person Learning Tue Thu 7:00 a.m. - 8:30 a.m. BIOL_O 393-L05 BIOL_O 105 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 BIOL 393 or BIOL 412. [3-0-0] Prerequisite: BIOL 308 and one of BIOL 202, STAT 230. Lecture In Person Learning Tue Thu 7:00 a.m. - 8:30 a.m. BIOL_O 393-L06 BIOL_O 106 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 BIOL 393 or BIOL 412. [3-0-0] Prerequisite: BIOL 308 and one of BIOL 202, STAT 230. Lecture In Person Learning Tue Thu 7:00 a.m. - 8:30 a.m. BIOL_O 393-L07 BIOL_O 107 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 BIOL 393 or BIOL 412. [3-0-0] Prerequisite: BIOL 308 and one of BIOL 202, STAT 230. Lecture In Person Learning Tue Thu 7:00 a.m. - 8:30 a.m. BIOL_O 393-L08 BIOL_O 108 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 BIOL 393 or BIOL 412. [3-0-0] Prerequisite: BIOL 308 and one of BIOL 202, STAT 230. Lecture In Person Learning Tue Thu 7:00 a.m. - 8:30 a.m. BIOL_O 417-101 BIOL_O 101 Evolutionary Ecology W2 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: BIOL 308. Lecture In Person Learning Mon Wed Fri 8:00 a.m. - 9:00 a.m. BIOL_O 422-101 BIOL_O 101 Conservation Biology W2 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 422 or BIOL 513. [3-0-0] Prerequisite: BIOL 308. Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m. BIOL_O 424-001 BIOL_O 001 Global Food Systems: Society, Ecology, Sustainabil W2 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. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m. BIOL_O 426-101 BIOL_O 101 Cancer Biology W2 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: BIOL 308. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m. BIOL_O 430-C_001 BIOL_O 101 Special Topics in Biology, Lecture Format W2 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: BIOL 308. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m. BIOL_O 430-N_001 BIOL_O 101 Special Topics in Biology, Lecture Format W2 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: BIOL 308. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m. BIOL_O 430-W_001 BIOL_O 101 Special Topics in Biology, Lecture Format W2 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: BIOL 308. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m. BIOL_O 465-101 BIOL_O 101 Cell Signaling W2 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: BIOL 308. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m. BIOL_O 468-001 BIOL_O 101 Molecular Approaches in Ecology and Evolution W2 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: BIOL 308. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m. BIOL_O 513-101 BIOL_O 101 Conservation Biology W2 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: BIOL 308. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.
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 BIOS 417 or BIOS 517. [3-0-0] Lecture In Person Learning Mon Wed Fri 8:00 a.m. - 9:00 a.m.

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 BIOS 568 or BIOS 468. [3-0-0] Lecture In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.

Introduction to Western, Indigenous, and global art practices and theoretical discourse through the discussion and examination of forms, content, and ideas that contribute to cultural and contemporary art practices. [3-0-1] Lecture In Person Learning Mon 2:00 p.m. - 6:00 p.m.

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 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. Seminar In Person Learning Fri 11:00 a.m. - 2:00 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 121. Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 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 121. Lecture In Person Learning Mon 8:00 a.m. - 9:30 a.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 121. Laboratory In Person Learning Mon 12:30 p.m. - 3:30 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 121. Laboratory In Person Learning Mon 12:30 p.m. - 3:30 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 121. Laboratory In Person Learning Mon 12:30 p.m. - 3:30 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 121. Laboratory In Person Learning Tue 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 121. Laboratory In Person Learning Tue 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 121. Laboratory In Person Learning Tue 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 121. Laboratory In Person Learning Tue 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 121. Laboratory In Person Learning Tue 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 121. Laboratory In Person Learning Tue 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 121. Laboratory In Person Learning Tue 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 121. Laboratory In Person Learning Tue 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 121. Laboratory In Person Learning Tue 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 121. Laboratory In Person Learning Tue 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 121. Laboratory In Person Learning Tue 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 121. Laboratory In Person Learning Tue 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 121. Laboratory In Person Learning Tue 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 121. Laboratory In Person Learning Tue 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 121. Laboratory In Person Learning Tue 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. [3-3-1] Prerequisite: CHEM 121.

Laboratory In Person Learning Wed 5:30 p.m. - 6:30 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. [3-3-1] Prerequisite: CHEM 121.

Laboratory In Person Learning Wed 5:30 p.m. - 6:30 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. [3-3-1] Prerequisite: CHEM 121.

Laboratory In Person Learning Wed 5:30 p.m. - 6:30 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. [3-3-1] Prerequisite: CHEM 121.

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. [3-3-1] Prerequisite: CHEM 121.

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. [3-3-1] Prerequisite: CHEM 121.

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. [3-3-1] Prerequisite: CHEM 121.

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. [3-3-1] Prerequisite: CHEM 121.

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. [3-3-1] Prerequisite: CHEM 121.

Laboratory In Person Learning Thu 9:30 a.m. - 12:30 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Schedule</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM_O 201-L07</td>
<td>CHEM_O L07 Introduction to Physical Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning Thu 9:30 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O 201-L08</td>
<td>CHEM_O L08 Introduction to Physical Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning Thu 1:30 p.m. - 4:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O 201-L09</td>
<td>CHEM_O L09 Introduction to Physical Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning Thu 5:30 p.m. - 8:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O 201-L10</td>
<td>CHEM_O L10 Introduction to Physical Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning Fri 11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>CHEM_O 201-S01</td>
<td>CHEM_O S01 Introduction to Physical Chemistry</td>
<td>W2</td>
<td>Seminar</td>
<td>In Person Learning Mon (Alternate weeks) 9:00 a.m. - 10:00 a.m.</td>
</tr>
<tr>
<td>CHEM_O 201-S02</td>
<td>CHEM_O S02 Introduction to Physical Chemistry</td>
<td>W2</td>
<td>Seminar</td>
<td>In Person Learning Mon (Alternate weeks) 9:00 a.m. - 10:00 a.m.</td>
</tr>
<tr>
<td>CHEM_O 203-XMT</td>
<td>CHEM_O XMT Introduction to Physical Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning Arranged</td>
</tr>
<tr>
<td>CHEM_O 204-001</td>
<td>CHEM_O 001 Organic Chemistry</td>
<td>W2</td>
<td>Lecture</td>
<td>In Person Learning Mon Wed Fri 3:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>CHEM_O 204-L01</td>
<td>CHEM_O L01 Organic Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning Mon 12:00 p.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>CHEM_O 204-L02</td>
<td>CHEM_O L02 Organic Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning Tue 9:30 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O 204-L03</td>
<td>CHEM_O L03 Organic Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning Tue 1:30 p.m. - 4:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O 204-L04</td>
<td>CHEM_O L04 Organic Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning Tue 5:30 p.m. - 8:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O 204-L05</td>
<td>CHEM_O L05 Organic Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning Wed 9:30 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O 204-L07</td>
<td>CHEM_O L07 Organic Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning Wed 4:30 p.m. - 7:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O 204-XMT</td>
<td>CHEM_O XMT Organic Chemistry</td>
<td>W2</td>
<td>Laboratory</td>
<td>In Person Learning Arranged</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. [3-3-1*] Prerequisite: One of MATH 101, MATH 103 and one of PHYS 121, PHYS 122 and one of CHEM 113, CHEM 123. A minimum grade of 65% in CHEM 113 is strongly recommended. MATH 200 is also strongly recommended.

Mechanistic analysis of chemical reactivity of common functional groups, with focus on carbon chemistry; aromaticity and aromatic substitution; functional group transformations in organic synthesis; carbohydrates, amino acids, proteins, heterocycles. Credit will be granted for only one of CHEM 204 or CHEM 214. [3-3-0] Prerequisite: CHEM 205. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enroll in CHEM 214.

Mechanistic analysis of chemical reactivity of common functional groups, with focus on carbon chemistry; aromaticity and aromatic substitution; functional group transformations in organic synthesis; carbohydrates, amino acids, proteins, heterocycles. Credit will be granted for only one of CHEM 204 or CHEM 214. [3-3-0] Prerequisite: CHEM 205. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enroll in CHEM 214.

Mechanistic analysis of chemical reactivity of common functional groups, with focus on carbon chemistry; aromaticity and aromatic substitution; functional group transformations in organic synthesis; carbohydrates, amino acids, proteins, heterocycles. Credit will be granted for only one of CHEM 204 or CHEM 214. [3-3-0] Prerequisite: CHEM 205. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enroll in CHEM 214.

Mechanistic analysis of chemical reactivity of common functional groups, with focus on carbon chemistry; aromaticity and aromatic substitution; functional group transformations in organic synthesis; carbohydrates, amino acids, proteins, heterocycles. Credit will be granted for only one of CHEM 204 or CHEM 214. [3-3-0] Prerequisite: CHEM 205. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enroll in CHEM 214.

Mechanistic analysis of chemical reactivity of common functional groups, with focus on carbon chemistry; aromaticity and aromatic substitution; functional group transformations in organic synthesis; carbohydrates, amino acids, proteins, heterocycles. Credit will be granted for only one of CHEM 204 or CHEM 214. [3-3-0] Prerequisite: CHEM 205. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enroll in CHEM 214.

Mechanistic analysis of chemical reactivity of common functional groups, with focus on carbon chemistry; aromaticity and aromatic substitution; functional group transformations in organic synthesis; carbohydrates, amino acids, proteins, heterocycles. Credit will be granted for only one of CHEM 204 or CHEM 214. [3-3-0] Prerequisite: CHEM 205. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enroll in CHEM 214.
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 203, CHEM 213. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 204.

Laboratory In Person Learning Mon (Alternate weeks) 10:00 a.m. - 1:00 p.m.

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 203, CHEM 213. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 204.

Laboratory In Person Learning Wed (Alternate weeks) 1:30 p.m. - 4:30 p.m.

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 203, CHEM 213. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 204.

Laboratory In Person Learning Thu (Alternate weeks) 5:30 p.m. - 8:30 p.m.

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 203, CHEM 213. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 204.

Laboratory In Person Learning Fri (Alternate weeks) 9:30 a.m. - 12:30 p.m.

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 203, CHEM 213. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 204.

Laboratory In Person Learning Thu (Alternate weeks) 9:30 a.m. - 12:30 p.m.

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 203, CHEM 213. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 204.

Laboratory In Person Learning Thu (Alternate weeks) 1:30 p.m. - 4:30 p.m.

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 203, CHEM 213. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 204.

Laboratory In Person Learning Thu (Alternate weeks) 5:30 p.m. - 8:30 p.m.

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 203, CHEM 213. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enroll in CHEM 204.

Laboratory In Person Learning Thu (Alternate weeks) 5:30 p.m. - 8:30 p.m.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM_O 301-001</td>
<td>Aqueous Environmental Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>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 Fri 5:00 p.m. - 6:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O 311-001</td>
<td>Instrumental Analytical Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Overview of instrumental methods of chemical analysis, including spectrophotometric methods, mass spectrometry, electrophoresis and chromatography. [3-4-0] 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.</td>
</tr>
<tr>
<td>CHEM_O 311-001</td>
<td>Instrumental Analytical Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Overview of instrumental methods of chemical analysis, including spectrophotometric methods, mass spectrometry, electrophoresis and chromatography. [3-4-0] 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.</td>
</tr>
<tr>
<td>CHEM_O 311-002</td>
<td>Instrumental Analytical Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Overview of instrumental methods of chemical analysis, including spectrophotometric methods, mass spectrometry, electrophoresis and chromatography. [3-4-0] 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.</td>
</tr>
<tr>
<td>CHEM_O 311-003</td>
<td>Instrumental Analytical Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Overview of instrumental methods of chemical analysis, including spectrophotometric methods, mass spectrometry, electrophoresis and chromatography. [3-4-0] 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.</td>
</tr>
<tr>
<td>CHEM_O 312-001</td>
<td>Introduction to Quantum Mechanics and Spectroscopy</td>
</tr>
<tr>
<td>W2</td>
<td>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 Mon Wed Fri 2:00 p.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>CHEM_O 312-002</td>
<td>Introduction to Quantum Mechanics and Spectroscopy</td>
</tr>
<tr>
<td>W2</td>
<td>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.</td>
</tr>
<tr>
<td>CHEM_O 312-003</td>
<td>Introduction to Quantum Mechanics and Spectroscopy</td>
</tr>
<tr>
<td>W2</td>
<td>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.</td>
</tr>
<tr>
<td>CHEM_O 314-001</td>
<td>Instrumental Analytical Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>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, toxicology, 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.</td>
</tr>
<tr>
<td>CHEM_O 314-001</td>
<td>Instrumental Analytical Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>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 Fri 3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>CHEM_O 314-001</td>
<td>Instrumental Analytical Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>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.</td>
</tr>
<tr>
<td>CHEM_O 330-001</td>
<td>Advanced Organic Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Application of carbonyl group chemistry, cyclisation 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.</td>
</tr>
<tr>
<td>CHEM_O 330-001</td>
<td>Advanced Organic Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Application of carbonyl group chemistry, cyclisation 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.</td>
</tr>
<tr>
<td>CHEM_O 330-001</td>
<td>Advanced Organic Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Application of carbonyl group chemistry, cyclisation reactions, conformational analysis, and rearrangement reactions in organic synthesis. [3-4*-0] Prerequisite: One of CHEM 204, CHEM 214. Laboratory In Person Learning Mon Wed Fri 11:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>CHEM_O 330-001</td>
<td>Advanced Organic Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, biodegradable polymer synthesis, photoredox catalysis, 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.</td>
</tr>
<tr>
<td>CHEM_O 330-001</td>
<td>Advanced Organic Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, biodegradable polymer synthesis, photoredox catalysis, 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.</td>
</tr>
<tr>
<td>CHEM_O 330-001</td>
<td>Advanced Organic Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, biodegradable polymer synthesis, photoredox catalysis, 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.</td>
</tr>
<tr>
<td>CHEM_O 330-001</td>
<td>Advanced Organic Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Enzymology</td>
</tr>
<tr>
<td>W2</td>
<td>Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, biodegradable polymer synthesis, photoredox catalysis, 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.</td>
</tr>
<tr>
<td>CHEM_O 330-001</td>
<td>Advanced Organic Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Enzymology</td>
</tr>
<tr>
<td>W2</td>
<td>Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, biodegradable polymer synthesis, photoredox catalysis, 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.</td>
</tr>
<tr>
<td>CHEM_O 330-001</td>
<td>Advanced Organic Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, biodegradable polymer synthesis, photoredox catalysis, 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.</td>
</tr>
<tr>
<td>CHEM_O 330-001</td>
<td>Advanced Organic Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, biodegradable polymer synthesis, photoredox catalysis, 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.</td>
</tr>
<tr>
<td>CHEM_O 330-001</td>
<td>Advanced Organic Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, biodegradable polymer synthesis, photoredox catalysis, 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.</td>
</tr>
<tr>
<td>CHEM_O 330-001</td>
<td>Advanced Organic Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, biodegradable polymer synthesis, photoredox catalysis, 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.</td>
</tr>
<tr>
<td>CHEM_O 330-001</td>
<td>Advanced Organic Chemistry</td>
</tr>
<tr>
<td>W2</td>
<td>Use of inorganic and organometallic catalysts for sustainable synthesis. Renewable feedstock conversion, selective carbon-hydrogen bond functionalization, biodegradable polymer synthesis, photoredox catalysis, 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.</td>
</tr>
</tbody>
</table>
CHEM 048A-A_101 CHEM 0 A A 101 Special Topics in Chemistry, Lecture Format W2
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 not be taken until a student’s final year of study. Prerequisite: Fourth-year standing in the Chemistry or Environmental Chemistry Majors with a minimum overall grade average of 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.

CHEM 048A-A_102 CHEM 0 A A 102 Special Topics in Chemistry, Lecture Format W2
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 not be taken until a student’s final year of study. Prerequisite: Fourth-year standing in the Chemistry or Environmental Chemistry Majors with a minimum overall grade average of 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.

CHEM 048A-A_103 CHEM 0 A A 103 Special Topics in Chemistry, Lecture Format W2
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 not be taken until a student’s final year of study. Prerequisite: Fourth-year standing in the Chemistry or Environmental Chemistry Majors with a minimum overall grade average of 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.

CHEM 048C-C_101 CHEM 0 C C 101 Special Topics in Chemistry, Lecture Format W2
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 not be taken until a student’s final year of study. Prerequisite: Fourth-year standing in the Chemistry or Environmental Chemistry Majors with a minimum overall grade average of 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.

CHEM 048C-C_102 CHEM 0 C C 102 Special Topics in Chemistry, Lecture Format W2
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 not be taken until a student’s final year of study. Prerequisite: Fourth-year standing in the Chemistry or Environmental Chemistry Majors with a minimum overall grade average of 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.

CHEM 048C-C_103 CHEM 0 C C 103 Special Topics in Chemistry, Lecture Format W2
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 not be taken until a student’s final year of study. Prerequisite: Fourth-year standing in the Chemistry or Environmental Chemistry Majors with a minimum overall grade average of 72%, and approval of both the Chemistry Curriculum Committee and a faculty supervisor.

CMPE 0246-001 CMPE 0 001 Computer Engineering Design Studio W2
Embedded systems programming, App development for Internet of Things applications, Microprocessor Programming. [3-2-0] Prerequisite: One of APSC 177, COSC 111. Lecture In Person Learning W2 Arranged

CMPE 0246-12A CMPE 0 12A Computer Engineering Design Studio W2
Embedded systems programming, App development for Internet of Things applications, Microprocessor Programming. [3-2-0] Prerequisite: One of APSC 177, COSC 111. Lecture In Person Learning A W2 Arranged

CMPE 0246-12B CMPE 0 12B Computer Engineering Design Studio W2
Embedded systems programming, App development for Internet of Things applications, Microprocessor Programming. [3-2-0] Prerequisite: One of APSC 177, COSC 111. Lecture In Person Learning A W2 Arranged

CMPE 0246-12C CMPE 0 12C Computer Engineering Design Studio W2
Embedded systems programming, App development for Internet of Things applications, Microprocessor Programming. [3-2-0] Prerequisite: One of APSC 177, COSC 111. Lecture In Person Learning A W2 Arranged

CMPE 0401-001 CMPE 0 001 Deep Learning for Engineers W2
Neural networks, computation graph, hyper-parameter tuning, regularization, batch normalization, convolutional neural networks, sequential models, recurrent neural networks, natural language processing, applications of deep learning to electrical, civil, mechanical and manufacturing engineering. [3-0-0] Prerequisite: Fourth-year standing. Lecture In Person Learning W2 Arranged

COOP 0401-201 COOP 0 201 Co-op Education Work Experience I 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’. Experiential In Person Learning W2 Arranged

COOP 0402-201 COOP 0 201 Co-op Education Work Experience II 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’. Experiential In Person Learning W2 Arranged

COOP 0403-201 COOP 0 201 Co-op Education Work Experience III 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’. Experiential In Person Learning W2 Arranged

COOP 0404-201 COOP 0 201 Co-op Education Work Experience IV 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’. Experiential In Person Learning W2 Arranged

COOP 0405-201 COOP 0 201 Co-op Education Work Experience V 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’. Experiential In Person Learning W2 Arranged
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, ENGL 153, ENGL 155, ENGL 156, APSC 176. Lecture Hybrid Learning Tue Thu 2:00 p.m. - 3:30 p.m.

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, ENGL 153, ENGL 155, ENGL 156, APSC 176. Lecture Hybrid Learning Tue Thu 9:30 a.m. - 11:00 a.m.

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, ENGL 153, ENGL 155, ENGL 156, APSC 176. Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

Practice-based course that develops intermediate level communication skills 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, ENGL 153, ENGL 154, ENG 155, ENG 156, APSC 176. Lecture In Person Learning Wed Fri 3:30 p.m. - 5:00 p.m.

Practice-based course that develops intermediate level communication skills 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, ENGL 153, ENGL 155, ENGL 156, APSC 176. Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

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, ENGL 153, ENGL 155, ENGL 156, APSC 176. Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

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 8:00 a.m. - 9:30 a.m.

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 CORH 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.

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 CORH certificate courses and third-year standing. Lecture Multi-access Learning Tue Thu 12:30 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] Lecture In Person Learning Wed Fri 2:00 p.m. - 3:30 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 8:00 a.m. - 10:00 a.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 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 Tue 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 Tue 8:00 a.m. - 10:00 a.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 2:00 p.m. - 4:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>CRN</th>
<th>Credits</th>
<th>Instructor</th>
<th>Description</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>COSC 101-L07</td>
<td>Digital Citizenship</td>
<td>1L07</td>
<td>2</td>
<td>W2</td>
<td>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]</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 101-L08</td>
<td>Computer Programming I</td>
<td>1L08</td>
<td>2</td>
<td>W2</td>
<td>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]</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 101-L09</td>
<td>Digital Citizenship</td>
<td>1L09</td>
<td>2</td>
<td>W2</td>
<td>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]</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 111-101</td>
<td>Computer Programming I</td>
<td>101</td>
<td>3</td>
<td>W2</td>
<td>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.</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 111-11A</td>
<td>Computer Programming I</td>
<td>11A</td>
<td>2</td>
<td>W2</td>
<td>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 112. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 111-12B</td>
<td>Computer Programming I</td>
<td>12B</td>
<td>2</td>
<td>W2</td>
<td>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.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 111-12C</td>
<td>Computer Programming I</td>
<td>12C</td>
<td>2</td>
<td>W2</td>
<td>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.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 111-12D</td>
<td>Computer Programming I</td>
<td>12D</td>
<td>2</td>
<td>W2</td>
<td>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 122. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 111-12E</td>
<td>Computer Programming I</td>
<td>12E</td>
<td>2</td>
<td>W2</td>
<td>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 122. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 111-12F</td>
<td>Computer Programming I</td>
<td>12F</td>
<td>2</td>
<td>W2</td>
<td>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 122. [3-2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 12, MATH 125, MATH 126.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 121-101</td>
<td>Computer Programming II</td>
<td>101</td>
<td>3</td>
<td>W2</td>
<td>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.</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 121-102</td>
<td>Computer Programming II</td>
<td>102</td>
<td>3</td>
<td>W2</td>
<td>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.</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 121-11A</td>
<td>Computer Programming II</td>
<td>11A</td>
<td>2</td>
<td>W2</td>
<td>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.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 121-12B</td>
<td>Computer Programming II</td>
<td>12B</td>
<td>2</td>
<td>W2</td>
<td>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.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 121-12C</td>
<td>Computer Programming II</td>
<td>12C</td>
<td>2</td>
<td>W2</td>
<td>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.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 121-12D</td>
<td>Computer Programming II</td>
<td>12D</td>
<td>2</td>
<td>W2</td>
<td>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.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 121-12E</td>
<td>Computer Programming II</td>
<td>12E</td>
<td>2</td>
<td>W2</td>
<td>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.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 121-12F</td>
<td>Computer Programming II</td>
<td>12F</td>
<td>2</td>
<td>W2</td>
<td>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.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 121-12G</td>
<td>Computer Programming II</td>
<td>12G</td>
<td>2</td>
<td>W2</td>
<td>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.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 121-12H</td>
<td>Computer Programming II</td>
<td>12H</td>
<td>2</td>
<td>W2</td>
<td>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.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 121-12I</td>
<td>Computer Programming II</td>
<td>12I</td>
<td>2</td>
<td>W2</td>
<td>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.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC 121-12J</td>
<td>Computer Programming II</td>
<td>12J</td>
<td>2</td>
<td>W2</td>
<td>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.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>Course Code</td>
<td>Title</td>
<td>Credits</td>
<td>Prerequisites</td>
<td>Notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>-------</td>
<td>---------</td>
<td>---------------</td>
<td>-------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COSC 222-L2C</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Lecture</td>
<td>Mon Wed Fri</td>
<td>8:00 a.m. - 9:00 a.m.</td>
</tr>
<tr>
<td>COSC 222-S1A</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Fri</td>
</tr>
<tr>
<td>COSC 222-S1B</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>COSC 222-S1C</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>COSC 222-S1D</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Wed</td>
</tr>
<tr>
<td>COSC 222-S1E</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>COSC 222-S1F</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Fri</td>
</tr>
<tr>
<td>COSC 222-S1G</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>COSC 222-S1H</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Wed</td>
</tr>
<tr>
<td>COSC 222-S1I</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>COSC 222-S1J</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Fri</td>
</tr>
<tr>
<td>COSC 222-S1K</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>COSC 222-S1L</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Wed</td>
</tr>
<tr>
<td>COSC 222-S1M</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>COSC 222-S1N</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Fri</td>
</tr>
<tr>
<td>COSC 222-S1O</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>COSC 222-S1P</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Wed</td>
</tr>
<tr>
<td>COSC 222-S1Q</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>COSC 222-S1R</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Fri</td>
</tr>
<tr>
<td>COSC 222-S1S</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>COSC 222-S1T</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Wed</td>
</tr>
<tr>
<td>COSC 222-S1U</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>COSC 222-S1V</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Fri</td>
</tr>
<tr>
<td>COSC 222-S1W</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>COSC 222-S1X</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Wed</td>
</tr>
<tr>
<td>COSC 222-S1Y</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>COSC 222-S1Z</td>
<td>Discrete Structures in Computing</td>
<td>3-0-1</td>
<td>One of MATH 101, MATH 103, MATH 142, APSC 173</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Fri</td>
</tr>
</tbody>
</table>

**Course Information:**

- **Course Code:** COSC
- **Course Name:** Discrete Structures in Computing
- **Credits:** 3-0-1
- **Prerequisites:** One of MATH 101, MATH 103, MATH 142, APSC 173
- **Corequisites:** COSC 121
- **Lecture:** In Person Learning
- **Meeting Times:**
  - Mon Wed Fri: 8:00 a.m. - 9:00 a.m.
  - Tue: 2:00 p.m. - 3:00 p.m.
  - Wed: 4:00 p.m. - 5:00 p.m.
  - Thu: 4:00 p.m. - 5:00 p.m.
  - Fri: 2:00 p.m. - 3:00 p.m.

**Course Description:**

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. Prerequisite: One of MATH 101, MATH 103, MATH 142, APSC 173. Corequisite: COSC 121.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COSC 222-L20</td>
<td>COSC O Data Structures</td>
</tr>
<tr>
<td>COSC 303-101</td>
<td>COSC O Numerical Analysis</td>
</tr>
<tr>
<td>COSC 303-L01</td>
<td>COSC O Numerical Analysis</td>
</tr>
<tr>
<td>COSC 305-L02</td>
<td>COSC O Project Management</td>
</tr>
<tr>
<td>COSC 305-L03</td>
<td>COSC O Project Management</td>
</tr>
<tr>
<td>COSC 305-L04</td>
<td>COSC O Project Management</td>
</tr>
<tr>
<td>COSC 310-L03</td>
<td>COSC O Software Engineering</td>
</tr>
<tr>
<td>COSC 310-L04</td>
<td>COSC O Software Engineering</td>
</tr>
<tr>
<td>COSC 322-L01</td>
<td>COSC O Introduction to Artificial Intelligence</td>
</tr>
<tr>
<td>COSC 322-L02</td>
<td>COSC O Introduction to Artificial Intelligence</td>
</tr>
<tr>
<td>COSC 322-L03</td>
<td>COSC O Introduction to Artificial Intelligence</td>
</tr>
<tr>
<td>COSC 322-L04</td>
<td>COSC O Introduction to Artificial Intelligence</td>
</tr>
<tr>
<td>COSC 322-L05</td>
<td>COSC O Introduction to Artificial Intelligence</td>
</tr>
</tbody>
</table>

**COSC 222: Data Structures**

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.

**COSC 303-101: Numerical Analysis**

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 221 and either (a) COSC 111 or (b) DATA 301. Equivalency: MATH 303

**COSC 303-L01: Numerical Analysis**

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 221 and either (a) COSC 111 or (b) DATA 301. Equivalency: MATH 303

**COSC 305-L02: Project Management**

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] Prerequisite: COSC 310.

**COSC 305-L03: Project Management**

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] Prerequisite: COSC 310.

**COSC 305-L04: Project Management**

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] Prerequisite: COSC 310.

**COSC 310-L03: Software Engineering**

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 233, and third-year standing.

**COSC 310-L04: Software Engineering**

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 233, and third-year standing.

**COSC 322-L01: Introduction to Artificial Intelligence**

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.

**COSC 322-L02: Introduction to Artificial Intelligence**

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.

**COSC 322-L03: Introduction to Artificial Intelligence**

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.

**COSC 322-L04: Introduction to Artificial Intelligence**

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.

**COSC 322-L05: Introduction to Artificial Intelligence**

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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Section</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>COSC 328-001</td>
<td>Introduction to Networks</td>
<td>W2</td>
<td>3</td>
<td>None</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 341-101</td>
<td>Web Programming</td>
<td>W2</td>
<td>3</td>
<td>COSC 111, COSC 121, COSC 123, DAT 301, and third-year standing.</td>
<td>Lecture</td>
</tr>
<tr>
<td>COSC 360-001</td>
<td>Database System Implementation</td>
<td>W2</td>
<td>3</td>
<td>All of COSC 121, COSC 304. and third-year standing.</td>
<td>Lecture</td>
</tr>
</tbody>
</table>

**Course Details:**
- **Introduction to Networks:** 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. Prerequisite: All of COSC 211, COSC 222.
- **Web Programming:** History of human-computer interaction. Basic design principles, user-centered design, user task analysis, interaction models, input and output devices, graphical interface design, prototyping, and evaluation. Prerequisite: One of COSC 111, COSC 121, COSC 123, DAT 301, and third-year standing.
- **Database System Implementation:** Design and implementation of web-based information systems and app development. Prerequisite: COSC 304. and third-year standing.
Design and implementation of parallel programs including 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. [3-0-0] Prerequisite: One of COSC 222, COSC 230.

Design and implementation of parallel programs including 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. [3-0-0] Prerequisite: One of COSC 222, COSC 230.

Design and implementation of parallel programs including 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. [3-0-0] Prerequisite: One of COSC 222, COSC 230.

Human vision and colour, modelling, geometric transformations, algorithms for 2-D and 3-D graphics, hardware and system architectures, shading and lighting, animation. [3-0-0] Prerequisite: All of COSC 221, COSC 222 and one of MATH 221, APSC 179.

Advanced or specialized topics in computer science. Consult the department for the specific topic to be offered in any given year. Credit will be granted for only one of COSC 419 or COSC 519 when the subject matter is of the same nature. Prerequisite: Fourth-year standing.

Advanced or specialized topics in computer science. Consult the department for the specific topic to be offered in any given year. Credit will be granted for only one of COSC 419 or COSC 519 when the subject matter is of the same nature. Prerequisite: Fourth-year standing.

Advanced vision methods that enable machines to analyze and understand images. Fundamental problems in computer vision and the state-of-the-art approaches that address them. Feature detection and matching, geometric and multi-view vision, structure from X, segmentation, object tracking and visual recognition, and deep learning methods. Credit will be granted for only one of COSC 444, COSC 544 or COSC 545. [3-0-0]

Studies of the writing of creative non-fiction. Students are instructed and guided in the writing of creative non-fiction, encouraged to pursue experimentation in the genre, and will participate in the feedback and critique sessions that constitute the workshop method. [3-0-0] Prerequisite: CRWR 150.

Techniques of parallel programming, message passing, shared memory, multithreading, tasking, and load balancing. Credit will be granted for only one of COSC 407 or COSC 507. [3-0-0] Prerequisite: One of COSC 222, COSC 230.

Advanced or specialized topics in computer science. Consult the department for the specific topic to be offered in any given year. Credit will be granted for only one of COSC 419 or COSC 519 when the subject matter is of the same nature. Prerequisite: Fourth-year standing.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Introduction to composition and experimentation in the genres of poetry and creative non-fiction. Students will develop a working knowledge of modern aesthetics in poetry and creative non-fiction, as well as an objective appreciation of their own voice in the context of those aesthetics. No more than 6 credits in total will be granted for CRWR 150, CRWR 160. [3-0-0] or [1-0-2] or [2-0-0] or [2-1-0] Prerequisite: Third-year standing and permission of the department.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.

Advanced or 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.
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 VIS 244, VIS 256. Or permission of the instructor. Note: for VIS 244, CULT students require permission of instructor. Equivalency: VISA 362 Lecture In Person Learning Tue 5:00 p.m. - 9:00 p.m.

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/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 VIS 206, VIS 266, VIS 268, VIS 269, VIS 271, or permission of the instructor. Equivalency: VISA 382 Lecture In Person Learning Fri 10:00 a.m. - 2:00 p.m.

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

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: ENGL 493 Lecture In Person Learning Thu Thu 2:00 p.m. - 3:30 p.m.

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: ENGL 493 Lecture In Person Learning Fri 8:00 a.m. - 11:00 a.m.

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: ENGL 493 Lecture In Person Learning Mon 5:00 p.m. - 8:00 p.m.

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 300-level CULT Lecture In Person Learning Wed 11:00 a.m. - 2:00 p.m.

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 467. [3-0-0] Prerequisite: Third-year standing. Equivalency: ENGL 457 Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

Integrates interests from a variety of fields, including writing, performance, and art. Credit will be granted for only one of CULT 491 or ENGL 491. Prerequisite: Third-year standing. Equivalency: ENGL 491 Lecture In Person Learning Thu Thu 11:00 a.m. - 12:30 p.m.

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 their 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 CULT 308 program. Preference will be given to students admitted as Major, Combined Major, or Minor in CULT Lecture Hybrid Learning Fri 2:00 p.m. - 5:00 p.m.

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. Independent Study Lecture Online Learning Mon 4:00 p.m. - 5:00 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] Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 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] Lecture In Person Learning Wed Fri 2:00 p.m. - 3:30 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 Thu 8:00 a.m. - 9:00 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 9:00 a.m. - 10:00 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 Fri 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 12:00 p.m. - 1:00 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 12:00 p.m. - 1:00 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 Fri 10:00 a.m. - 12:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Instructor</th>
<th>Credits</th>
<th>Time</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA 572-201</td>
<td>Communication and Argumentation</td>
<td>TLA</td>
<td>2</td>
<td>8:30 a.m. - 9:30 a.m.</td>
<td>Analysis of data with categorical responses. Logistic regression, k-nearest neighbours classification, discriminant analysis. Restricted to students in the MDS program. Prerequisite: DATA 571.</td>
</tr>
<tr>
<td>DATA 572-202</td>
<td>Supervised Learning</td>
<td>001</td>
<td>2</td>
<td>10:00 a.m. - 11:00 a.m.</td>
<td>Analysis of data with categorical responses. Logistic regression, k-nearest neighbours classification, discriminant analysis. Restricted to students in the MDS program.</td>
</tr>
<tr>
<td>DATA 572-302</td>
<td>Advanced Predictive Modelling</td>
<td>TLA</td>
<td>2</td>
<td>1:00 p.m. - 2:00 p.m.</td>
<td>Analyzes data with unknown responses. Distance measures, hierarchical clustering, k-means, mixture models. Restricted to students in the MDS program.</td>
</tr>
<tr>
<td>DATA 573-101</td>
<td>Advanced Machine Learning</td>
<td>TLA</td>
<td>2</td>
<td>12:30 p.m. - 1:30 p.m.</td>
<td>Neural networks, backpropagation, deep learning. Restricted to students in the MDS program.</td>
</tr>
<tr>
<td>DATA 573-201</td>
<td>Advanced Machine Learning</td>
<td>L01</td>
<td>2</td>
<td>2:00 p.m. - 3:00 p.m.</td>
<td>Neural networks, backpropagation, deep learning. Restricted to students in the MDS program.</td>
</tr>
<tr>
<td>DATA 573-301</td>
<td>Advanced Machine Learning</td>
<td>L01</td>
<td>2</td>
<td>3:00 p.m. - 4:00 p.m.</td>
<td>Neural networks, backpropagation, deep learning. Restricted to students in the MDS program.</td>
</tr>
<tr>
<td>DATA 573-302</td>
<td>Advanced Predictive Modelling</td>
<td>TLA</td>
<td>2</td>
<td>4:00 p.m. - 5:00 p.m.</td>
<td>Analyzes data with unknown responses. Distance measures, hierarchical clustering, k-means, mixture models. Restricted to students in the MDS program.</td>
</tr>
<tr>
<td>DATA 573-401</td>
<td>Advanced Machine Learning</td>
<td>L01</td>
<td>2</td>
<td>5:00 p.m. - 6:00 p.m.</td>
<td>Neural networks, backpropagation, deep learning. Restricted to students in the MDS program.</td>
</tr>
</tbody>
</table>

**Description:**
- **Communication and Argumentation:** Involves practice-based instruction in humanities criticism, prototyping, writing and research. Equivalency: At least 35% of class is related to the humanities methods of study. Prerequisite: DATA 543.
- **Supervised Learning:** Advanced or specialized topic in Data Science with applications to specific data sets. Restricted to students in the MDS program. Prerequisite: DATA 543.
- **Advanced Predictive Modelling:** Advanced or specialized topic in Data Science with applications to specific data sets. Restricted to students in the MDS program. Prerequisite: DATA 543.
- **Advanced Machine Learning:** Advanced or specialized topic in Data Science with applications to specific data sets. Restricted to students in the MDS program. Prerequisite: DATA 543.
- **Special Topic:** 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.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Instructor</th>
<th>Meeting Times</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIHU_O 155-T2B</td>
<td>Writing and Making with Technology in the Hurr W2</td>
<td>T2B</td>
<td>Discussion In Person Learning</td>
<td>Mon 8:00 a.m. - 9:00 a.m.</td>
<td></td>
</tr>
<tr>
<td>DIHU_O 155-T2C</td>
<td>Writing and Making with Technology in the Hurr W2</td>
<td>T2C</td>
<td>Discussion In Person Learning</td>
<td>Wed 1:00 p.m. - 2:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>DIHU_O 155-T2D</td>
<td>Writing and Making with Technology in the Hurr W2</td>
<td>T2D</td>
<td>Discussion In Person Learning</td>
<td>Tue 5:00 p.m. - 6:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>DIHU_O 155-T2E</td>
<td>Writing and Making with Technology in the Hurr W2</td>
<td>T2E</td>
<td>Discussion In Person Learning</td>
<td>Fri 4:00 p.m. - 5:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 312-A_002</td>
<td>Internet Culture</td>
<td>A_002</td>
<td>Lecture Online Learning</td>
<td>Mon Wed 12:30 p.m. - 2:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>DIHU_O 375-001</td>
<td>Encountering India: The Age of the Mughals</td>
<td>001</td>
<td>Lecture In Person Learning</td>
<td>Wed 6:00 p.m. - 7:30 p.m.</td>
<td></td>
</tr>
<tr>
<td>DIHU_O 409_B_101</td>
<td>Topics in Digital Humanities</td>
<td>B_101</td>
<td>Lecture In Person Learning</td>
<td>Mon 5:00 p.m. - 6:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>EAP_O 104-101</td>
<td>English for Academic Purposes Level IV</td>
<td>101</td>
<td>In Person Learning</td>
<td>Mon Tue Wed Thu Fri 8:00 a.m. - 11:00 a.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 101-101</td>
<td>Principles of Microeconomics</td>
<td>101</td>
<td>In Person Learning</td>
<td>Mon Wed 5:00 p.m. - 6:30 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 102-101</td>
<td>Principles of Macroeconomics</td>
<td>101</td>
<td>In Person Learning</td>
<td>Tue Thu 11:00 a.m. - 12:30 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 102-102</td>
<td>Principles of Macroeconomics</td>
<td>102</td>
<td>In Person Learning</td>
<td>Mon Wed 6:30 p.m. - 8:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 204-101</td>
<td>Intermediate Microeconomic Analysis</td>
<td>101</td>
<td>Lecture In Person Learning</td>
<td>Tue Thu 3:30 p.m. - 5:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 204-102</td>
<td>Intermediate Microeconomic Analysis</td>
<td>102</td>
<td>In Person Learning</td>
<td>Mon 9:00 a.m. - 10:00 a.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 204-103</td>
<td>Intermediate Microeconomic Analysis</td>
<td>103</td>
<td>In Person Learning</td>
<td>Mon 12:30 p.m. - 2:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 205-101</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>101</td>
<td>Lecture In Person Learning</td>
<td>Mon Tue Wed Thu Fri 10:00 a.m. - 11:00 a.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 205-102</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>102</td>
<td>Lecture In Person Learning</td>
<td>Mon Tue Wed Thu Fri 10:00 a.m. - 11:00 a.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 205-103</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>103</td>
<td>Lecture In Person Learning</td>
<td>Mon Tue Wed Thu Fri 10:00 a.m. - 11:00 a.m.</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Department</td>
<td>Course Title</td>
<td>Units</td>
<td>Time</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
<td>-------------------------------------------</td>
<td>-------</td>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td>ECON_O 205-T2B</td>
<td>ECON_O</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>W2</td>
<td>11:00 a.m. - 12:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 221-101</td>
<td>ECON_O</td>
<td>Introduction to Strategic Thinking</td>
<td>W2</td>
<td>Discussion (In Person Learning) Tue Wed Fri</td>
<td></td>
</tr>
<tr>
<td>ECON_O 225-101</td>
<td>ECON_O</td>
<td>Data and Statistics for Economics</td>
<td>W2</td>
<td>Lecture (In Person Learning) Wed Fri 11:00 a.m. - 12:30 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 295-101</td>
<td>ECON_O</td>
<td>Managerial Economics</td>
<td>W2</td>
<td>Lecture (In Person Learning) Tue Thu 11:00 a.m. - 12:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 308-101</td>
<td>ECON_O</td>
<td>Intermediate Microeconomics II</td>
<td>W2</td>
<td>Lecture (In Person Learning) Wed Fri 8:00 a.m. - 9:30 a.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 320-101</td>
<td>ECON_O</td>
<td>Introduction to Mathematical Economics</td>
<td>W2</td>
<td>Lecture (In Person Learning) Wed Fri 3:30 p.m. - 5:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 328-101</td>
<td>ECON_O</td>
<td>Methods of Empirical Research</td>
<td>W2</td>
<td>Lecture (In Person Learning) Tue Thu 9:30 a.m. - 11:00 a.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 328-T2A</td>
<td>ECON_O</td>
<td>Methods of Empirical Research</td>
<td>W2</td>
<td>Discussion (In Person Learning) Mon 4:00 p.m. - 5:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 331-101</td>
<td>ECON_O</td>
<td>World Economy since 1800</td>
<td>W2</td>
<td>Lecture (In Person Learning) Tue Thu 2:00 p.m. - 3:30 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 339-101</td>
<td>ECON_O</td>
<td>Economics of Technological Change</td>
<td>W2</td>
<td>Lecture (In Person Learning) Tue Thu 12:30 p.m. - 2:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 345-101</td>
<td>ECON_O</td>
<td>Money and Banking</td>
<td>W2</td>
<td>Lecture (In Person Learning) Mon Wed 3:30 p.m. - 5:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 352-101</td>
<td>ECON_O</td>
<td>Public Sector Economics</td>
<td>W2</td>
<td>Lecture (In Person Learning) Mon Wed 5:00 p.m. - 6:30 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 355-101</td>
<td>ECON_O</td>
<td>International Trade</td>
<td>W2</td>
<td>Experiential (In Person Learning) Wed Fri 9:30 a.m. - 11:00 a.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 356-101</td>
<td>ECON_O</td>
<td>International Finance</td>
<td>W2</td>
<td>Lecture (In Person Learning) Tue Thu 2:00 p.m. - 3:30 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 360-101</td>
<td>ECON_O</td>
<td>Labour Economics</td>
<td>W2</td>
<td>Lecture (In Person Learning) Tue Thu 11:00 a.m. - 12:30 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 363-101</td>
<td>ECON_O</td>
<td>Health Economics</td>
<td>W2</td>
<td>Lecture (In Person Learning) Tue Thu 9:30 a.m. - 11:00 a.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 391-A_101</td>
<td>ECON_O</td>
<td>Topics in Economics</td>
<td>W2</td>
<td>Lecture (In Person Learning) Mon Wed 11:00 a.m. - 12:30 p.m.</td>
<td></td>
</tr>
<tr>
<td>ECON_O 391-C_101</td>
<td>ECON_O</td>
<td>Topics in Economics</td>
<td>W2</td>
<td>Lecture (In Person Learning) Tue Thu 3:30 p.m. - 5:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>EDLL_O 606-001</td>
<td>EDLL_O</td>
<td>Culturally Responsive Leadership in a Diverse So</td>
<td>W2</td>
<td>Seminar (Online Learning) Tue 5:00 p.m. - 8:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>EDUC_O 100-101</td>
<td>EDUC_O</td>
<td>Controversial Issues in Education</td>
<td>W2</td>
<td>Lecture (In Person Learning) Tue Thu 3:30 p.m. - 5:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Section</td>
<td>Title</td>
<td>Description</td>
<td>Credits</td>
<td>Days</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>----------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------</td>
<td>--------------</td>
</tr>
<tr>
<td>EDUC_O 150-102</td>
<td>102</td>
<td>Controversial Issues in Education W2</td>
<td>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 7 on the LPI; c) a passing grade in ENG 090; 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 Mon Wed Fri 9:30 a.m. - 11:00 a.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUC_O 160-101</td>
<td>101</td>
<td>Mathematical Reasoning for Arts and Education W2</td>
<td>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 toward a B.Sc. or B.M.S. degree, or for the B.A. Major in Mathematics program. ([3-0-0]) 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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUC_O 300-101</td>
<td>101</td>
<td>Inquiry in Education W2</td>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUC_O 436-001</td>
<td>001</td>
<td>Developing Curricular Vision for a Democratic Sc W2</td>
<td>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 433, EDUC 440. Lecture In Person Learning Mon Tue Wed Thu Fri 8:00 a.m. - 5:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUC_O 438-001</td>
<td>001</td>
<td>Educating for the Whole Person W2</td>
<td>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 wellbeing. Pass/Fail. Prerequisite: EDUC 441. Lecture In Person Learning Mon Tue Wed Thu Fri 8:00 a.m. - 5:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUC_O 441-P01</td>
<td></td>
<td>Field Experience: Formative Practicum W2</td>
<td>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 scients practices 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</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUC_O 502-001</td>
<td>001</td>
<td>Teacher as Researcher W2</td>
<td>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</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUC_O 528-001</td>
<td>001</td>
<td>Theory and Practice in Inclusive Education W2</td>
<td>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 inquiry. Lecture In Person Learning Sat (Alternate weeks) 9:00 a.m. - 4:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUC_O 588-101</td>
<td>01</td>
<td>M.Ed. Seminar with Project W2</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>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUC_O 599-101</td>
<td>01</td>
<td>Senior Seminar with Thesis W2</td>
<td>A comprehensive 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 requirements of, and opportunities for, sustainability. ([3-0-0]) Lecture In Person Learning Mon Wed Fri 4:00 p.m. - 5:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EESC_O 101-101</td>
<td>101</td>
<td>Environmental Science W2</td>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EESC_O 106-101</td>
<td>101</td>
<td>The Catastrophic Earth W2</td>
<td>Earth systems and environment: atmosphere, climate, water cycle, oceans, surface water, groundwater, earth surface processes, soils, and biogeochemical 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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EESC_O 112-001</td>
<td>001</td>
<td>Environmental Earth Science W2</td>
<td>Earth systems and environment: atmosphere, climate, water cycle, oceans, surface water, groundwater, earth surface processes, soils, and biogeochemical 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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EESC_O 112-101</td>
<td>01</td>
<td>Environmental Earth Science W2</td>
<td>Earth systems and environment: atmosphere, climate, water cycle, oceans, surface water, groundwater, earth surface processes, soils, and biogeochemical 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 Thu 11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EESC_O 112-102</td>
<td>01</td>
<td>Environmental Earth Science W2</td>
<td>Earth systems and environment: atmosphere, climate, water cycle, oceans, surface water, groundwater, earth surface processes, soils, and biogeochemical cycling. Applications of environmental science to solving modern environmental problems. ([3-0-0]) Prerequisite: EESC 111 and one of CHEM 111, CHEM 121. Laboratory In Person Learning Wed 11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EESC_O 112-103</td>
<td>001</td>
<td>Environmental Earth Science W2</td>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EESC_O 112-107</td>
<td>001</td>
<td>Earth History W2</td>
<td>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 Wed Fri 2:00 p.m. - 3:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EESC_O 121-101</td>
<td>01</td>
<td>Earth History W2</td>
<td>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. Laboratory In Person Learning Wed 8:00 a.m. - 10:00 a.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EESC_O 121-102</td>
<td>001</td>
<td>Earth History W2</td>
<td>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. Laboratory In Person Learning Mon 12:00 p.m. - 2:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------</td>
<td>---------</td>
<td>------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EESC 211-101</td>
<td>Atmospheric Environments</td>
<td>3-3-0</td>
<td>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 EESC 205 or GEOG 205. [3-3-0] Prerequisite: Either (a) two of EESC 101, EESC 111, EESC 112 or (b) all of GEOG 108, GEOG 109 or (c) second-year standing in the Bachelor of Science. Equivalency: GEOG205.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EESC 202-101</td>
<td>Introduction to Hydrology</td>
<td>2-3-0</td>
<td>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 EESC 205 or GEOG 205. [3-3-0] Prerequisite: Either (a) two of EESC 101, EESC 111, EESC 112 or (b) all of GEOG 108, GEOG 109 or (c) second-year standing in the Bachelor of Science. Equivalency: GEOG205.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EESC 203-101</td>
<td>Optical Mineralogy and Petrology</td>
<td>2-3-0</td>
<td>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 EESC 205 or GEOG 205. [3-3-0] Prerequisite: Either (a) two of EESC 101, EESC 111, EESC 112 or (b) all of GEOG 108, GEOG 109 or (c) second-year standing in the Bachelor of Science. Equivalency: GEOG205.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- The course descriptions and credits listed above are based on a standard academic format and are subject to change. Always refer to the official course catalog or university bulletin for the most accurate and up-to-date information.
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 EESC 356 or GEOG 356. [3-3-0] Prerequisite: One of EESC 212, EESC 222, GEOG 222. Equivalency: GEOG356

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

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 EESC 356 or GEOG 356. [3-3-0] Prerequisite: One of EESC 212, EESC 222, GEOG 222. Equivalency: GEOG356

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

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 EESC 356 or GEOG 356. [3-3-0] Prerequisite: One of EESC 212, EESC 222, GEOG 222. Equivalency: GEOG356

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

Mineral deposits, their geologic settings, genetic classification and modes of formation. Metalliferous, nonmetalliferous and industrial materials deposits. [3-3-0] Prerequisite: 200 and EESC 200.

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

Mineral deposits, their geologic settings, genetic classification and modes of formation. Metalliferous, nonmetalliferous and industrial materials deposits. [3-3-0] Prerequisite: 200 and EESC 200.

Laboratory In Person Learning Tue 5:00 p.m. - 8:00 p.m.

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.

Laboratory In Person Learning Wed Fri 12:30 p.m. - 2:00 p.m.

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 BIOX, CHEM, EESC or GEOG courses cross listed with EESC, and third-year standing. Equivalency: GEOG367

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

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 BIOX, CHEM, EESC or GEOG courses cross listed with EESC, and third-year standing.

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

Large-scale Earth structure, tectonic environments, Archean geology and the initiation of plate tectonics. Analytical toolsets. Orogenesis within the Canadian Cordillera, the Andes, the Alps, and the Himalaya. [3-0-0] Prerequisite: EESC 323 and EESC 325.

Laboratory In Person Learning Mon 8:00 a.m. - 9:30 a.m.

Students present a public lecture about a topic jointly decided upon with the instructor and/or supervisory committee. Students will be assessed on their seminar and a companion paper. [0-0-2]

Seminar In Person Learning Wed 11:00 a.m. - 2:00 p.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.

Lecture Online Learning Arranged Arranged

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Section</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 112</td>
<td>Studies in Composition</td>
<td>W2</td>
<td>3</td>
<td>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.</td>
</tr>
<tr>
<td>ENGL 113</td>
<td>Studies in Composition</td>
<td>W2</td>
<td>3</td>
<td>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.</td>
</tr>
<tr>
<td>ENGL 114</td>
<td>Studies in Composition</td>
<td>W2</td>
<td>3</td>
<td>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.</td>
</tr>
<tr>
<td>ENGL 115</td>
<td>Studies in Composition</td>
<td>W2</td>
<td>3</td>
<td>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.</td>
</tr>
<tr>
<td>ENGL 114-101</td>
<td>Studies in Composition: Indigenous Perspectives</td>
<td>W2</td>
<td>3</td>
<td>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.</td>
</tr>
<tr>
<td>ENGL 150-101</td>
<td>Introduction to Literary Genre</td>
<td>W2</td>
<td>3</td>
<td>Introduction to literary 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.</td>
</tr>
<tr>
<td>ENGL 150-102</td>
<td>Introduction to Literary Genre</td>
<td>W2</td>
<td>3</td>
<td>Introduction to literary 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.</td>
</tr>
<tr>
<td>ENGL 150-103</td>
<td>Introduction to Literary Genre</td>
<td>W2</td>
<td>3</td>
<td>Introduction to literary 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.</td>
</tr>
<tr>
<td>ENGL 150-104</td>
<td>Introduction to Literary Genre</td>
<td>W2</td>
<td>3</td>
<td>Introduction to literary 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.</td>
</tr>
<tr>
<td>ENGL 150-105</td>
<td>Introduction to Literary Genre</td>
<td>W2</td>
<td>3</td>
<td>Introduction to literary 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.</td>
</tr>
<tr>
<td>ENGL 150-106</td>
<td>Introduction to Literary Genre</td>
<td>W2</td>
<td>3</td>
<td>Introduction to literary 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.</td>
</tr>
<tr>
<td>ENGL 150-107</td>
<td>Introduction to Literary Genre</td>
<td>W2</td>
<td>3</td>
<td>Introduction to literary 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.</td>
</tr>
<tr>
<td>ENGL 150-108</td>
<td>Introduction to Literary Genre</td>
<td>W2</td>
<td>3</td>
<td>Introduction to literary 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.</td>
</tr>
<tr>
<td>ENGL 153-101</td>
<td>Readings in Narrative</td>
<td>W2</td>
<td>3</td>
<td>Study of narrative forms such as life-writing, 69ms, 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.</td>
</tr>
<tr>
<td>ENGL 153-721</td>
<td>Readings in Narrative</td>
<td>W2</td>
<td>3</td>
<td>Study of narrative forms such as life-writing, 69ms, 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.</td>
</tr>
<tr>
<td>ENGL 153-722</td>
<td>Readings in Narrative</td>
<td>W2</td>
<td>3</td>
<td>Study of narrative forms such as life-writing, 69ms, 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.</td>
</tr>
<tr>
<td>ENGL 153-723</td>
<td>Readings in Narrative</td>
<td>W2</td>
<td>3</td>
<td>Study of narrative forms such as life-writing, 69ms, 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.</td>
</tr>
<tr>
<td>ENGL 153-724</td>
<td>Readings in Narrative</td>
<td>W2</td>
<td>3</td>
<td>Study of narrative forms such as life-writing, 69ms, 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.</td>
</tr>
<tr>
<td>ENGL 153-725</td>
<td>Readings in Narrative</td>
<td>W2</td>
<td>3</td>
<td>Study of narrative forms such as life-writing, 69ms, 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.</td>
</tr>
<tr>
<td>ENGL 153-726</td>
<td>Readings in Narrative</td>
<td>W2</td>
<td>3</td>
<td>Study of narrative forms such as life-writing, 69ms, 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.</td>
</tr>
<tr>
<td>ENGL 153-728</td>
<td>Readings in Narrative</td>
<td>W2</td>
<td>3</td>
<td>Study of narrative forms such as life-writing, 69ms, 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.</td>
</tr>
<tr>
<td>ENGL 153-730</td>
<td>Readings in Narrative</td>
<td>W2</td>
<td>3</td>
<td>Study of narrative forms such as life-writing, 69ms, 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.</td>
</tr>
<tr>
<td>ENGL 153-731</td>
<td>Readings in Narrative</td>
<td>W2</td>
<td>3</td>
<td>Study of narrative forms such as life-writing, 69ms, 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.</td>
</tr>
<tr>
<td>ENGL 153-733</td>
<td>Readings in Narrative</td>
<td>W2</td>
<td>3</td>
<td>Study of narrative forms such as life-writing, 69ms, 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.</td>
</tr>
<tr>
<td>ENGL 153-734</td>
<td>Readings in Narrative</td>
<td>W2</td>
<td>3</td>
<td>Study of narrative forms such as life-writing, 69ms, 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.</td>
</tr>
</tbody>
</table>
ENGL 155-T3B ENGL_O T38 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 9:00 a.m. - 10:00 a.m.

ENGL 155-101 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.
Lecture In Person Learning Fri 2:00 p.m. - 4:00 p.m.

ENGL 155-T2A ENGL_O T2A 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.
Discussion In Person Learning Fri 10:00 a.m. - 11:00 a.m.

ENGL 155-T2B 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.
Discussion In Person Learning Mon 8:00 a.m. - 9:00 a.m.

ENGL 155-T2C 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.
Discussion In Person Learning Wed 1:00 p.m. - 2:00 p.m.

ENGL 155-T2D 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.
Discussion In Person Learning Tue 5:00 p.m. - 6:00 p.m.

ENGL 155-T2E 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.
Discussion In Person Learning Fri 4:00 p.m. - 5:00 p.m.

ENGL 155-T2F 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.
Discussion In Person Learning Mon 9:00 a.m. - 10:00 a.m.

ENGL 155-T2G 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.
Discussion In Person Learning Wed 10:00 a.m. - 11:00 a.m.

ENGL 155-T2H 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 Arranged Arranged

ENGL 202-101 ENGL_O 101 Okanagan Syilx 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.
Lecture Online Learning Mon Wed 11:00 a.m. - 12:30 p.m.

ENGL 203-A, 101 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 Online Learning Mon Wed 11:00 a.m. - 12:30 p.m.

ENGL 203-A, 102 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 Online Learning Wed Fri 2:00 p.m. - 3:30 p.m.

ENGL 203-A, 103 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 Online Learning Wed Fri 11:00 a.m. - 12:30 p.m.

ENGL 212-101 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 In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

ENGL 215-101 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 In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.

ENGL 221-101 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 In Person Learning Mon Wed 2:00 p.m. - 3:30 p.m.

ENGL 221-102 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 In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Distribution</th>
<th>Schedule</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 290-101</td>
<td>The Bible in English Literature</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 250-101</td>
<td>Foundations: Interdisciplinary Theory and Math</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 291-101</td>
<td>African Literary Canon</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 252-101</td>
<td>Individual Author Studies</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 253-101</td>
<td>In Person Learning</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 254-101</td>
<td>Black Intellectual Traditions</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 255-101</td>
<td>Independent Study</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 256-101</td>
<td>Topics in Medieval Studies</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 257-101</td>
<td>American Literature between the Wars</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 258-101</td>
<td>Topics in Medieval Studies</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 259-101</td>
<td>Shakespeare: Earlier Works</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 260-101</td>
<td>Restoration Drama and Culture</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 261-101</td>
<td>Settler Studies, Literature, and Culture</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 262-101</td>
<td>Approaches to interdisciplinary field of settler</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 263-101</td>
<td>Popular Literature</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 264-101</td>
<td>Approaches to 16th- and/or 17th-Century Litera</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 265-101</td>
<td>Posthumanism and Critical Animal Studies</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 266-101</td>
<td>Black Intellectual Traditions</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 267-101</td>
<td>Topics in Popular Culture</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 268-101</td>
<td>Topics in Historical Periods and Movements</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 269-101</td>
<td>Topics in Historical Periods and Movements</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 270-101</td>
<td>Topics in Popular Culture</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 271-101</td>
<td>Individual Author Studies</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 272-101</td>
<td>Studies in Diversity and Identity</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGR 305-201</td>
<td>Engineering Economic Analysis</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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.

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

Laboratory In Person Learning Wed (Alternate weeks) 8:00 a.m. - 10:00 a.m.

Laboratory In Person Learning Wed (Alternate weeks) 8:00 a.m. - 10:00 a.m.

Laboratory In Person Learning Mon (Alternate weeks) 12:00 a.m. - 2:00 p.m.

Laboratory In Person Learning Mon (Alternate weeks) 12:00 a.m. - 2:00 p.m.

Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.

Laboratory In Person Learning Fri (Alternate weeks) 2:00 p.m. - 4:00 p.m.

Laboratory In Person Learning Fri (Alternate weeks) 2:00 p.m. - 4:00 p.m.

Laboratory In Person Learning Mon (Alternate weeks) 8:00 a.m. - 10:00 a.m.

Laboratory In Person Learning Mon (Alternate weeks) 8:00 a.m. - 10:00 a.m.

Laboratory In Person Learning Mon (Alternate weeks) 10:00 a.m. - 12:00 p.m.

Laboratory In Person Learning Mon (Alternate weeks) 10:00 a.m. - 12:00 p.m.

Discussion Online Learning Mon 4:00 p.m. - 5:00 p.m.

Discussion Online Learning Thu 11:00 a.m. - 12:00 p.m.

Discussion Online Learning Fri 5:00 p.m. - 6:00 p.m.

Discussion Online Learning Wed 11:00 a.m. - 12:00 p.m.

Discussion Online Learning Mon 4:00 p.m. - 5:00 p.m.

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

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

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

Laboratory In Person Learning Wed (Alternate weeks) 4:00 p.m. - 6:00 p.m.

Laboratory In Person Learning Wed (Alternate weeks) 4:00 p.m. - 6:00 p.m.

Laboratory In Person Learning Wed (Alternate weeks) 12:00 p.m. - 2:00 p.m.

Laboratory In Person Learning Wed (Alternate weeks) 12:00 p.m. - 2:00 p.m.
ENGR_O 320-L2E  ENGR_O  L2E  Electromechanical Devices  W2  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. Laboratory In Person Learning Fri (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR_O 320-L2F  ENGR_O  L2F  Electromechanical Devices  W2  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. Laboratory In Person Learning Fri (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR_O 320-L2G  ENGR_O  L2G  Electromechanical Devices  W2  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. Laboratory In Person Learning Wed (Alternate weeks) 8:00 a.m. - 10:00 a.m.

ENGR_O 320-L2H  ENGR_O  L2H  Electromechanical Devices  W2  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. Laboratory In Person Learning Wed (Alternate weeks) 8:00 a.m. - 10:00 a.m.

ENGR_O 320-L3I  ENGR_O  L3I  Electromechanical Devices  W2  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. Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 320-L3J  ENGR_O  L3J  Electromechanical Devices  W2  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. Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 320-L3K  ENGR_O  L3K  Electromechanical Devices  W2  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. Laboratory In Person Learning Fri (Alternate weeks) 12:00 p.m. - 2:00 p.m.

ENGR_O 320-L3L  ENGR_O  L3L  Electromechanical Devices  W2  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. Laboratory In Person Learning Fri (Alternate weeks) 12:00 p.m. - 2:00 p.m.

ENGR_O 320-T2A  ENGR_O  T2A  Electromechanical Devices  W2  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. Discussion In Person Learning Mon 11:00 a.m. - 12:00 p.m.

ENGR_O 320-T2B  ENGR_O  T2B  Electromechanical Devices  W2  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. Discussion In Person Learning Fri 4:00 p.m. - 5:00 p.m.

ENGR_O 320-T2C  ENGR_O  T2C  Electromechanical Devices  W2  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. Discussion In Person Learning Fri 4:00 p.m. - 5:00 p.m.

ENGR_O 320-T2D  ENGR_O  T2D  Electromechanical Devices  W2  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. Discussion In Person Learning Fri 8:00 a.m. - 9:00 a.m.

ENGR_O 320-T2E  ENGR_O  T2E  Electromechanical Devices  W2  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. Discussion In Person Learning Wed 8:00 a.m. - 9:00 a.m.

ENGR_O 320-T2F  ENGR_O  T2F  Electromechanical Devices  W2  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. Discussion In Person Learning Thu 11:00 a.m. - 12:00 p.m.

ENGR_O 320-T2G  ENGR_O  T2G  Electromechanical Devices  W2  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. Discussion In Person Learning Tue 11:00 a.m. - 12:00 p.m.

ENGR_O 330-201  ENGR_O  201  Reliability and Risk Analysis for Civil Engineering  W2  Applied probability and simulation for civil engineering infrastructure. Methods for probabilistic risk and reliability analysis. Risk-based decision making. [3-0-0] Prerequisite: APSC 254. Corequisite: APSC 258. Lecture In Person Learning Tue Thrs 6:30 p.m. - 8:00 p.m.

ENGR_O 331-001  ENGR_O  001  Infrastructure Management I  W2  Introduction to asset management, municipal infrastructure systems, performance and prioritization measures, data management, life cycle costing, decision support tools, integrated approach. [3-0-0] Corequisite: All of ENGR 305, ENGR 330. Lecture In Person Learning Tue Thrs 11:00 a.m. - 12:30 p.m.

ENGR_O 352-201  ENGR_O  201  Surveying and GIS Analysis  W2  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. [3-2*-0] Prerequisite: All of APSC 169, APSC 254. Lecture In Person Learning Mon Wed 6:30 p.m. - 8:00 p.m.

ENGR_O 352-L2A  ENGR_O  L2A  Surveying and GIS Analysis  W2  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. [3-2*-0] Prerequisite: All of APSC 169, APSC 254. Laboratory In Person Learning Wed (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 352-L2B  ENGR_O  L2B  Surveying and GIS Analysis  W2  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. [3-2*-0] Prerequisite: All of APSC 169, APSC 254. Laboratory In Person Learning Wed (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 352-L2C  ENGR_O  L2C  Surveying and GIS Analysis  W2  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. [3-2*-0] Prerequisite: All of APSC 169, APSC 254. Laboratory In Person Learning Wed (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR_O 352-L2D  ENGR_O  L2D  Surveying and GIS Analysis  W2  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. [3-2*-0] Prerequisite: All of APSC 169, APSC 254. Laboratory In Person Learning Wed (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR_O 355-201  ENGR_O  201  Transportation Engineering  W2  Analysis, planning, design, and operation of transportation systems, including: governance, economics, land use, transport modes, users, roads, freeways, end-of-trip facilities, public transit, and intersection controls. [3-2*-0] Prerequisite: APSC 254. Lecture In Person Learning Tue Thrs 2:00 p.m. - 3:30 p.m.
ENGR_O 351-L2A ENGR_O 351-L2A Transportation Engineering W2 Analysis, planning, design, and operation of transportation systems, including: governance, economics, land use, transport modes, users, roads, freeways, end-of-trip facilities, public transit, and intersection controls. [3-2*-0] Prerequisite: APSC 254. Laboratory In Person Learning Wed (Alternate weeks) 8:00 a.m. - 10:00 a.m.

ENGR_O 351-L2B ENGR_O 351-L2B Transportation Engineering W2 Analysis, planning, design, and operation of transportation systems, including: governance, economics, land use, transport modes, users, roads, freeways, end-of-trip facilities, public transit, and intersection controls. [3-2*-0] Prerequisite: APSC 254. Laboratory In Person Learning Wed (Alternate weeks) 8:00 a.m. - 10:00 a.m.

ENGR_O 351-L2C ENGR_O 351-L2C Transportation Engineering W2 Analysis, planning, design, and operation of transportation systems, including: governance, economics, land use, transport modes, users, roads, freeways, end-of-trip facilities, public transit, and intersection controls. [3-2*-0] Prerequisite: APSC 254. Laboratory In Person Learning Wed (Alternate weeks) 8:00 a.m. - 10:00 a.m.

ENGR_O 351-L2D ENGR_O 351-L2D Transportation Engineering W2 Analysis, planning, design, and operation of transportation systems, including: governance, economics, land use, transport modes, users, roads, freeways, end-of-trip facilities, public transit, and intersection controls. [3-2*-0] Prerequisite: APSC 254. Laboratory In Person Learning Wed (Alternate weeks) 8:00 a.m. - 10:00 a.m.

ENGR_O 351-101 ENGR_O 351-101 Soil Mechanics W2 Geological processes, soil classification, principle of effective stress, seepage analysis, shear strength, soil compaction, consolidation, and slope stability analysis. [3-0-1] Prerequisite: All of APSC 253, APSC 260. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

ENGR_O 351-L1A ENGR_O 351-L1A 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 351-L1B ENGR_O 351-L1B 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 351-L1C ENGR_O 351-L1C 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 351-L1D ENGR_O 351-L1D 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 351-10E ENGR_O 351-10E 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 351-L1F ENGR_O 351-L1F 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 351-L1G ENGR_O 351-L1G 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 352-001 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-L1A ENGR_O 352-L1A 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-L1B ENGR_O 352-L1B 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-L1C ENGR_O 352-L1C 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-L1D ENGR_O 352-L1D 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-L1E ENGR_O 352-L1E 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 362-102 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: ENGR 246. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

ENGR_O 362-T2A ENGR_O 362-T2A 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: ENGR 246. Discussion In Person Learning Fri 11:00 a.m. - 12:00 p.m.

ENGR_O 362-T2B ENGR_O 362-T2B 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: ENGR 246. Discussion In Person Learning Mon 11:00 a.m. - 12:00 p.m.

ENGR_O 362-T2C ENGR_O 362-T2C 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: ENGR 246. Discussion In Person Learning Thu 2:00 p.m. - 3:00 p.m.

ENGR_O 362-T2D ENGR_O 362-T2D 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: ENGR 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.

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.

Product design methodology; static and fatigue failure theory; design/selection of components including shafts, springs, bearings, gears, brakes, and clutches; design of bolted joints, power screws, and welds; design evaluation and optimization. [3-0-1] Prerequisite: APSC 260.

Product design methodology; static and fatigue failure theory; design/selection of components including shafts, springs, bearings, gears, brakes, and clutches; design of bolted joints, power screws, and welds; design evaluation and optimization. [3-0-1] Prerequisite: APSC 260.

Product design methodology; static and fatigue failure theory; design/selection of components including shafts, springs, bearings, gears, brakes, and clutches; design of bolted joints, power screws, and welds; design evaluation and optimization. [3-0-1] Prerequisite: APSC 260.

Product design methodology; static and fatigue failure theory; design/selection of components including shafts, springs, bearings, gears, brakes, and clutches; design of bolted joints, power screws, and welds; design evaluation and optimization. [3-0-1] Prerequisite: APSC 260.

Product design methodology; static and fatigue failure theory; design/selection of components including shafts, springs, bearings, gears, brakes, and clutches; design of bolted joints, power screws, and welds; design evaluation and optimization. [3-0-1] Prerequisite: APSC 260.

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.

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.

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.

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.

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.

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.
ENGR_O 385-L2H  ENGR_O  L2H  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  L2I  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  L2J  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  L2K  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  L2L  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  T2A  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  T2B  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  T2C  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  T2D  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 12:00 p.m. - 1:00 p.m.

ENGR_O 385-T2E  ENGR_O  T2E  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-T2F  ENGR_O  T2F  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. CDSC or B.Sc. CDSC standing. Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 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 Thu 11:00 a.m. - 12:30 p.m.

ENGR_O 429-101  ENGR_O  101  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. [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 433-101  ENGR_O  101  Construction Engineering and Management  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 433 or ENGR 533. [3-0-0] Prerequisite: ENGR 303. Lecture In Person Learning Thu 2:00 p.m. - 3:30 p.m.

ENGR_O 441-101  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 343 and ENGR 447. 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 S W3  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 254. 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 254. Lecture In Person Learning Wed Mon 12:30 p.m. - 2:00 p.m.

ENGR_O 453-1LA  ENGR_O  1LA  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 254. Lecture In Person Learning Mon (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 453-1LB  ENGR_O  1LB  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 254. Lecture In Person Learning Mon (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 454-001  ENGR_O  001  Motor Drive Systems  W2  Three-phase AC/DC PWM inverter, converter modulation techniques, abc/pq 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 Mon Wed 2:00 p.m. - 3:30 p.m.

ENGR_O 454-2LA  ENGR_O  2LA  Motor Drive Systems  W2  Three-phase AC/DC PWM inverter, converter modulation techniques, abc/pq 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 454-2LB  ENGR_O  2LB  Motor Drive Systems  W2  Three-phase AC/DC PWM inverter, converter modulation techniques, abc/pq 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  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 Fri 12:30 p.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>ENGR 375</td>
<td>Microwave Engineering</td>
<td>3</td>
<td>Review of electromagnetic principles, waveguides, transmission lines, impedance matching, Smith charts, network characterization, and microwave engineering applications. [3-2-0] Prerequisite: ENGR 378. Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>ENGR 470</td>
<td>Analog Integrated Circuits</td>
<td>3</td>
<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. Lecture In Person Learning Wed Fri 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>ENGR 475</td>
<td>Materials Selection and Design</td>
<td>3</td>
<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. Lecture In Person Learning Wed Fri 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>ENGR 478</td>
<td>Alternative Energy Systems</td>
<td>3</td>
<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 fuels, fuel from biomass, energy storage parameters, integration of alternative sources of energy. [3-0-0] Prerequisite: All of ENGR 375, ENGR 385. Lecture In Person Learning Mon Wed 12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>ENGR 481</td>
<td>Biomedical Engineering I</td>
<td>3</td>
<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. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>ENGR 487</td>
<td>Computational Fluid Dynamics</td>
<td>3</td>
<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. Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.</td>
</tr>
<tr>
<td>ENGR 491</td>
<td>Tissue Engineering</td>
<td>3</td>
<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. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>ENGR 494</td>
<td>Autonomous Vehicle Technology</td>
<td>3</td>
<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. [3-0-0] Prerequisite: ENGR 480. Lecture In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>ENGR 494-LA</td>
<td>Autonomous Vehicle Technology</td>
<td>3</td>
<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. [3-0-0] Prerequisite: ENGR 480. Lecture In Person Learning Arranged Arranged</td>
</tr>
<tr>
<td>ENGR 495</td>
<td>Tissue Engineering</td>
<td>3</td>
<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. Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>ENGR 498-Q</td>
<td>Special Topics in Engineering</td>
<td>3</td>
<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. Lecture In Person Learning Wed Fri 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>ENGR 498-R</td>
<td>Special Topics in Engineering</td>
<td>3</td>
<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. Lecture In Person Learning Thu 12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>ENGR 501</td>
<td>Deep and Reinforcement Learning for Engineers</td>
<td>3</td>
<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 algorithm; practical engineering applications of deep and reinforcement learning. Lecture In Person Learning Wed Fri 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>ENGR 502</td>
<td>Technical Communication for Engineering Resea</td>
<td>3</td>
<td>Strategies for clear, effective, and ethical technical communication (both written and oral). Tools and formatting for graphics, technical reports, proposals, journal papers, theses, Patents. Lecture In Person Learning 3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGR 511</td>
<td>Technology Entrepreneurship for Engineers</td>
<td>3</td>
<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] Lecture In Person Learning Tue Thurs 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>ENGR 512</td>
<td>Signals, Systems, and Inference</td>
<td>3</td>
<td>Review of signals and systems basics; LTU 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. Lecture In Person Learning Wed Fri 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 515.  [3-0-0]  Lecture  In Person Learning  Tue Thu  12:30 p.m. - 2:00 p.m.

ENGR_O 522-101  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 dynamics 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 101  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 indices, 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 555-201  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 Fri  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, multiphase polymer systems, polymer processing and forming. Lecture  In Person Learning  Wed Fri  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-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_001  Topics in Engineering  W2  Project on assigned topic of specialization. Ths course is restricted to M.Eng. students. Lecture  Independent Study  In Person Learning  Arranged

ENGR_O 588-R_001  ENGR_O R_001  Topics in Engineering  W2  Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.


FREN_O 102-101  FREN_O 102  Topics in Engineering  W2  Continuation of Upper Elementary French I. Completes level A2 of the Common European Framework of Reference for Languages (CEFR). Not available to students who have a CEFR level A2. The next level course series available is FREN 103-104. Prerequisite: FREN 101 or prior introductory French course at CEFR Level A1. 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 (CEFR). 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 introductory French course at CEFR 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 (CEFR). 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 introductory French course at CEFR Level A2. Lecture  Online Learning  Arranged

FILM_O 100-101  FILM_O 001  Introduction to Film Studies  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 FILM 103 or THTR 103.  [5-0-5]  Experiment  In Person Learning  Fri  8:00 a.m. - 11:00 a.m.

FILM_O 271-101  FILM_O 101  Video II  W2  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 FILM 371 or CULT 371.  [2-2-0] Prerequisite: One of VISA 261, FILM 261. Equivalency: VISA 271  Studio  In Person Learning  Fri  1:00 p.m. - 5:00 p.m.

FILM_O 371-001  FILM_O 001  Digital Documentary Production  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 261, FILM 261. Equivalency: VISA 271  Studio  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 (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. Prerequisite: FREN 101 or prior introductory French course at CEFR 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 (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. Prerequisite: FREN 101 or prior introductory French course at CEFR Level A1. Lecture  Online Learning  Arranged

FREN_O 104-101  FREN_O 101  Upper Elementary French I  W2  Continuation of Upper Elementary French I. Completes level A2 of the Common European Framework of Reference for Languages (CEFR). 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 introductory French course at CEFR 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 (CEFR). 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 introductory French course at CEFR Level A2. Lecture  Online Learning  Arranged
FREN 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 CEF level B1 or higher. The next level course series available is FREN 223-224. Prerequisite: FREN 122, or prior introductory French course at CEFIR level B1.
Lecture | In Person Learning | Mon Wed | 12:30 p.m. - 2:00 p.m.

FREN 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 CEFIR 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 | Tue Thu | 2:00 p.m. - 3:30 p.m.

FREN 215-D01 | 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 CEFIR 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 215-D02 | FREN_O | 02 | 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 CEFIR 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 223-001 | FREN_O | 001 | French Language and Style | W2
Development of essay writing skills in French. Prerequisite: FREN 155.
Laboratory | In Person Learning | Mon Wed Fri | 12:00 p.m. - 1:00 p.m.

FREN 355-001 | FREN_O | 001 | Advanced Composition | W2
Examines works from selected Quebecois poets from the nineteenth century to the present. Prerequisite: FREN 353 and one of GEOG 107, GEOG 130, GEOG 356, FREN 362, FREN 390.
Laboratory | In Person Learning | Mon Wed | 9:30 a.m. - 11:00 a.m.

FREN 430-101 | FREN_O | 101 | Quebecois Poetry | W2
Oral expressions, such as academic and professional presentations, debates, and public speaking. Exposure to regional and foreign French accents through a selection of audioslual material. Of use to students pursuing 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 GEOG 107, GEOG 330, FREN 356, FREN 362, FREN 390.
Laboratory | In Person Learning | Thu | 3:30 p.m. - 5:00 p.m.

FREN 444-001 | FREN_O | 001 | French for Work: Professional Oral Performance | W3
Examines works from selected Quebecois poets from the nineteenth century to the present. Prerequisite: FREN 353 and one of GEOG 107, GEOG 330, FREN 356, FREN 362, FREN 390.
Laboratory | In Person Learning | Thu | 2:00 p.m. - 3:30 p.m.

GEOG 109-101 | GEOG_O | 101 | Earth Systems: Landscape Dynamics | W2
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]
Lecture | In Person Learning | Mon Wed | 5:00 p.m. - 6:30 p.m.

GEOG 109-D01 | GEOG_O | 101 | Earth Systems: Landscape Dynamics | W2
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]
Lecture | In Person Learning | Mon | 8:00 a.m. - 10:00 a.m.

GEOG 109-D02 | GEOG_O | 02 | Earth Systems: Landscape Dynamics | W2
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 109-D03 | GEOG_O | 03 | 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 109-D04 | 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 109-D05 | 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 109-D06 | GEOG_O | 06 | 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 109-XMT | GEOG_O | XMT | Earth Systems: Landscape Dynamics | W2
Critical introduction to the study of the 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 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 rapid 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 129-101 | GEOG_O | 101 | Human Geography: Resources, Development, or | 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 | Tue Thu | 8:00 a.m. - 9:30 a.m.

GEOG 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 rapid changing cultural, demographic, economic, political, and social phenomena and their relationship to the environment. Not for Science credit. [3-0-0]
Lecture | Online Learning | Tue Thu | 12:30 p.m. - 2:00 p.m.

GEOG 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 GEOG 212. [3-3-0] Prerequisite: Either (a) GEOG 107 and GEOG 109, or (b) two of GEOG 101, GEOG 111, GEOG 121, GEOG 123 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC 212.
Laboratory | In Person Learning | Mon Wed | 11:00 a.m. - 12:30 p.m.

GEOG 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 GEOG 212. [3-3-0] Prerequisite: Either (a) GEOG 107 and GEOG 109, or (b) two of GEOG 101, GEOG 111, GEOG 121, GEOG 123 or (c) second-year standing in the Bachelor of Science. Equivalency: EESC 212.
Laboratory | In Person Learning | Wed | 6:30 p.m. - 9:30 p.m.
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

GISC O 381-01 GISC O 101 Fundamentals of Geographic Information Science: W2

GIS, 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 workforce management. Laboratory exercises require ArcGIS. Credit will be granted for only one of GISC 381, GEOG 381, or EESC 381. [3-3-0] Prerequisite: One of GISC 380, EESC 380, GEOG 380.

GISC O 381-02 GISC O 102 Fundamentals of Geographic Information Science: W2

GIS, 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 workforce management. Laboratory exercises require ArcGIS. Credit will be granted for only one of GISC 381, GEOG 381, or EESC 381. [3-3-0] Prerequisite: One of GISC 380, EESC 380, GEOG 380.

GISC O 381-03 GISC O 103 Fundamentals of Geographic Information Science: W2

GIS, 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 workforce management. Laboratory exercises require ArcGIS. Credit will be granted for only one of GISC 381, GEOG 381, or EESC 381. [3-3-0] Prerequisite: One of GISC 380, EESC 380, GEOG 380.

GWST O 100-101 GWST O 101 Gender, Race, Sexuality, and Power I: An Intro to 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] Prerequisite: 6 credits of GWST, CULT, SUST 104. Third-year standing. Credit will be granted for only one of GWST 100, CULT 100, GEOG 100.

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 ENG 109, ENG 112, ENG 114, ENG 150, ENG 151, ENG 153, ENG 154, ENGL 155, ENGL 156.

GWST O 240-101 GWST O 101 Communication in Gender, Women and Sexuality W2

Feminist theories and practice to understand and address environmental change. Role of decolonial, antracist, disability justice and queer feminist perspectives in environmental justice, policy, art, and activism. Credit will be granted for only one of GWST 240, CULT 240. [3-0-0] Prerequisite: 6 credits of GWST, CULT, SUST 104. Equivalency: CULT 240.

GWST O 272-101 GWST O 101 Feminism and Environment W2

Feminist theories and practice to understand and address environmental change. Role of decolonial, antracist, 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.

GWST O 415-A_101 GWST O A A_101 Topics in Gender, Sexuality and Popular Culture 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 GEOG 426, GWST 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: GEOS426

GWST O 426-101 GWST O 101 Queer Geographies W2

Broad introduction to health studies as it applies to principles of health and wellbeing with particular emphasis on student health. A review of education and research on a variety of student health issues, and their larger impact, will be investigated and discussed. Opportunities to develop skills and resources for optimal health as it relates to life and academic success are included. Credit will not be granted to use toward the Bachelor of Human Kinetics degree. [3-0-0]
Exercise Physiology I

Applied physiology of the cardiovascular, respiratory, and muscular system. Aerobic and anaerobic metabolism during exercise and physical activity. Formerly offered as HMKN 200. Credit will be granted for only one of HES 105 or HMKN 200.

Prerequisite: Either (a) HES 100 or (b) HMKN 100; and either (a) HES 101 or (b) HMKN 190.

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

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

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

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

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

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

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

Laboratory In Person Learning Tue 1:00 p.m. - 3:00 p.m.

Laboratory In Person Learning Tue 5:00 p.m. - 7:00 p.m.

Laboratory In Person Learning Wed 11:00 a.m. - 1:00 p.m.

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

Laboratory In Person Learning Thu 1:00 p.m. - 3:00 p.m.

Laboratory In Person Learning Thu 5:00 p.m. - 7:00 p.m.

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

Human Physiology II W2
Lecture In Person Learning Mon 8:00 a.m. - 10:00 a.m.
Laboratory In Person Learning Mon 10:00 a.m. - 12:00 p.m.
Laboratory In Person Learning Mon 12:00 p.m. - 2:00 p.m.
Laboratory In Person Learning Mon 4:00 p.m. - 6:00 p.m.
Laboratory In Person Learning Tue 12:30 p.m. - 2:30 p.m.
Laboratory In Person Learning Fri 2:00 p.m. - 4:00 p.m.
Laboratory In Person Learning Wed 11:00 a.m. - 1:00 p.m.
Laboratory In Person Learning Wed 1:00 p.m. - 3:00 p.m.
Laboratory In Person Learning Wed 3:00 p.m. - 5:00 p.m.
Laboratory In Person Learning Thu 12:30 p.m. - 2:30 p.m.
Laboratory In Person Learning Tue 11:00 a.m. - 12:30 p.m.
Laboratory In Person Learning Thu 8:00 a.m. - 9:30 a.m.
Laboratory In Person Learning Thu 5:00 p.m. - 6:30 p.m.
Laboratory In Person Learning Thu 2:00 p.m. - 3:30 p.m.
Laboratory In Person Learning Mon 2:00 p.m. - 4:00 p.m.
Laboratory In Person Learning Mon 4:00 p.m. - 6:00 p.m.

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 202. Credit will be granted for only one of HES 202 or HMKN 202. [3-0-0] Prerequisite: Either (a) HES 101 or (b) HMKN 100.

Exercise Psychology W2
Lecture In Person Learning Tue 8:00 a.m. - 9:30 a.m.

Lifespan Physical and Motor Development W2
Lecture In Person Learning Thu 5:00 p.m. - 6:30 p.m.

Exercise Training, Conditioning and Rehabilitation W2
Lecture In Person Learning Thu 2:00 p.m. - 3:30 p.m.

Exercise Training, Conditioning and Rehabilitation W2
Lecture In Person Learning Mon 2:00 p.m. - 4:00 p.m.

Exercise Training, Conditioning and Rehabilitation W2
Lecture In Person Learning Mon 4:00 p.m. - 6:00 p.m.

Psychological theories and research related to exercise adoption, maintenance, and avoidance. Psychological antecedents and consequences of exercise behaviour. Formerly offered as HMKN 201. Credit will be granted for only one of HES 131 or HMKN 201. [3-0-0] Prerequisite: Either (a) HES 100 or (b) HMKN 100.

Human Motor Behaviour I W2
Lecture In Person Learning Thu 8:00 a.m. - 9:30 a.m.

Lifespan Physical and Motor Development W2
Lecture In Person Learning Thu 5:00 p.m. - 6:30 p.m.

Exercise Training, Conditioning and Rehabilitation W2
Lecture In Person Learning Thu 2:00 p.m. - 3:30 p.m.

Exercise Training, Conditioning and Rehabilitation W2
Lecture In Person Learning Mon 2:00 p.m. - 4:00 p.m.

Exercise Training, Conditioning and Rehabilitation W2
Lecture In Person Learning Mon 4:00 p.m. - 6:00 p.m.

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.

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.

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.

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

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

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

Introduction to Athletic Injury Management

Exercise Training, Conditioning and Rehabilitation W2

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

Exercise Training, Conditioning and Rehabilitation W2

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

Exercise Training, Conditioning and Rehabilitation W2

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

Exercise Training, Conditioning and Rehabilitation W2

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

Exercise Training, Conditioning and Rehabilitation W2

Laboratory In Person Learning Mon 6:00 p.m.-8:00 p.m.

Exercise Training, Conditioning and Rehabilitation W2

Laboratory In Person Learning Wed 6:00 p.m.-8:00 p.m.

Exercise Training, Conditioning and Rehabilitation W2

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

Exercise Counseling and Behaviour Modification W2

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

Lecture Online Learning Arranged Arranged

Pathophysiology W2

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

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 316. [3-2-0] Prerequisite: Either (a) HES 131 or (b) HMKN 201.
Laboratory In Person Learning Tue Thu 12:30 p.m.-2:00 p.m.

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

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

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

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

Current methods in exercise science will be demonstrated via modules presented by faculty in their areas of specialization including electromyographical 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. [2-3-0] Prerequisite: One of HES 305, HMKN 310.
Lecture In Person Learning Tue Thu 3:30 p.m.-5:00 p.m.
**Laboratory 10:00 a.m. - 12:00 p.m.**

**Laboratory Techniques in Exercise Science**

**W2**

Advanced theories in health and exercise psychology and their critical evaluation regarding utility for instilling and sustaining health behaviour change. Formerly offered as HMKN 421. Credit will be granted for only one of HES 332 or HMKN 421. [3-0-0] Prerequisite: HES 230. Registration limited to students in the Health Behaviour Change Concentration in the B.H.E.S. Program.

**Laboratory In Person Learning Fri**

8:00 a.m. - 10:00 a.m.

---

**Laboratory Techniques in Exercise Science**

**W2**

The course will instill knowledge of theory as well as applied skills in health behaviour counselling. Credit will be granted for only one of HES 331 and HMKN 495N. [1.5-1.5-0] Prerequisite: HES 231. Formerly offered as HMKN 407. Credit will be granted for only one of HES 331 or HMKN 495N. [1.5-1.5-0] Prerequisite: HMKN 401, HMKN 402, HMKN 499. Formerly offered as HMKN 401. Credit will be granted for only one of HES 331 or HMKN 495N. [1.5-1.5-0] Prerequisite: HMKN 401, HMKN 402, HMKN 499. Formerly offered as HMKN 401. Credit will be granted for only one of HES 331 or HMKN 495N. [1.5-1.5-0] Prerequisite: HMKN 401, HMKN 402, HMKN 499.

**Laboratory In Person Learning Thu**

8:00 a.m. - 10:00 a.m.

---

**Laboratory Techniques in Exercise Science**

**W2**

Clinical Exercise Physiology Applications in Chronic Conditions: Cardiovascular Disease. Critically review evidence, standards and recommendations for use of exercise in the management and prevention of cardiovascular disease. [3-0-0] Prerequisite: HES 351. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.

**Laboratory In Person Learning Mon**

2:00 p.m. - 3:30 p.m.

---

**Laboratory Techniques in Exercise Science**

**W2**

Clinical Exercise Physiology Applications in Chronic Conditions: Endocrinology and Metabolic Disorders. 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 and disorders. [3-0-0] Prerequisite: HES 351. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.

**Laboratory In Person Learning Mon**

2:00 p.m. - 3:30 p.m.

---

**Laboratory Techniques in Exercise Science**

**W2**

Clinical Exercise Prescription. Advanced exercise prescription considerations for individuals with chronic conditions and special populations (e.g., pediatric, aging). [3-2-0] Prerequisite: HES 352. Formerly offered as HMKN 312. Credit will be granted for only one of HES 332 or HMKN 421. [3-0-0] Prerequisite: HES 352. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.

**Laboratory In Person Learning Mon**

10:00 a.m. - 12:00 p.m.

---

**Laboratory Techniques in Exercise Science**

**W2**

Clinical Exercise Prescription. Advanced exercise prescription considerations for individuals with chronic conditions and special populations (e.g., pediatric, aging). [3-2-0] Prerequisite: HES 352. Formerly offered as HMKN 312. Credit will be granted for only one of HES 332 or HMKN 421. [3-0-0] Prerequisite: HES 352. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.

**Laboratory In Person Learning Wed**

2:00 p.m. - 3:30 p.m.

---

**Laboratory Techniques in Exercise Science**

**W2**

Clinical Exercise Prescription. Advanced exercise prescription considerations for individuals with chronic conditions and special populations (e.g., pediatric, aging). [3-2-0] Prerequisite: HES 352. Formerly offered as HMKN 312. Credit will be granted for only one of HES 332 or HMKN 421. [3-0-0] Prerequisite: HES 352. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.

**Laboratory In Person Learning Wed**

3:30 p.m. - 5:00 p.m.

---

**Laboratory Techniques in Exercise Science**

**W2**

Clinical Exercise Prescription. Advanced exercise prescription considerations for individuals with chronic conditions and special populations (e.g., pediatric, aging). [3-2-0] Prerequisite: HES 352. Formerly offered as HMKN 312. Credit will be granted for only one of HES 332 or HMKN 421. [3-0-0] Prerequisite: HES 352. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.

**Laboratory In Person Learning Fri**

10:00 a.m. - 12:00 p.m.

---

**Laboratory Techniques in Exercise Science**

**W2**

Clinical Exercise Physiology Applications in Chronic Conditions: Cardiovascular Disease. Formerly offered as HMKN 311 or (b) HMKN 335. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.

**Laboratory In Person Learning Mon**

8:00 a.m. - 9:30 a.m.

---

**Laboratory Techniques in Exercise Science**

**W2**

Clinical Exercise Physiology Applications in Chronic Conditions: Cardiovascular Disease. Formerly offered as HMKN 311 or (b) HMKN 335. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.

**Laboratory In Person Learning Thu**

2:00 p.m. - 3:30 p.m.

---

**Laboratory Techniques in Exercise Science**

**W2**

Clinical Exercise Physiology Applications in Chronic Conditions: Cardiovascular Disease. Formerly offered as HMKN 311 or (b) HMKN 335. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.

**Laboratory In Person Learning Tue**

8:00 a.m. - 11:00 a.m.
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 HMMN 401, HES 401, and permission of both the Practicum Coordinator and the Undergraduate Chair.

Advanced Community Placement Experience W2

Investigation of the diagnosis, deficits and treatment of concussion, and the neurocognitive, biomechanical, cerebrovascular, and sensorimotor effects of injury. Formerly offered as HMMN 404. Credit will be granted for only one of HES 480 or HMMN 404. [3-0-0] Prerequisite: Either (a) HES 240 or (b) HMMN 206, and either (a) HES 311 or (b) HMMN 335; and either (a) HES 340 or (b) HMMN 205. Lecture In Person Learning Wed Fri 8:00 a.m. - 9:30 a.m.

Concussion W2

Investigation into the physiological responses of children and adolescents to exercise. Formerly offered as HMMN 406. Credit will be granted for only one of HES 481 or HMMN 406. [3-0-0] Prerequisite: Either (a) HES 105 or (b) HMMN 200; and either (a) HES 305 or (b) HMMN 310. Lecture In Person Learning Wed Fri 3:30 p.m. - 5:00 p.m.

Pediatric Exercise Physiology W2

Regulation and adaptation of the cardiovascular, circulatory, and respiratory systems during environmental extremes. Formerly offered as HMMN 411. Credit will be granted for only one of HES 483 or HMMN 411. [3-0-0] Prerequisite: One of HES 305, HMMN 310. Lecture In Person Learning Wed Fri 12:30 p.m. - 2:00 p.m.

Environmental Physiology W2

Provides opportunities to perform research pertaining to a chosen area of Human Kinetics as agreed upon by a faculty member and student. No more than 6 credits in total of HES 490. Prerequisite: Either (a) HES 240 or (b) HMMN 206, and either (a) HES 340 or (b) HMMN 205. Permission of the School of Health and Exercise Sciences. Independent Study In Person Learning Arranged Arranged

Project in Health and Exercise Sciences W2

Principles of research methods including philosophy of science, research designs, ethical considerations, critical analysis, qualitative and quantitative approaches, proposal development. Lecture In Person Learning Tue 11:00 a.m. - 2:00 p.m.

Research Methods in Health and Exercise Sciences W2

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 [3-0-4] Prerequisite: Third-year standing. Lecture In Person Learning Tue 2:00 p.m. - 5:00 p.m.

Global Health W2

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 [3-0-4] Prerequisite: Third-year standing. Lecture In Person Learning Thu 2:00 p.m. - 5:00 p.m.

Global Health W2

Examination of disability studies and its relationship to clinical practice. Various theoretical frameworks used to understand disability and their implications for practice are critically examined. Lecture In Person Learning Thu 2:00 p.m. - 5:00 p.m.

Disabilities Studies and Interprofessional Health W2

Introduction to the changes in European society from the late Roman Empire to the Renaissance, with an emphasis on the Middle Ages as a dynamic era. The period saw the development of many of the institutions of modern civilization, including common law, parliament, and the university. Religion, family, and warfare in the Middle Ages are examined. [3-0-0] Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

Medieval Europe W2

Survey of the development of Europe through the political, social, and industrial revolutions that accompanied the age of European imperialism. Examination of the World Wars and their impact on the decline of Europe. [3-0-0] Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

Europe from the French Revolution W2

Events and forces shaping the world since the mid-nineteenth century. [3-0-4] Lecture In Person Learning Mon Wed 2:00 p.m. - 3:30 p.m.

Contemporary World History W2

Major economic, political, and social currents in Asian history. [3-0-0] Lecture In Person Learning Wed Fri 9:30 a.m. - 11:00 a.m.

Introduction to Asian History W2

Study of themes of the major economic, political, and social developments in what would become the United States from the late fifteenth century through the Civil War. [3-0-4] Lecture In Person Learning Mon Wed 12:30 p.m. - 2:00 p.m.

The United States to 1865 W2

Economic and political development of the Canadian nation state from Indigenous-settler contact to the twenty-first century. Credit will be granted for only one of HIST 222 and 322. [3-0-4] Lecture In Person Learning Thu 9:30 a.m. - 11:00 a.m.

Canadian State and Economy W2

Survey of themes of Latin American history from emergence of indigenous civilizations to the end of Spanish and Portuguese colonization in the nineteenth century. [3-0-4] Lecture In Person Learning Mon Wed 10:00 a.m. - 11:30 a.m.

Pre-Contact and Colonial Latin American History W2

The Indigenous people (status and non-status) of Canada from the passage of the Indian Act in 1876 to the present. Topics include government policies, environment, gender, religion, oral narratives, activism, urbanization, identity. [3-0-3] Prerequisite: 6 credits of HIST and third-year standing; or 3 credits of HIST, INDG 100, and third-year standing. Lecture In Person Learning Mon Wed 12:30 p.m. - 2:00 p.m.

History of Indigenous Peoples of Canada Since 1876 W2

Study of the history of the natural sciences in early modern time. Science transformed from natural philosophy to technology; theories of nature and human nature; science and society; the social role of the scientist; the intellectual authority of science. [3-0-4] Prerequisite: 3 credits of HIST and HIST 118; or HIST 218 and third-year standing. Lecture In Person Learning Wed 2:00 p.m. - 5:00 p.m.

The Scientific Revolution W2

Study of the revolutionary origins of the United States of America and the establishment of the American republic. [3-0-4] Prerequisite: 6 credits of HIST, or HIST 211 and third-year standing. Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

American Revolution and the Formation of 1 W2

Study of the American Revolution from its origins to 1783. [3-0-4] Prerequisite: 6 credits of HIST. Lecture In Person Learning Mon Wed 6:30 p.m. - 8:00 p.m.

The American Revolution and the Formation of 1 W2

Social movements of Latin America since 1900 that have challenged the status quo. Role of ideology, culture, and identity in the struggles of marginalized peoples. [3-0-3] Prerequisite: One of HIST 151, or HIST 240, or third-year standing. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

Social Movements in 20th-Century Latin America 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 115, HIST 145 and third-year standing.

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.

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.

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 145, HIST 126 and third-year standing.

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.

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.

Engage in current 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 595D. [0-0-3] Prerequisite: IGS 586.

Indigenous knowledge as demonstrated through Okanagan traditional oral techniques for documentation of knowledge; an Indigenous peoples’ approach to reality and the maintenance of social, ecological, and land-based practice. Offered in relationship with the En’owkin Centre. Credit will be granted for only one of INDG 202 or ENGL 202. [3-0-0] Prerequisite: One of INDG 100, INDG 101.

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. Offered in relationship with the En’owkin Centre. Credit will be granted for only one of INDG 100 and INDG 101. [3-0-0] Prerequisite: One of INDG 100, INDG 101.

Understanding an Indigenous strategy of community discourse as a methodology for inquiry, a technique of 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.

Indigenous historiography as demonstrated through Okanagan traditional oral techniques for documentation of knowledge; an Indigenous peoples’ approach to reality and the maintenance of social, ecological, and land-based practice. Offered in relationship with the En’owkin Centre. Credit will be granted for only one of INDG 202 or ENGL 202. [3-0-0] Prerequisite: One of INDG 100, INDG 101.

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. Offered in relationship with the En’owkin Centre. Credit will be granted for only one of INDG 100 and INDG 101. [3-0-0] Prerequisite: One of INDG 100, INDG 101.

An examination and close reading of global issues drawing on ethnography and postcolonial theory. [0-0-3]

Utilizing social theory to analyze conflict and inequality. [0-0-3]
INDG_O 308-101  
101  Indigenous Culture, Heritage, and Intellectual Property  
Lecture  In Person Learning  Tue Thurs  10:30 a.m. - 12:30 p.m.

Historical realities of the balance 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. [3-0-0] Prerequisite: One of INDG 100, INDG 102. 0.5 credit.

INDG_O 310-101  
101  Indigenous Women's Perspectives: Gender, Nation  W2  
Lecture  Online Learning  Tue Thurs  1:30 p.m. - 2:30 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.

INDG_O 319-101  
101  Indigenous Perspectives on Health and Physical Activity  
Lecture  In Person Learning  Mon Wed  9:30 a.m. - 10:30 a.m.

The history of the Indigenous Residential School (IRS) is placed within the context of colonization and the official Canadian Government policy of assimilation. The IRS legacy will be placed in the context of issues confronted by the Truth and Reconciliation Commission of Canada. [3-0-0] Prerequisite: One of INDG 100, INDG 102. Third-year standing.

INDG_O 401-101  
101  Research Applications  
Lecture  In Person Learning  Mon Wed  9:30 a.m. - 10:30 a.m.

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 research resources. [0-0-3] Prerequisite: One of INDG 101, INDG 103, INDG 304.

INDG_O 440-101  
101  Residential Schools and Reconciliation  
Lecture  In Person Learning  Tu Th  9:30 a.m. - 11:00 a.m.

A study of the residential school system with emphasis on issues such as the experience of residential schools, the role of the church, and the impacts of residential schools on Indigenous peoples. Prerequisite: One of INDG 100, INDG 102.

INDG_O 460-001  
001  Indigenous Studies Internship  
Lecture  Online Learning  Arranged  Arranged

Work experience in language revitalization efforts in the community or organizations. Periodic workshops to support placement are required. Restricted to students in the Indigenous language fluency degrees or Indigenous Studies major program. [0-0-3]

INDG_O 460-002  
002  Indigenous Studies Internship  
Lecture  Online Learning  Arranged  Arranged

Work experience in language revitalization efforts in the community or organizations. Periodic workshops to support placement are required. Restricted to students in the Indigenous language fluency degrees or Indigenous Studies major program. [0-0-3]

INDG_O 460-003  
003  Indigenous Studies Internship  
Lecture  Online Learning  Arranged  Arranged

Work experience in language revitalization efforts in the community or organizations. Periodic workshops to support placement are required. Restricted to students in the Indigenous language fluency degrees or Indigenous Studies major program. [0-0-3]

INDG_O 495-H_101  
H H_101  
Advanced Topics in Indigenous Studies  
Experiential  In Person Learning  Tu Th  2:00 p.m. - 3:30 p.m.

Digital tools for endangered language documentation, conservation, and revitalization. Overview of best practices, introduction to community engagement and capacity-building, protocols and ethics, project design, cultural context, orthographies, use of audio, video and still photography, data management, archiving and web publishing. [3-0-0] Prerequisite: INLG 282.

INLG_O 282-101  
101  Structures of Endangered Languages - Conservator  
Lecture  Online Learning  Arranged  Arranged

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.

INLG_O 380-101  
101  Technologies for Endangered Language Docume  
Lecture  Online Learning  Arranged  Arranged

Digital tools for endangered language documentation, conservation, and revitalization. Overview of best practices, introduction to community engagement and capacity-building, protocols and ethics, project design, cultural context, orthographies, use of audio, video and still photography, data management, archiving and web publishing. [3-0-0] Prerequisite: INLG 282.

JPST_O 101-002  
002  Beginning Japanese Language II  
Lecture  In Person Learning  Tu Th  9:30 a.m. - 11:00 a.m.

Continuation of JPST 100. Students who have not completed JPST 100 should consult with the instructor before enrolling in this course. Prerequisite: JPST 100. Minimum grade of 55%.

JPST_O 102-001  
001  Introduction to Japanese Cinema  
Lecture  In Person Learning  Tue  2:00 p.m. - 5:00 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.

KORN_O 100-101  
101  Basic Korean I  
Lecture  In Person Learning  Mon Wed Fri  11:00 a.m. - 12:00 p.m.

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.

KORN_O 100-102  
102  Advanced Korean II  
Lecture  In Person Learning  Tue Th  1:30 p.m. - 2:30 p.m.

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.

KORN_O 100-103  
103  Intermediate Korean III  
Lecture  In Person Learning  Tue Th  1:30 p.m. - 2:30 p.m.

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.

KORN_O 100-104  
104  Advanced Korean IV  
Lecture  In Person Learning  Tue Th  1:30 p.m. - 2:30 p.m.

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.

KORN_O 100-105  
105  Intermediate Korean IV  
Lecture  In Person Learning  Tue Th  1:30 p.m. - 2:30 p.m.
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: MATH 386.

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

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: MATH 386.

Laboratory In Person Learning Tue 1:00 p.m. - 3:00 p.m.

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 Mon Wed 11:00 a.m. - 12:30 p.m.

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.

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.

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 Thu 9:30 a.m. - 11:00 a.m.

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 Thu 8:00 a.m. - 9:30 a.m.

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 Thu 11:00 a.m. - 12:30 p.m.

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.

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.

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.

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 2:00 p.m. - 3:00 p.m.

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. Newton's Method and Taylor polynomials. Credit will be granted for only one of MATH 116 and 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.

Prepares students for calculus. Functions; 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 125 for further credit. Linear algebra. 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 12:30 p.m. - 2:00 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 125 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 125 for credit. (3-0-1) Prerequisite: One of Principles of Mathematics 11, Pre-Calculus 11, Foundations of Mathematics 12, or permission of the Department.

Discussion In Person Learning Fri 2:00 p.m. - 3:00 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 125 for credit. (3-0-1) Prerequisite: One of Principles of Mathematics 11, Pre-Calculus 11, Foundations of Mathematics 12, or permission of the Department.

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

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.

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.

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 200, 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.

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 200, MATH 221 and either (a) COSC 111 or (b) DATA 301. Equivalency: COSC303

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

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 200, 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.

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.

Linear programming problems, dual problems, the simplex algorithm, solution of primal and dual problems, sensitivity analysis. Additional topics chosen from: Karmarkar’s algorithm, non-linear programming, game theory, applications. [3-0-0] Prerequisite: MATH 221.

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

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.

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 2:00 p.m. - 3:30 p.m.

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

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 229. MATH 319 is recommended.

Lecture In Person Learning Mon Wed 12:00 p.m. - 1:00 p.m.

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.

Mathematical methods in modelling biological processes at levels from cell biochemistry to community ecology. [3-0-0]

Lecture In Person Learning Mon Wed 12:00 p.m. - 1:00 p.m.

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.

Presentation and discussion of recent results in the mathematical, statistical, or related literature. Credit may be obtained more than once. Pass/Fail. [0-0-1]

Seminar In Person Learning Tue 5:00 p.m. - 8:00 p.m.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Type</th>
<th>Days</th>
<th>Hours</th>
<th>Location</th>
<th>Instructor</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH_O 600-J_101</td>
<td>Topics in Algebra</td>
<td>Lecture</td>
<td>Tue</td>
<td>2:00 p.m. - 3:00 p.m.</td>
<td>In Person Learning</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
</tr>
<tr>
<td>MATH_O 649-J_202</td>
<td>PhD. Thesis</td>
<td>Thesis</td>
<td>W2</td>
<td>Pass/Fail</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
</tr>
<tr>
<td>MDST_O 101-101</td>
<td>Digital Media Theory</td>
<td>Lecture</td>
<td>Thu</td>
<td>2:00 p.m. - 3:00 p.m.</td>
<td>In Person Learning</td>
<td>Wed</td>
<td>2:00 p.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>MDST_O 120-001</td>
<td>Introduction to Computational Art and Design II</td>
<td>Lecture</td>
<td>W2</td>
<td>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.</td>
<td>Studio</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>MDST_O 220-001</td>
<td>Computational Creativity</td>
<td>Lecture</td>
<td>W2</td>
<td>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.</td>
<td>Studio</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>MDST_O 330-001</td>
<td>Immersive Environments</td>
<td>Lecture</td>
<td>W2</td>
<td>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.</td>
<td>Studio</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>MGCO_O 401-201</td>
<td>Co-op Education Work Experience I</td>
<td>Experiential</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. Restricted to students accepted to the Management Co-operative Education Program.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGCO_O 402-201</td>
<td>Co-op Education Work Experience II</td>
<td>Experiential</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. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 401.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGCO_O 403-201</td>
<td>Co-op Education Work Experience III</td>
<td>Experiential</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. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 401.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGCO_O 404-201</td>
<td>Co-op Education Work Experience IV</td>
<td>Experiential</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. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 401.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGCO_O 405-201</td>
<td>Co-op Education Work Experience V</td>
<td>Experiential</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. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 401.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGCO_O 406-201</td>
<td>Co-op Education Work Experience VI</td>
<td>Experiential</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. Restricted to students in the Management Co-operative Education Program. Prerequisite: MGCO 401.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGMT_O 100-101</td>
<td>Introduction to Business</td>
<td>Lecture</td>
<td>W2</td>
<td>Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organisational 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, organisations and governments. Open to all students.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGMT_O 100-108</td>
<td>Introduction to Business</td>
<td>Laboratory</td>
<td>W2</td>
<td>Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organisational 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, organisations and governments. Open to all students.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGMT_O 100-109</td>
<td>Introduction to Business</td>
<td>Laboratory</td>
<td>W2</td>
<td>Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organisational 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, organisations and governments. Open to all students.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MGMT_O 100-110</td>
<td>Introduction to Business</td>
<td>Laboratory</td>
<td>W2</td>
<td>Introduction to the Faculty of Management and traditional areas of business including accounting, economics, finance, marketing, organisational 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, organisations and governments. Open to all students.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 9:00 a.m. - 10:00 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] Workshop In Person Learning Tue 1:00 p.m. - 2:00 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] Lecture In Person Learning Thu 6:30 p.m. - 9:30 p.m.

Major issues and methods of managerial accounting and how they are used by companies to enhance the quality of their management decisions. [3-0-0] Prerequisite: MGMT 201 and second-year standing. Lecture In Person Learning Thu 12:30 p.m. - 2:00 p.m.

Concepts, analyses, and activities that comprise marketing management; practice with assessing and solving marketing problems. [3-0-0] Prerequisite: All of MGMT 100, PSYO 111. Second-year standing and 3 credits of ENGL Corequisite: MGMT 110. Lecture Online Learning Wed Fri 5:00 p.m. - 6:30 p.m.

Opportunity for students to improve abilities to communicate effectively, regardless of the particular medium or situation. Enhances understanding of factors contributing to group effectiveness, and develops skills in working effectively as a member of a group or project team. [3-0-0] Prerequisite: MGMT 100. Second-year standing and 3 credits of ENGL Corequisite: MGMT 110. Lecture In Person Learning Fri 2:00 p.m. - 5:00 p.m.

It managerial issues and their impact on small and medium enterprises and their people. [3-1-0] Prerequisite: MGMT 100. Second-year standing and 3 credits of ENGL Corequisite: MGMT 110. Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

It managerial issues and their impact on small and medium enterprises and their people. [3-1-0] Prerequisite: MGMT 100. Second-year standing and 3 credits of ENGL Corequisite: MGMT 110. Lecture In Person Learning Tue Thu 8:00 a.m. - 9:30 a.m.

It managerial issues and their impact on small and medium enterprises and their people. [3-1-0] Prerequisite: MGMT 100. Second-year standing and 3 credits of ENGL Corequisite: MGMT 110. Laboratory In Person Learning Wed 4:00 p.m. - 5:00 p.m.

It managerial issues and their impact on small and medium enterprises and their people. [3-1-0] Prerequisite: MGMT 100. Second-year standing and 3 credits of ENGL Corequisite: MGMT 110. Laboratory In Person Learning Tue 11:00 a.m. - 12:00 a.m.

It managerial issues and their impact on small and medium enterprises and their people. [3-1-0] Prerequisite: MGMT 100. Second-year standing and 3 credits of ENGL Corequisite: MGMT 110. Lecture In Person Learning Thu 10:00 a.m. - 11:00 a.m.

It managerial issues and their impact on small and medium enterprises and their people. [3-1-0] Prerequisite: MGMT 100. Second-year standing and 3 credits of ENGL Corequisite: MGMT 110. Lecture In Person Learning Mon Wed 2:00 p.m. - 3:00 p.m.

It managerial issues and their impact on small and medium enterprises and their people. [3-1-0] Prerequisite: MGMT 100. Second-year standing and 3 credits of ENGL Corequisite: MGMT 110. Lecture In Person Learning Tue Thu 1:00 p.m. - 2:00 p.m.

It managerial issues and their impact on small and medium enterprises and their people. [3-1-0] Prerequisite: MGMT 100. Second-year standing and 3 credits of ENGL Corequisite: MGMT 110. Lecture In Person Learning Thu 9:00 a.m. - 10:00 a.m.

It managerial issues and their impact on small and medium enterprises and their people. [3-1-0] Prerequisite: MGMT 100. Second-year standing and 3 credits of ENGL Corequisite: MGMT 110. Lecture In Person Learning Mon 1:00 p.m. - 2:00 p.m.

Environment of financial reporting, standard-setting process, and conceptual framework that underlies financial reporting in Canada. Focuses primarily on accounting for liabilities and equity. [3-0-0] Prerequisite: MGMT 300. Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

Basic tools and concepts of macroeconomics; review of the non-market factors that influence the effective performance of organizations. [3-0-0] Prerequisite: MGMT 290 and one of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250. Lecture In Person Learning Wed Fri 9:30 a.m. - 11:00 a.m.

Sustainable development issues and current thinking regarding sustainability and its implications for businesses and their managers. [3-0-0] Prerequisite: Two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290. Lecture In Person Learning Fri 12:00 p.m. - 2:00 p.m.

Sustainable development issues and current thinking regarding sustainability and its implications for businesses and their managers. [3-0-0] Prerequisite: Two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250. Lecture In Person Learning Thu 11:00 a.m. - 12:00 p.m.

Sustainable development issues and current thinking regarding sustainability and its implications for businesses and their managers. [3-0-0] Prerequisite: Two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290. Workshop In Person Learning Wed Mon 4:00 p.m. - 5:00 p.m.

Sustainable development issues and current thinking regarding sustainability and its implications for businesses and their managers. [3-0-0] Prerequisite: Two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290. Workshop In Person Learning Mon 11:00 a.m. - 12:00 p.m.

Sustainable development issues and current thinking regarding sustainability and its implications for businesses and their managers. [3-0-0] Prerequisite: Two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290. Workshop In Person Learning Wed 1:00 p.m. - 2:00 p.m.
MGMT_O 403-001 MGMT_O 001 Auditing and Assurance Services W2

Focuses on the external auditor’s provision of assurance services on financial information. Topics include: society’s demand for various assurance services; the role, profession, ethics, independence, and liability of the assurance provider; assurance risk and strategy; assurance planning, operations, and reports; computerization and internal control; and emerging assurance services. [3-0-0] Prerequisite: MGMT 304. Corequisite: Either (a) DATA 301 or (b) COSC 301. Lecture In Person Learning Thu 2:00 p.m. - 5:00 p.m.

MGMT_O 405-101 MGMT_O 101 Advanced Managerial Accounting W2

Examines the integrative and interdisciplinary role of managerial accounting and its contribution in the strategic management process, including analysis and managerial control. Focuses on cases that deal with management’s need for information planning and decision making. Develops analytical, communication, and presentation skills using contemporary management issues. [3-0-0] Prerequisite: MGMT 401. Corequisite: Either (a) DATA 301 or (b) COSC 301. 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

Theory and processes of negotiation as it is practiced in a variety of settings. Develop skills experientially, understand useful analytical frameworks, and appreciate the role of emotion in a broad spectrum of negotiation situations. [3-0-0] Prerequisite: MGMT 230. and third-year standing. Lecture In Person Learning Mon 2:00 p.m. - 5:00 p.m.

MGMT_O 412-101 MGMT_O 101 Negotiations W2

Provides the knowledge and skills to successfully initiate, plan, manage, control, and report on projects. Conveys the importance of proper planning, documentation, scope and change control, and quality and risk management. Also covers the people skills required in the areas of team selection, structure, motivation, interviewing, presentation, conflict resolution, and leadership, all of which are critical factors in project management. [3-1-0] Prerequisite: One of MGMT 230, MGMT 250. Third-year standing. Laboratory In Person Learning Thu 5:00 p.m. - 6:00 p.m.

MGMT_O 412-L01 MGMT_O 001 Project Management W2

Provides the knowledge and skills to successfully initiate, plan, manage, control, and report on projects. Conveys the importance of proper planning, documentation, scope and change control, and quality and risk management. Also covers the people skills required in the areas of team selection, structure, motivation, interviewing, presentation, conflict resolution, and leadership, all of which are critical factors in project management. [3-1-0] Prerequisite: One of MGMT 230, MGMT 250. Third-year standing. Laboratory In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

MGMT_O 412-L02 MGMT_O 002 Project Management W2

Provides the knowledge and skills to successfully initiate, plan, manage, control, and report on projects. Conveys the importance of proper planning, documentation, scope and change control, and quality and risk management. Also covers the people skills required in the areas of team selection, structure, motivation, interviewing, presentation, conflict resolution, and leadership, all of which are critical factors in project management. [3-1-0] Prerequisite: One of MGMT 230, MGMT 250. Third-year standing. Laboratory In Person Learning Mon 10:00 a.m. - 11:00 a.m.

MGMT_O 412-L03 MGMT_O 003 Project Management W2

Provides the knowledge and skills to successfully initiate, plan, manage, control, and report on projects. Conveys the importance of proper planning, documentation, scope and change control, and quality and risk management. Also covers the people skills required in the areas of team selection, structure, motivation, interviewing, presentation, conflict resolution, and leadership, all of which are critical factors in project management. [3-1-0] Prerequisite: One of MGMT 230, MGMT 250. Third-year standing. Laboratory In Person Learning Tue 10:00 a.m. - 11:00 a.m.

MGMT_O 441-001 MGMT_O 001 Marketing Strategy W2

Integrative, dynamic view of marketing strategy at both the corporate and business unit level. Understanding, developing, and evaluating brand strategies over the life of a product market. Strategies for: pioneering brands, late entry, growth, mature and declining markets, and defensive marketing. [3-0-0] Prerequisite: MGMT 230. and third-year standing. Lecture In Person Learning Thu 6:30 p.m. - 9:30 p.m.

MGMT_O 441-W01 MGMT_O W01 Marketing Strategy W2

Consumer behaviour is at the heart of any successful business. A clear understanding of consumers is critical in managing the marketing function. Basic concepts and issues in consumer behaviour from a marketing manager’s perspective. [3-0-0] Prerequisite: MGMT 230. and third-year standing. Workshop Online Learning Arranged Arranged

MGMT_O 442-001 MGMT_O 001 Consumer Behaviour W2

Latest concepts and/or issues in marketing. Marketing research, consumer behaviour, 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 349 when the subject matter is of the same nature. Prerequisite: Fourth-year standing. 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

Latest concepts and/or issues in marketing. Marketing research, consumer behaviour, 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 349 when the subject matter is of the same nature. Prerequisite: Fourth-year standing. Workshop In Person Learning Thu 11:00 a.m. - 12:30 p.m.
MGMT 449-AW02  MGMT  O  A  A_W02  Special Topics in Marketing  W2  Latest concepts and/or issues in marketing. Marketing research, consumer behaviour, 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 when the subject matter is of the same nature. Prerequisite: Fourth-year standing.  Workshop  In Person Learning  Wed  2:00 p.m. - 3:30 p.m.

MGMT 449-AW03  MGMT  O  A  A_W03  Special Topics in Marketing  W3  Latest concepts and/or issues in marketing. Marketing research, consumer behaviour, 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 when the subject matter is of the same nature. Prerequisite: Fourth-year standing.  Workshop  In Person Learning  Mon  9:30 a.m. - 11:00 a.m.

MGMT 450-101  MGMT  O  101  Entrepreneurship and the Smaller Firm  W2  Exposure to the issues and challenges associated with starting a new entrepreneurial business. Students gain an appreciation of the challenges associated with creating a new venture. [3-0-0] Prerequisite: Two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290, and third-year standing.  Lecture  In Person Learning  Fri  9:30 a.m. - 11:00 a.m.

MGMT 450-W01  MGMT  O  W01  Entrepreneurship and the Smaller Firm  W2  Exposure to the issues and challenges associated with starting a new entrepreneurial business. Students gain an appreciation of the challenges associated with creating a new venture. [3-0-0] Prerequisite: Two of MGMT 201, MGMT 202, MGMT 220, MGMT 230, MGMT 240, MGMT 250, MGMT 290, and third-year standing.  Workshop  In Person Learning  Mon  12:30 p.m. - 2:00 p.m.

MGMT 470-101  MGMT  O  101  Global Food Systems: Society, Ecology, Sustainability  W2  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. [3-0-0] Prerequisite: MGMT 100. Third-year standing and 3 credits of ENGL. Corequisite: MGMT 110.  Lecture  In Person Learning  Mon  11:00 a.m. - 2:00 p.m.

MGMT 490-101  MGMT  O  101  Capstone Service Learning and Consulting  W2  Culumining 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, Fourth-year standing.  Experiential  In Person Learning  Thu  11:00 a.m. - 2:00 p.m.


NLEK 351-001  NLEK  O  001  Language Applications: Numeracy and Math  W2  Numeracy and math frameworks from a Nle?kepmx perspective towards increased proficiency in functional numeracy. The language of instruction is Nle?kepmx Language. Restricted to students in the Bachelor of Nle?kepmx Language Fluency program. [0-4-0] Corequisite: NLEK 351.  Lecture  Online Learning  Arranged  Arranged

NLEK 351-011  NLEK  O  011  Language Applications: Numeracy and Math  W2  Numeracy and math frameworks from a Nle?kepmx perspective towards increased proficiency in functional numeracy. The language of instruction is Nle?kepmx Language. Restricted to students in the Bachelor of Nle?kepmx Language Fluency program. [0-4-0] Corequisite: NLEK 351.  Laboratory  Online Learning  Arranged  Arranged

NLEK 483-001  NLEK  O  001  Special Topics in Language Practice and Pedagogy  W2  Intensive language immersion course to enhance and improve proficiency. Focused on language pertaining to a specific topic or language domain. The language of instruction is Nle?kepmx Language. May be offered on the land. Restricted to students in the Bachelor of Nle?kepmx Language Fluency program. [0-2-3] Prerequisite: NLEK 353.  Lecture  Online Learning  Arranged  Arranged

NRSG 101-001  NRSG  O  001  Nursing Lab Practice I  W2  Develops evidence-informed nursing practice through seminar, laboratory, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 116 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.  Seminar  In Person Learning  Tue  12:30 p.m. - 2:00 p.m.

NRSG 101-002  NRSG  O  002  Nursing Lab Practice I  W2  Develops evidence-informed nursing practice through seminar, laboratory, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 116 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.  Seminar  In Person Learning  Wed  12:30 p.m. - 2:00 p.m.

NRSG 101-003  NRSG  O  003  Nursing Lab Practice I  W2  Develops evidence-informed nursing practice through seminar, laboratory, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 116 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.  Seminar  In Person Learning  Thu  12:30 p.m. - 2:00 p.m.

NRSG 101-004  NRSG  O  004  Nursing Lab Practice I  W2  Develops evidence-informed nursing practice through seminar, laboratory, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 116 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.  Seminar  In Person Learning  Fri  12:30 p.m. - 2:00 p.m.

NRSG 101-101  NRSG  O  101  Nursing Lab Practice I  W2  Develops evidence-informed nursing practice through seminar, laboratory, and simulation. Students gain knowledge, skills, and abilities needed to practice foundational nursing assessments and safe ethical care. Weekly concepts will align with NRSG 116 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.
NURS 101-L02  NURS 122-002  1L02 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 NURS 116 intentional learning activities. [0-3-1.5] Prerequisite: All of NURS 111, NURS 122, NURS 113, BIOL 131. Corequisite: All of NURS 126, NURS 136. Laboratory  In Person Learning  Tue  2:30 p.m. - 5:30 p.m.

NURS 101-L03  NURS 120-002  1L03 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 NURS 116 intentional learning activities. [0-3-1.5] Prerequisite: All of NURS 111, NURS 122, NURS 113, BIOL 131. Corequisite: All of NURS 126, NURS 136. Laboratory  In Person Learning  Wed  2:30 p.m. - 5:30 p.m.

NURS 101-L04  NURS 120-002  1L04 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 NURS 116 intentional learning activities. [0-3-1.5] Prerequisite: All of NURS 111, NURS 122, NURS 113, BIOL 131. Corequisite: All of NURS 126, NURS 136. Laboratory  In Person Learning  Wed  2:30 p.m. - 5:30 p.m.

NURS 101-L05  NURS 120-002  1L05 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 NURS 116 intentional learning activities. [0-3-1.5] Prerequisite: All of NURS 111, NURS 122, NURS 113, BIOL 131. Corequisite: All of NURS 126, NURS 136. Laboratory  In Person Learning  Thu  2:30 p.m. - 5:30 p.m.

NURS 101-L06  NURS 120-002  1L06 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 NURS 116 intentional learning activities. [0-3-1.5] Prerequisite: All of NURS 111, NURS 122, NURS 113, BIOL 131. Corequisite: All of NURS 126, NURS 136. Laboratory  In Person Learning  Thu  2:30 p.m. - 5:30 p.m.

NURS 101-L07  NURS 120-002  1L07 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 NURS 116 intentional learning activities. [0-3-1.5] Prerequisite: All of NURS 111, NURS 122, NURS 113, BIOL 131. Corequisite: All of NURS 126, NURS 136. Laboratory  In Person Learning  Fri  2:30 p.m. - 5:30 p.m.

NURS 101-L08  NURS 120-002  1L08 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 NURS 116 intentional learning activities. [0-3-1.5] Prerequisite: All of NURS 111, NURS 122, NURS 113, BIOL 131. Corequisite: All of NURS 126, NURS 136. Laboratory  In Person Learning  Fri  2:30 p.m. - 5:30 p.m.

NURS 101-L09  NURS 120-002  1L09 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 NURS 116 intentional learning activities. [0-3-1.5] Prerequisite: All of NURS 111, NURS 122, NURS 113, BIOL 131. Corequisite: All of NURS 126, NURS 136. Laboratory  In Person Learning  Tue  2:30 p.m. - 5:30 p.m.

NURS 101-L10  NURS 120-002  1L10 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 NURS 116 intentional learning activities. [0-3-1.5] Prerequisite: All of NURS 111, NURS 122, NURS 113, BIOL 131. Corequisite: All of NURS 126, NURS 136. Laboratory  In Person Learning  Wed  2:30 p.m. - 5:30 p.m.

NURS 101-L11  NURS 120-002  1L11 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 NURS 116 intentional learning activities. [0-3-1.5] Prerequisite: All of NURS 111, NURS 122, NURS 113, BIOL 131. Corequisite: All of NURS 126, NURS 136. Laboratory  In Person Learning  Thu  2:30 p.m. - 5:30 p.m.

NURS 101-L12  NURS 120-002  1L12 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 NURS 116 intentional learning activities. [0-3-1.5] Prerequisite: All of NURS 111, NURS 122, NURS 113, BIOL 131. Corequisite: All of NURS 126, NURS 136. Laboratory  In Person Learning  Fri  2:30 p.m. - 5:30 p.m.

NURS 120-001  NURS 111-002  001 Introduction to Nursing Research  W2  Introduction to nursing research to provide knowledge, skills, and abilities to engage in evidence-informed nursing practice. Key topics will include research concepts, approaches, procedures/processes, ethics, and application in diverse health care settings. [3-0-4] Prerequisite: All of HINT 110, NURS 111, NURS 112. and English (3 credits) Corequisite: All of NURS 101, NURS 122, NURS 123, NURS 126, NURS 136. Lecture  In Person Learning  Tue  8:00 a.m. - 11:00 a.m.

NURS 120-002  NURS 111-002  002 Introduction to Nursing Research  W2  Introduction to nursing research to provide knowledge, skills, and abilities to engage in evidence-informed nursing practice. Key topics will include research concepts, approaches, procedures/processes, ethics, and application in diverse health care settings. [3-0-4] Prerequisite: All of HINT 110, NURS 111, NURS 112. and English (3 credits) Corequisite: All of NURS 101, NURS 122, NURS 123, NURS 126, NURS 136. Lecture  In Person Learning  Thu  8:00 a.m. - 11:00 a.m.

NURS 122-001  NURS 111-002  001 Introduction to the Profession of Nursing II  W2  Exploring the development of nursing knowledge, theory, contemporary understandings of nursing as a discipline, the current body of knowledge defining it, and the relationship between practice and theory. Development of teaching and learning knowledge, skills, and abilities. [1-3-0] Prerequisite: All of HINT 110, NURS 111, NURS 112, NURS 113, BIOL 131. Corequisite: All of NURS 101, NURS 120, NURS 123, NURS 126, NURS 136. Lecture  In Person Learning  Wed  8:00 a.m. - 9:30 a.m.

NURS 122-002  NURS 111-002  002 Introduction to the Profession of Nursing II  W2  Exploring the development of nursing knowledge, theory, contemporary understandings of nursing as a discipline, the current body of knowledge defining it, and the relationship between practice and theory. Development of teaching and learning knowledge, skills, and abilities. [1-3-0] Prerequisite: All of HINT 110, NURS 111, NURS 112, NURS 113, BIOL 131. Corequisite: All of NURS 101, NURS 120, NURS 123, NURS 126, NURS 136. Lecture  In Person Learning  Fri  8:00 a.m. - 9:30 a.m.
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, BIO 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 126, NRSG 136. Lecture In Person Learning Wed 9:30 a.m. - 11:00 a.m.

NRSG 123-002 NRSG 002 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, BIO 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 126, NRSG 136. Lecture In Person Learning Fri 9:30 a.m. - 11:00 a.m.

NRSG 126-001 NRSG 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, BIO 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 136. Lecture In Person Learning Mon 11:00 a.m. - 2:00 p.m.

NRSG 126-002 NRSG 002 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, BIO 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 136. Lecture In Person Learning Tue 11:00 a.m. - 2:00 p.m.

NRSG 136-P01 NRSG 001 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, BIO 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126. Experiential In Person Learning Wed 7:00 a.m. - 1:00 p.m.

NRSG 136-P02 NRSG 002 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, BIO 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126. Experiential In Person Learning Wed 7:00 a.m. - 1:00 p.m.

NRSG 136-P03 NRSG 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, BIO 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126. Experiential In Person Learning Wed 7:00 a.m. - 1:00 p.m.

NRSG 136-P04 NRSG 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, BIO 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126. Experiential In Person Learning Wed 7:00 a.m. - 1:00 p.m.

NRSG 136-P05 NRSG 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, BIO 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126. Experiential In Person Learning Wed 7:00 a.m. - 1:00 p.m.

NRSG 136-P06 NRSG 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, BIO 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126. Experiential In Person Learning Thu 7:00 a.m. - 1:00 p.m.

NRSG 136-P07 NRSG 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, BIO 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126. Experiential In Person Learning Thu 7:00 a.m. - 1:00 p.m.

NRSG 136-P08 NRSG 008 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, BIO 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126. Experiential In Person Learning Thu 7:00 a.m. - 1:00 p.m.

NRSG 136-P09 NRSG 009 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, BIO 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126. Experiential In Person Learning Thu 7:00 a.m. - 1:00 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. Prerequisite: All of NRSG 101, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

NRSG_136-P10 16 P00 Nursing Practice I 2W Experiential In Person Learning Thu 7:00 a.m. - 1:00 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. Prerequisite: All of NRSG 101, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

NRSG_136-P11 16 P01 Nursing Practice I 2W Experiential In Person Learning Fri 7:00 a.m. - 1:00 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. Prerequisite: All of NRSG 101, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

NRSG_136-P12 16 P02 Nursing Practice I 2W Experiential In Person Learning Fri 7:00 a.m. - 1:00 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. Prerequisite: All of NRSG 101, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

NRSG_136-P13 16 P03 Nursing Practice I 2W Experiential In Person Learning Fri 7:00 a.m. - 1:00 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. Prerequisite: All of NRSG 101, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

NRSG_136-P14 16 P04 Nursing Practice I 2W Experiential In Person Learning Fri 7:00 a.m. - 1:00 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. Prerequisite: All of NRSG 101, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

NRSG_136-P15 16 P05 Nursing Practice I 2W Experiential In Person Learning Fri 7:00 a.m. - 1:00 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. Prerequisite: All of NRSG 101, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

NRSG_136-P16 16 P06 Nursing Practice I 2W Experiential In Person Learning Sat 7:00 a.m. - 1:00 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. Prerequisite: All of NRSG 101, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

NRSG_136-P17 16 P07 Nursing Practice I 2W Experiential In Person Learning Sat 7:00 a.m. - 1:00 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. Prerequisite: All of NRSG 101, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

NRSG_136-P18 16 P08 Nursing Practice I 2W Experiential In Person Learning Sat 7:00 a.m. - 1:00 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. Prerequisite: All of NRSG 101, NRSG 111, NRSG 112, NRSG 113, BIOL 131. Corequisite: All of NRSG 101, NRSG 120, NRSG 122, NRSG 123, NRSG 126.

NRSG_136-P19 16 P09 Nursing Practice I 2W Experiential In Person Learning Sat 7:00 a.m. - 1:00 p.m.

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. [0-3-1.5]

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.

NRSG_202-001 001 P00 Nursing Lab Practice III 2W Seminar In Person Learning Tue 8:00 a.m. - 9:30 a.m.

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. [0-3-1.5]

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.

NRSG_202-002 002 P01 Nursing Lab Practice III 2W Seminar In Person Learning Wed 8:00 a.m. - 9:30 a.m.

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. [0-3-1.5]

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.

NRSG_202-003 003 P02 Nursing Lab Practice III 2W Seminar In Person Learning Thu 8:00 a.m. - 9:30 a.m.

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. [0-3-1.5]

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.

NRSG_202-004 004 P03 Nursing Lab Practice III 2W Seminar In Person Learning Fri 8:00 a.m. - 9:30 a.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSG 202-L01</td>
<td>Nursing Lab Practice III</td>
<td>2</td>
<td>Tue</td>
<td>Laboratory In Person Learning Tue</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG 202-L02</td>
<td>Nursing Lab Practice III</td>
<td>2</td>
<td>Tue</td>
<td>Laboratory In Person Learning Tue</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG 202-L03</td>
<td>Nursing Lab Practice III</td>
<td>2</td>
<td>Tue</td>
<td>Laboratory In Person Learning Wed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG 202-L04</td>
<td>Nursing Lab Practice III</td>
<td>2</td>
<td>Tue</td>
<td>Laboratory In Person Learning Wed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG 202-L05</td>
<td>Nursing Lab Practice III</td>
<td>2</td>
<td>Tue</td>
<td>Laboratory In Person Learning Thu</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG 202-L06</td>
<td>Nursing Lab Practice III</td>
<td>2</td>
<td>Tue</td>
<td>Laboratory In Person Learning Thu</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG 202-L07</td>
<td>Nursing Lab Practice III</td>
<td>2</td>
<td>Tue</td>
<td>Laboratory In Person Learning Fri</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG 202-L08</td>
<td>Nursing Lab Practice III</td>
<td>2</td>
<td>Tue</td>
<td>Laboratory In Person Learning Fri</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG 202-L09</td>
<td>Nursing Lab Practice III</td>
<td>2</td>
<td>Tue</td>
<td>Laboratory In Person Learning Tue</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG 202-L10</td>
<td>Nursing Lab Practice III</td>
<td>2</td>
<td>Tue</td>
<td>Laboratory In Person Learning Wed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG 202-L11</td>
<td>Nursing Lab Practice III</td>
<td>2</td>
<td>Tue</td>
<td>Laboratory In Person Learning Thu</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG 202-L12</td>
<td>Nursing Lab Practice III</td>
<td>2</td>
<td>Tue</td>
<td>Laboratory In Person Learning Fri</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG 220-001</td>
<td>Pharmacology for Nursing II</td>
<td>0.5</td>
<td>Tue</td>
<td>Lecture In Person Learning Tue</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>NRSG 220-002</td>
<td>Pharmacology for Nursing II</td>
<td>0.5</td>
<td>Tue</td>
<td>Lecture In Person Learning Wed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>NRSG 223-001</td>
<td>Relational Practice IV</td>
<td>1</td>
<td>Wed</td>
<td>Lecture In Person Learning Wed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>NRSG 223-002</td>
<td>Relational Practice IV</td>
<td>1</td>
<td>Wed</td>
<td>Lecture In Person Learning Mon</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>NRSG 227-001</td>
<td>Health &amp; Healing II</td>
<td>0.5</td>
<td>Wed</td>
<td>Lecture In Person Learning Mon</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>NRSG 227-002</td>
<td>Health &amp; Healing II</td>
<td>0.5</td>
<td>Wed</td>
<td>Lecture In Person Learning Mon</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>Code</td>
<td>Course Title</td>
<td>Location</td>
<td>Type</td>
<td>Days</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------------------</td>
<td>-----------------</td>
<td>---------------</td>
<td>-----------</td>
</tr>
<tr>
<td>NRSG_O 228-002</td>
<td>Community Health</td>
<td>W2</td>
<td>Lecture</td>
<td>Mon</td>
</tr>
<tr>
<td>NRSG_O 229-002</td>
<td>Mental Health in Nursing</td>
<td>W2</td>
<td>Lecture</td>
<td>Mon</td>
</tr>
<tr>
<td>NRSG_O 237-P01</td>
<td>Nursing Practice III</td>
<td>W2</td>
<td>Experiential</td>
<td>Tue</td>
</tr>
<tr>
<td>NRSG_O 237-P02</td>
<td>Nursing Practice III</td>
<td>W2</td>
<td>Experiential</td>
<td>Tue</td>
</tr>
<tr>
<td>NRSG_O 237-P03</td>
<td>Nursing Practice III</td>
<td>W2</td>
<td>Experiential</td>
<td>Tue</td>
</tr>
<tr>
<td>NRSG_O 237-P04</td>
<td>Nursing Practice III</td>
<td>W2</td>
<td>Experiential</td>
<td>Tue</td>
</tr>
<tr>
<td>NRSG_O 237-P05</td>
<td>Nursing Practice III</td>
<td>W2</td>
<td>Experiential</td>
<td>Tue</td>
</tr>
<tr>
<td>NRSG_O 237-P06</td>
<td>Nursing Practice III</td>
<td>W2</td>
<td>Experiential</td>
<td>Wed</td>
</tr>
<tr>
<td>NRSG_O 237-P07</td>
<td>Nursing Practice III</td>
<td>W2</td>
<td>Experiential</td>
<td>Wed</td>
</tr>
<tr>
<td>NRSG_O 237-P08</td>
<td>Nursing Practice III</td>
<td>W2</td>
<td>Experiential</td>
<td>Wed</td>
</tr>
<tr>
<td>NRSG_O 237-P09</td>
<td>Nursing Practice III</td>
<td>W2</td>
<td>Experiential</td>
<td>Wed</td>
</tr>
<tr>
<td>NRSG_O 237-P10</td>
<td>Nursing Practice III</td>
<td>W2</td>
<td>Experiential</td>
<td>Wed</td>
</tr>
<tr>
<td>NRSG_O 237-P11</td>
<td>Nursing Practice III</td>
<td>W2</td>
<td>Experiential</td>
<td>Thu</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Section</td>
<td>Time</td>
<td>Type</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------</td>
<td>---------</td>
<td>---------------</td>
<td>------------------</td>
</tr>
<tr>
<td>NRSG 238-P12</td>
<td>Nursing Practice III</td>
<td>P12</td>
<td>8:00 a.m. - 12:00 p.m.</td>
<td>Experiential In Person Learning Thu</td>
</tr>
<tr>
<td>NRSG 238-P13</td>
<td>Nursing Practice III</td>
<td>P13</td>
<td>9:00 a.m. - 3:00 p.m.</td>
<td>Experiential In Person Learning Thu</td>
</tr>
<tr>
<td>NRSG 238-P14</td>
<td>Nursing Practice III</td>
<td>P14</td>
<td>9:00 a.m. - 3:00 p.m.</td>
<td>Experiential In Person Learning Thu</td>
</tr>
<tr>
<td>NRSG 238-P15</td>
<td>Nursing Practice III</td>
<td>P15</td>
<td>9:00 a.m. - 3:00 p.m.</td>
<td>Experiential In Person Learning Thu</td>
</tr>
<tr>
<td>NRSG 238-P16</td>
<td>Nursing Practice III</td>
<td>P16</td>
<td>9:00 a.m. - 3:00 p.m.</td>
<td>Experiential In Person Learning Thu</td>
</tr>
<tr>
<td>NRSG 238-P17</td>
<td>Nursing Practice III</td>
<td>P17</td>
<td>9:00 a.m. - 3:00 p.m.</td>
<td>Experiential In Person Learning Thu</td>
</tr>
<tr>
<td>NRSG 238-P18</td>
<td>Nursing Practice III</td>
<td>P18</td>
<td>9:00 a.m. - 3:00 p.m.</td>
<td>Experiential In Person Learning Thu</td>
</tr>
<tr>
<td>NRSG 238-P19</td>
<td>Nursing Practice III</td>
<td>P19</td>
<td>9:00 a.m. - 3:00 p.m.</td>
<td>Experiential In Person Learning Thu</td>
</tr>
<tr>
<td>NRSG 238-P20</td>
<td>Nursing Practice III</td>
<td>P20</td>
<td>9:00 a.m. - 3:00 p.m.</td>
<td>Experiential In Person Learning Thu</td>
</tr>
<tr>
<td>NRSG 238-P21</td>
<td>Nursing Practice III</td>
<td>P21</td>
<td>8:00 a.m. - 12:00 p.m.</td>
<td>Experiential In Person Learning Tue</td>
</tr>
<tr>
<td>NRSG 238-P22</td>
<td>Nursing Practice III</td>
<td>P22</td>
<td>9:00 a.m. - 3:00 p.m.</td>
<td>Experiential In Person Learning Tue</td>
</tr>
<tr>
<td>NRSG 238-P23</td>
<td>Nursing Practice III</td>
<td>P23</td>
<td>8:00 a.m. - 12:00 p.m.</td>
<td>Experiential In Person Learning Wed</td>
</tr>
</tbody>
</table>

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 202, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.

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 202, NRSG 210, NRSG 213, NRSG 226, NRSG 236, HINT 231. Corequisite: All of NRSG 202, NRSG 220, NRSG 223, NRSG 227, BIOL 232.

Practicum in community health nursing develops knowledge, skills, and abilities needed to provide safe ethical nursing care to adults with episodic and chronic health challenges. The learning activities will draw on principles of social justice and the social determinants of health to engage in evidenced-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 238-P15  
NRSG 238-P17  
NRSG 238-P18  
NRSG 239-P11  
NRSG 239-P12  
NRSG 239-P13  
NRSG 239-P14  
NRSG 239-P15  
NRSG 239-P17  
NRSG 239-P18  
NRSG 302-002  
NRSG 302-003  
NRSG 302-006  

Practicum in community health nursing develops knowledge, skills, and abilities needed to provide safe ethical nursing care and health 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 evidenced-informed community assessments, health promotion/illness prevention activities, and health teaching. 

**Experiential**  
In Person Learning  
**Thu**  
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 and health 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 evidenced-informed community assessments, health promotion/illness prevention activities, and health teaching. 

**Experiential**  
In Person Learning  
**Fri**  
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 and health 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 evidenced-informed community assessments, health promotion/illness prevention activities, and health teaching. 

**Experiential**  
In Person Learning  
**Thu**  
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 and health 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 evidenced-informed community assessments, health promotion/illness prevention activities, and health teaching. 

**Experiential**  
In Person Learning  
**Fri**  
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 and health 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 evidenced-informed community assessments, health promotion/illness prevention activities, and health teaching. 

**Experiential**  
In Person Learning  
**Wed**  
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 and health 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 evidenced-informed community assessments, health promotion/illness prevention activities, and health teaching. 

**Experiential**  
In Person Learning  
**Wed**  
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 and health 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 evidenced-informed community assessments, health promotion/illness prevention activities, and health teaching. 

**Experiential**  
In Person Learning  
**Wed**  
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 and health 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 evidenced-informed community assessments, health promotion/illness prevention activities, and health teaching. 

**Experiential**  
In Person Learning  
**Wed**  
8:00 a.m. - 12:00 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. 

**Seminar**  
In Person Learning  
**Mon**  
11:00 a.m. - 12:30 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. 

**Seminar**  
In Person Learning  
**Mon**  
11:00 a.m. - 12:30 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. 

**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. 

**Laboratory**  
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. 

**Laboratory**  
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. 

**Laboratory**  
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. 

**Laboratory**  
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. 

**Laboratory**  
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. 

**Laboratory**  
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. 

**Laboratory**  
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. 

**Laboratory**  
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. 

**Laboratory**  
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. 

**Laboratory**  
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. 

**Laboratory**  
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. 

**Laboratory**  
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. 

**Laboratory**  
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. 

**Laboratory**  
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. 

**Laboratory**  
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. 

**Laboratory**  
In Person Learning  
**Mon**  
1:00 p.m. - 3:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSG 327-002</td>
<td>Nursing Lab Practice V</td>
<td>W2</td>
<td>Corequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Laboratory In Person Learning Mon 3:30 p.m. - 5:30 p.m.</td>
</tr>
<tr>
<td>NRSG 327-008</td>
<td>Nursing Lab Practice V</td>
<td>W2</td>
<td>Corequisite: All of NRSG 327, NRSG 337. Laboratory In Person Learning Mon 3:30 p.m. - 5:30 p.m.</td>
</tr>
<tr>
<td>NRSG 327-109</td>
<td>Nursing Lab Practice V</td>
<td>W2</td>
<td>Corequisite: All of NRSG 327, NRSG 337. Laboratory In Person Learning Mon 1:00 p.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>NRSG 339-004</td>
<td>Relational Practice V</td>
<td>W2</td>
<td>Corequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Laboratory In Person Learning Tue 11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>NRSG 339-005</td>
<td>Relational Practice V</td>
<td>W2</td>
<td>Corequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Laboratory In Person Learning Wed 11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>NRSG 339-006</td>
<td>Relational Practice V</td>
<td>W2</td>
<td>Corequisite: All of NRSG 301, NRSG 326, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232. Laboratory In Person Learning Fri 11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>NRSG 339-003</td>
<td>Health &amp; Healing V</td>
<td>W2</td>
<td>Corequisite: All of NRSG 301, 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.</td>
</tr>
<tr>
<td>NRSG 339-003</td>
<td>Health &amp; Healing V</td>
<td>W2</td>
<td>Corequisite: All of NRSG 301, 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.</td>
</tr>
<tr>
<td>NRSG 339-004</td>
<td>Health &amp; Healing V</td>
<td>W2</td>
<td>Corequisite: All of NRSG 301, 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.</td>
</tr>
<tr>
<td>NRSG 339-004</td>
<td>Health &amp; Healing V</td>
<td>W2</td>
<td>Corequisite: All of NRSG 301, 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.</td>
</tr>
<tr>
<td>NRSG 339-004</td>
<td>Health &amp; Healing V</td>
<td>W2</td>
<td>Corequisite: All of NRSG 301, 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.</td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Type</td>
<td>Credits</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------</td>
<td>-----------------------</td>
<td>---------</td>
</tr>
<tr>
<td>NRSG_O</td>
<td>Nursing Practice in Surgical Settings</td>
<td>Experiential</td>
<td>2</td>
</tr>
<tr>
<td>NRSG_O</td>
<td>Nursing Practice with Childbearing Families</td>
<td>In Person Learning</td>
<td>2</td>
</tr>
<tr>
<td>Course Code</td>
<td>Section</td>
<td>Instructor</td>
<td>Title</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
<td>------------</td>
<td>-------</td>
</tr>
<tr>
<td>NRSG 338-P27</td>
<td>P17</td>
<td></td>
<td>Nursing Practice with Childbearing Families</td>
</tr>
<tr>
<td>NRSG 338-P28</td>
<td>P18</td>
<td></td>
<td>Nursing Practice with Childbearing Families</td>
</tr>
<tr>
<td>NRSG 339-P09</td>
<td>P09</td>
<td></td>
<td>Nursing Practice in Child Health</td>
</tr>
<tr>
<td>NRSG 339-P10</td>
<td>P10</td>
<td></td>
<td>Nursing Practice in Child Health</td>
</tr>
<tr>
<td>NRSG 339-P11</td>
<td>P11</td>
<td></td>
<td>Nursing Practice in Child Health</td>
</tr>
<tr>
<td>NRSG 339-P12</td>
<td>P12</td>
<td></td>
<td>Nursing Practice in Child Health</td>
</tr>
<tr>
<td>NRSG 339-P13</td>
<td>P13</td>
<td></td>
<td>Nursing Practice in Child Health</td>
</tr>
<tr>
<td>NRSG 339-P14</td>
<td>P14</td>
<td></td>
<td>Nursing Practice in Child Health</td>
</tr>
<tr>
<td>NRSG 339-P15</td>
<td>P15</td>
<td></td>
<td>Nursing Practice in Child Health</td>
</tr>
<tr>
<td>NRSG 339-P16</td>
<td>P16</td>
<td></td>
<td>Nursing Practice in Child Health</td>
</tr>
<tr>
<td>NRSG 339-P17</td>
<td>P17</td>
<td></td>
<td>Nursing Practice in Child Health</td>
</tr>
<tr>
<td>NRSG 339-P18</td>
<td>P18</td>
<td></td>
<td>Nursing Practice in Child Health</td>
</tr>
<tr>
<td>NRSG 421-002</td>
<td>002</td>
<td></td>
<td>Capstone Review</td>
</tr>
<tr>
<td>NRSG 422-002</td>
<td>002</td>
<td></td>
<td>Leadership</td>
</tr>
</tbody>
</table>
NRSG_O 424-001  
NRSG_O 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. Prerequisite: All of NRSG 229, NRSG 239. Fourth-year RN-O Standing.  
Lecture  
In Person Learning  
Tue Thu  
2:00 p.m. - 5:00 p.m.

NRSG_O 427-001  
NRSG_O 001  
Advanced Mental Health  
W2  
Preceptored course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.  
Experiential  
In Person Learning  
Arranged  
Arranged

NRSG_O 431-P07  
NRSG_O 007  
Capstone Acute Care Preceptorship  
W2  
Preceptored course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.  
Experiential  
In Person Learning  
Arranged  
Arranged

NRSG_O 431-P06  
NRSG_O 006  
Capstone Acute Care Preceptorship  
W2  
Preceptored course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.  
Experiential  
In Person Learning  
Arranged  
Arranged

NRSG_O 431-P09  
NRSG_O 009  
Capstone Acute Care Preceptorship  
W2  
Preceptored course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.  
Experiential  
In Person Learning  
Arranged  
Arranged

NRSG_O 431-P10  
NRSG_O 010  
Capstone Acute Care Preceptorship  
W2  
Preceptored course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.  
Experiential  
In Person Learning  
Arranged  
Arranged

NRSG_O 431-P11  
NRSG_O 011  
Capstone Acute Care Preceptorship  
W2  
Preceptored course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.  
Experiential  
In Person Learning  
Arranged  
Arranged

NRSG_O 431-P12  
NRSG_O 012  
Capstone Acute Care Preceptorship  
W2  
Preceptored course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.  
Experiential  
In Person Learning  
Arranged  
Arranged

NRSG_O 432-P03  
NRSG_O 003  
Capstone Community Project  
W2  
This practice course provides opportunity to experience evidence-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. Prerequisite: Fourth-Year RN-O Standing Corequisite: NRSG 442.  
Experiential  
In Person Learning  
Mon  
11:00 a.m. - 2:00 p.m.

NRSG_O 432-P04  
NRSG_O 004  
Capstone Community Project  
W2  
This practice course provides opportunity to experience evidence-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. Prerequisite: Fourth-Year RN-O Standing Corequisite: NRSG 442.  
Experiential  
In Person Learning  
Mon  
11:00 a.m. - 2:00 p.m.

NRSG_O 432-P05  
NRSG_O 005  
Capstone Community Project  
W2  
This practice course provides opportunity to experience evidence-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. Prerequisite: Fourth-Year RN-O Standing Corequisite: NRSG 442.  
Experiential  
In Person Learning  
Mon  
11:00 a.m. - 2:00 p.m.

NRSG_O 434-B_P08  
NRSG_O B_P08  
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. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.  
Experiential  
In Person Learning  
Arranged  
Arranged

NRSG_O 434-B_P09  
NRSG_O B_P09  
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. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.  
Experiential  
In Person Learning  
Arranged  
Arranged

NRSG_O 434-B_P10  
NRSG_O B_P10  
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. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.  
Experiential  
In Person Learning  
Arranged  
Arranged

NRSG_O 434-B_P11  
NRSG_O B_P11  
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. Prerequisite: All of NRSG 421, NRSG 422, NRSG 432. and the recommendation of practice advising committee.  
Experiential  
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). Prerequisite: All of NRSG 421, NRSG 432. In Person Learning. Experiential. Pass/Fail. *Dependent on availability.

Global Health Practicum

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. Experiential. In Person Learning. Arranged. Arranged.

Mental Health Preceptorship

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. Experiential. In Person Learning. Arranged. Arranged.

Community Health Nursing Preceptorship

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. Experiential. In Person Learning. Arranged. Arranged.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Type</th>
<th>Mode</th>
<th>Location</th>
<th>Hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSG_O 439-P04</td>
<td>NRSG_O 439-P04 Global Health Practicum</td>
<td>PO4</td>
<td>Global Health Practicum</td>
<td>W2</td>
<td>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. <em>Dependent on availability and cost of travel is in addition to course tuition.</em> Prerequisite: All of NRSG 421, NRSG 422, NRSG 432 and one of NRSG 429, HINT 429. and approval of application.</td>
<td>Experiential</td>
</tr>
<tr>
<td>NRSG_O 439-P14</td>
<td>NRSG_O 439-P14 Global Health Practicum</td>
<td>P14</td>
<td>Global Health Practicum</td>
<td>W3</td>
<td>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. <em>Dependent on availability and cost of travel is in addition to course tuition.</em> Prerequisite: All of NRSG 421, NRSG 422, NRSG 432 and one of NRSG 429, HINT 429. and approval of application.</td>
<td>Experiential</td>
</tr>
<tr>
<td>NRSG_O 440-B_02</td>
<td>NRSG_O 440-B_02 Research Preceptorship</td>
<td>B</td>
<td>Research Preceptorship</td>
<td>W2</td>
<td>Preceptorship 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: securrence of a faculty supervisor and research elective (3/6) as determined by faculty supervisor</td>
<td>Experiential</td>
</tr>
<tr>
<td>NRSG_O 507-001</td>
<td>NRSG_O 507-001 Quantitative Research</td>
<td>001</td>
<td>Quantitative Research</td>
<td>W2</td>
<td>Focus 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: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing.</td>
<td>Lecture</td>
</tr>
<tr>
<td>NRSG_O 513-001</td>
<td>NRSG_O 513-001 Teaching and Learning in Nursing Practice</td>
<td>001</td>
<td>Teaching and Learning in Nursing Practice</td>
<td>W2</td>
<td>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</td>
<td>Lecture</td>
</tr>
<tr>
<td>NRSG_O 514-001</td>
<td>NRSG_O 514-001 Primary Care Nursing I</td>
<td>001</td>
<td>Primary Care Nursing I</td>
<td>W2</td>
<td>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.</td>
<td>Lecture</td>
</tr>
<tr>
<td>NRSG_O 543-001</td>
<td>NRSG_O 543-001 Nursing Leadership and Management in Practice</td>
<td>001</td>
<td>Nursing Leadership and Management in Practice</td>
<td>W2</td>
<td>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 and multiple method 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, NRSG 507. Or equivalent graduate-level quantitative and qualitative methods courses.</td>
<td>Lecture</td>
</tr>
<tr>
<td>NRSG_O 554-001</td>
<td>NRSG_O 554-001 Advanced Research Methods</td>
<td>001</td>
<td>Advanced Research Methods</td>
<td>W2</td>
<td>Integrative practicum in a student's chosen area of practice. Students will initially analyze, synthesize, and apply advanced knowledge to promote change and contribute to knowledge development. [6-0-0]</td>
<td>Lecture</td>
</tr>
<tr>
<td>NRSG_O 599-001</td>
<td>NRSG_O 599-001 Nursing Leadership and Management in Practice</td>
<td>001</td>
<td>Nursing Leadership and Management in Practice</td>
<td>W2</td>
<td>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</td>
<td>Lecture</td>
</tr>
<tr>
<td>NSYL_O 439-001</td>
<td>NSYL_O 439-001 Special Topics in Language Practice and Pedagogy</td>
<td>001</td>
<td>Special Topics in Language Practice and Pedagogy</td>
<td>W2</td>
<td>Intensive language immersion course to enhance and improve proficiency. Focused on language pertaining to a specific topic or language domain. The language of instruction is Nsyilxcn. May be offered on the land. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program. [0-2-3] Prerequisite: NSYL 333.</td>
<td>Lecture</td>
</tr>
<tr>
<td>NSYL_O 439-L01</td>
<td>NSYL_O 439-L01 Special Topics in Language Practice and Pedagogy</td>
<td>L01</td>
<td>Special Topics in Language Practice and Pedagogy</td>
<td>W2</td>
<td>Intensive language immersion course to enhance and improve proficiency. Focused on language pertaining to a specific topic or language domain. The language of instruction is Nsyilxcn. May be offered on the land. Restricted to students in the Bachelor of Nsyilxcn Language Fluency program. [0-2-3] Prerequisite: NSYL 333.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>PHL_O 111-101</td>
<td>PHL_O 111-101 Introduction to Philosophy I</td>
<td>101</td>
<td>Introduction to Philosophy I</td>
<td>W2</td>
<td>Introduction to outstanding philosophers and their systems. Ethics, political philosophy, metaphysics, and philosophy of religion. [3-0-0]</td>
<td>Lecture</td>
</tr>
<tr>
<td>PHL_O 120-101</td>
<td>PHL_O 120-101 Introduction to Logic and Critical Thinking</td>
<td>101</td>
<td>Introduction to Logic and Critical Thinking</td>
<td>W2</td>
<td>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>
</tr>
<tr>
<td>PHL_O 120-102</td>
<td>PHL_O 120-102 Introduction to Logic and Critical Thinking</td>
<td>102</td>
<td>Introduction to Logic and Critical Thinking</td>
<td>W2</td>
<td>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>
</tr>
<tr>
<td>PHL_O 121-101</td>
<td>PHL_O 121-101 Introduction to Philosophy II</td>
<td>101</td>
<td>Introduction to Philosophy II</td>
<td>W2</td>
<td>Introduction to outstanding philosophers and their systems. Theory of knowledge, logic, and contemporary philosophy. [3-0-0]</td>
<td>Lecture</td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credits</td>
<td>Prerequisites</td>
<td>Notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------------------------------</td>
<td>---------</td>
<td>--------------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL_O 210-101</td>
<td>Introduction to Social and Political Philosophy</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL_O 230-101</td>
<td>Ethics</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL_O 233-101</td>
<td>Biomedical Ethics</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL_O 245-101</td>
<td>Introduction to Metaphysics</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL_O 310-101</td>
<td>The Philosophy of Plato</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL_O 315-101</td>
<td>Philosophy in the 18th Century</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL_O 331-101</td>
<td>Computer Ethics</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL_O 338-101</td>
<td>Philosophy of Law</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL_O 391-F_101</td>
<td>Topics in Philosophy</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL_O 391-I_101</td>
<td>Topics in Philosophy</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL_O 418-I_102</td>
<td>Topics in 20th-Century Philosophy</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL_O 451-101</td>
<td>Philosophy of Mind</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL_O 460-001</td>
<td>Philosophy of Science</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_O 121-101</td>
<td>Introductory Physics for the Physical Sciences II</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_O 121-101</td>
<td>Introductory Physics for the Physical Sciences II</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_O 121-101</td>
<td>Introductory Physics for the Physical Sciences II</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_O 121-101</td>
<td>Introductory Physics for the Physical Sciences II</td>
<td>W2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Name</td>
<td>Type</td>
<td>Days</td>
<td>Times</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>----------------------------------------------</td>
<td>------------------</td>
<td>-----------</td>
<td>-----------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_121-L04</td>
<td>PHYS_O L04 Introductory Physics for the Physical Sciences II W2</td>
<td>Laboratory</td>
<td>Tue</td>
<td>2:30 p.m. - 5:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_121-L05</td>
<td>PHYS_O L05 Introductory Physics for the Physical Sciences II W2</td>
<td>Laboratory</td>
<td>Tue</td>
<td>6:30 p.m. - 9:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_121-L07</td>
<td>PHYS_O L07 Introductory Physics for the Physical Sciences II W2</td>
<td>Laboratory</td>
<td>Wed</td>
<td>1:00 p.m. - 4:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_121-L08</td>
<td>PHYS_O L08 Introductory Physics for the Physical Sciences II W2</td>
<td>Laboratory</td>
<td>Wed</td>
<td>6:30 p.m. - 9:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_121-L09</td>
<td>PHYS_O L09 Introductory Physics for the Physical Sciences II W2</td>
<td>Laboratory</td>
<td>Thu</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_121-L10</td>
<td>PHYS_O L10 Introductory Physics for the Physical Sciences II W2</td>
<td>Laboratory</td>
<td>Thu</td>
<td>2:30 p.m. - 5:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_121-L11</td>
<td>PHYS_O L11 Introductory Physics for the Physical Sciences II W2</td>
<td>Laboratory</td>
<td>Thu</td>
<td>6:30 p.m. - 9:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_121-L12</td>
<td>PHYS_O L12 Introductory Physics for the Physical Sciences II W2</td>
<td>Laboratory</td>
<td>Fri</td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_121-T2A</td>
<td>PHYS_O T2A Introductory Physics for the Physical Sciences II W2</td>
<td>Discussion</td>
<td>Tue</td>
<td>3:00 p.m. - 4:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_121-T2B</td>
<td>PHYS_O T2B Introductory Physics for the Physical Sciences II W2</td>
<td>Discussion</td>
<td>Wed</td>
<td>1:00 p.m. - 2:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS_121-T2C</td>
<td>PHYS_O T2C Introductory Physics for the Physical Sciences II W2</td>
<td>Discussion</td>
<td>Fri</td>
<td>8:00 a.m. - 9:00 a.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Section</td>
<td>Day</td>
<td>Time</td>
<td>Location</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
<td>-----</td>
<td>------</td>
<td>----------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>PHYS 121-T2D</td>
<td>T2D</td>
<td>Tue</td>
<td>In Person Learning</td>
<td>Mon 2:00 p.m. - 3:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 121-T2E</td>
<td>T2E</td>
<td>Tue</td>
<td>In Person Learning</td>
<td>Mon 1:00 p.m. - 2:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 121-XM1</td>
<td>XM1</td>
<td>Tue</td>
<td>In Person Learning</td>
<td>Arranged Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 121-XM2</td>
<td>XM2</td>
<td>Tue</td>
<td>In Person Learning</td>
<td>Arranged Arranged</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 122-101</td>
<td>101</td>
<td>Wed</td>
<td>Lecture In Person Learning</td>
<td>Wed 12:30 p.m. - 2:00 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 122-102</td>
<td>102</td>
<td>Wed</td>
<td>Lecture In Person Learning</td>
<td>Mon 5:00 p.m. - 6:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 122-103</td>
<td>103</td>
<td>Tue</td>
<td>Laboratory In Person Learning</td>
<td>Tue 9:30 a.m. - 12:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 122-104</td>
<td>104</td>
<td>Tue</td>
<td>Laboratory In Person Learning</td>
<td>Tue 2:30 p.m. - 5:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 122-105</td>
<td>105</td>
<td>Tue</td>
<td>Laboratory In Person Learning</td>
<td>Tue 6:30 p.m. - 9:30 p.m.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 122-106</td>
<td>106</td>
<td>Tue</td>
<td>Laboratory In Person Learning</td>
<td>Wed 9:30 a.m. - 12:30 p.m.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Conquest: 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. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Conquest: One of MATH 101, MATH 103. Laboratory In Person Learning Wed 6:30 p.m. - 9:30 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. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Conquest: 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. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Conquest: 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. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Conquest: 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 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. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Conquest: 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 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. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Conquest: 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 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. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Conquest: 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 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. [3-3-1] Prerequisite: One of MATH 100, MATH 116 and one of PHYS 111, PHYS 112. Conquest: One of MATH 101, MATH 103. Laboratory In Person Learning Tue 9:30 a.m. - 12:30 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Schedule</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 122-TDB</td>
<td>Introductory Physics for the Life Sciences II</td>
<td>W2</td>
<td>Lecture</td>
<td>9:00 a.m. - 10:00 a.m.</td>
</tr>
<tr>
<td>PHYS 122-TDC</td>
<td>Introductory Physics for the Life Sciences II</td>
<td>W2</td>
<td>Discussion</td>
<td>Thu 1:00 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>PHYS 122-TDD</td>
<td>Introductory Physics for the Life Sciences II</td>
<td>W2</td>
<td>Laboratory</td>
<td>Fri 11:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>PHYS 122-TDE</td>
<td>Introductory Physics for the Life Sciences II</td>
<td>W2</td>
<td>Discussion</td>
<td>Tue 2:00 p.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>PHYS 122-TDF</td>
<td>Introductory Physics for the Life Sciences II</td>
<td>W2</td>
<td>Discussion</td>
<td>Fri 4:00 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>PHYS 122-TDG</td>
<td>Introductory Physics for the Life Sciences II</td>
<td>W2</td>
<td>Laboratory</td>
<td>Arranged</td>
</tr>
<tr>
<td>PHYS 122-XM1</td>
<td>Introductory Physics for the Life Sciences II</td>
<td>W2</td>
<td>Lecture</td>
<td>Thu 12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>PHYS 122-XM2</td>
<td>Introductory Physics for the Life Sciences II</td>
<td>W2</td>
<td>Lecture</td>
<td>Fri 10:00 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>PHYS 200-001</td>
<td>Relativity and Quanta</td>
<td>W2</td>
<td>Review of kinematics, Newton's laws, angular momentum, and fixed axis rotation.</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>PHYS 200-001</td>
<td>Relativity and Quanta</td>
<td>W2</td>
<td>Seminar</td>
<td>Tue 11:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>PHYS 216-101</td>
<td>Mechanics I</td>
<td>W2</td>
<td>Lecture</td>
<td>Mon 3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>PHYS 216-501</td>
<td>Mechanics I</td>
<td>W2</td>
<td>Seminar</td>
<td>Tue 11:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>PHYS 232-101</td>
<td>Modern Physics Laboratory</td>
<td>W2</td>
<td>Lecture</td>
<td>Wed 9:00 a.m. - 10:00 a.m.</td>
</tr>
<tr>
<td>PHYS 232-001</td>
<td>Modern Physics Laboratory</td>
<td>W2</td>
<td>Laboratory</td>
<td>Mon 11:30 a.m. - 2:30 p.m.</td>
</tr>
</tbody>
</table>
**PHYS 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 Fri  
11:00 a.m. - 2:00 p.m.

**PHYS 328-L01**  
**PHYS O**  
**L01**  
**Advanced Mechanics**  
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 104.  
Lecture In Person Learning Tue Thu  
12:30 p.m. - 2:00 p.m.

**PHYS 400-C01**  
**PHYS O**  
**L01**  
**Introduction to Elementary Particles**  
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  
8:00 a.m. - 9:30 a.m.

**PHYS 441-L01**  
**PHYS O**  
**L01**  
**Experimental Physics II**  
W2  
Standard 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 441-L02**  
**PHYS O**  
**L01**  
**Experimental Physics II**  
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 535-L01**  
**PHYS O**  
**L01**  
**Radiation Dosimetry**  
W2  
The fundamentals of radiation dosimetry, ionization 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.

**POLI 100-L01**  
**POLI O**  
**L01**  
**Introduction to Politics**  
W2  
Enter 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. [1.5-0-1.5]  
Prerequisite: One of MATH 121, MATH 123, MATH 124 or MATH 125.  
Lecture In Person Learning Fri  
11:00 a.m. - 12:30 p.m.

**POLI 100-T2A**  
**POLI O**  
**T2A**  
**Introduction to Politics**  
W2  
Enter 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. [1.5-0-1.5]  
Discussion In Person Learning Thu  
12:30 p.m. - 2:00 p.m.

**POLI 100-T2B**  
**POLI O**  
**T2B**  
**Introduction to Politics**  
W2  
Enter 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. [1.5-0-1.5]  
Discussion In Person Learning Thu  
12:30 p.m. - 2:00 p.m.

**POLI 100-T2C**  
**POLI O**  
**T2C**  
**Introduction to Politics**  
W2  
Enter 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. [1.5-0-1.5]  
Discussion In Person Learning Mon  
8:00 a.m. - 9:30 a.m.

**POLI 100-T2D**  
**POLI O**  
**T2D**  
**Introduction to Politics**  
W2  
Enter 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. [1.5-0-1.5]  
Discussion In Person Learning Wed  
5:00 p.m. - 6:30 p.m.

**POLI 100-T2E**  
**POLI O**  
**T2E**  
**Introduction to Politics**  
W2  
Enter 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. [1.5-0-1.5]  
Discussion In Person Learning Wed  
8:00 a.m. - 9:30 a.m.

**POLI 210-L01**  
**POLI O**  
**L01**  
**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]  
Equivalent: POLI 220.  
Lecture In Person Learning Wed Fri  
3:30 p.m. - 5:00 p.m.

**POLI 303-L01**  
**POLI O**  
**L01**  
**Directed Studies in Politics**  
W2  
In Person Learning

**POLI 305-L01**  
**POLI O**  
**L01**  
**Experimental Physics II**  
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  
8:00 a.m. - 9:30 a.m.
POLI O 230-101  
101  Introduction to Canadian Politics  
W2  
Examination of the institutions and processes of Canadian politics. Credit will be granted for only one of POLI 202 or POLI 230. [3-0-0]  
Lecture  
In Person Learning  
Tue Thu  
5:00 p.m. - 6:30 p.m.

POLI O 270-101  
101  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  
3:30 p.m. - 5:00 p.m.

POLI O 339-101  
101  Politics of South American  
W2  
Analysis of politics in South America. [3-0-0] Prerequisite: One of POLI 210 or POLI 220.  
Lecture  
In Person Learning  
Fri  
11:00 a.m. - 2:00 p.m.

POLI O 327-101  
101  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 464-B 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 Thu  
12:30 p.m. - 2:00 p.m.

POLI O 331-101  
101  Federalism in Canada  
W2  
Theory and practice of federalism; cultural duality, social stresses, and problems of flexibility. The constitution and role of the courts. Credit will be granted for only one of POLI 390 or POLI 101. [3-0-0] Prerequisite: One of POLI 202 or POLI 230. Equivalency: POLI 101.  
Lecture  
In Person Learning  
Mon Wed  
8:00 a.m. - 9:30 a.m.

POLI O 356-101  
101  Modern Political Theory  
W2  
Theories of leading political theorists from Machiavelli to Rawls. [3-0-0] Prerequisite: One of POLI 240 or POLI 250.  
Lecture  
In Person Learning  
Tue Thu  
5:00 p.m. - 6:30 p.m.

POLI O 358-101  
101  Politics and Religion  
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  
Fri  
11:00 a.m. - 12:30 p.m.

POLI O 360-101  
101  Political Foundings  
W2  
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  
11:00 a.m. - 12:30 p.m.

POLI O 365-101  
101  Politics and Pop Culture  
W2  
The role of ordinary men and women in the national and international arena. Themes include: war and peace, labour and migration, feminism and the politics of women's rights, and diverse conceptions of men and masculinity. [3-0-0] Prerequisite: One of POLI 221 or POLI 270.  
Lecture  
In Person Learning  
Mon Wed  
5:00 p.m. - 6:30 p.m.

POLI O 372-101  
101  Gender and International Relations  
W2  
Crimes against humanity and the evolution of the component crimes (including genocide, slavery, torture, sexual violence, apartheid) as legal concepts, social-historical phenomena, and sites of popular struggle. [3-0-0] Prerequisite: One of POLI 240 or POLI 250.  
Lecture  
In Person Learning  
Tue Thu  
9:30 a.m. - 11:00 a.m.

POLI O 388-101  
101  Introduction to Data Analysis  
W2  
Survey of topics in psychology which relate to basic processes. Methods and statistics, the nervous system and neurological disorders, sleep, memory, and vision. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.  
Lecture  
In Person Learning  
Tue Thu  
12:30 p.m. - 2:00 p.m.

PSYO O 121-101  
101  Introduction to Psychology: Basic Processes  
W2  
Survey of topics in psychology which relate to basic processes. Methods and statistics, the nervous system and neurological disorders, sleep, memory, and vision. [3-0-0] Prerequisite: One of POLI 270 or POLI 221. Equivalency: PSYO 121.  
Lecture  
In Person Learning  
Mon Wed  
3:30 p.m. - 5:00 p.m.

PSYO O 202-101  
101  Methods of Behavioural Research  
W2  
Topics will include structure and function of the nervous system, research methods, and their application to a selection of the following topics: human brain damage and recovery, stress, selected psychological and neurological disorders, sleep, memory, and vision. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSYC 101, PSYC 102, or PSYC 100.  
Lecture  
In Person Learning  
Tue Thu  
5:00 p.m. - 6:30 p.m.

PSYO O 241-101  
101  Personality  
W2  
Focuses on a variety of personality theories including psychoanalytic, behaviouralist, cognitive, humanistic, and trait perspectives. Methods of research and critical analysis of theoretical foundations and research. [3-0-0] Prerequisite: All of PSYO 111, PSYO 121. Or all of PSY 101, PSYC 102, or PSYC 100.  
Lecture  
In Person Learning  
Tue Thu  
5:00 p.m. - 6:30 p.m.

PSYO O 252-101  
101  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 PSY 101, PSYC 102, or PSYC 100.  
Lecture  
Online Learning  
Tue Thu  
2:00 p.m. - 5:00 p.m.

PSYO O 271-101  
101  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. [3-0-0] Prerequisite: PSYO 270.  
Lecture  
In Person Learning  
Tue Thu  
11:00 a.m. - 12:30 p.m.

PSYO O 271-103  
103  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. [3-0-0] Prerequisite: PSYO 270.  
Lecture  
In Person Learning  
Mon Wed  
5:00 p.m. - 6:30 p.m.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Unit(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYO_301</td>
<td>Memory</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_314</td>
<td>Non-Visual Perception</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_316</td>
<td>Psychology of Touch II</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_321</td>
<td>Child Development</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_334</td>
<td>Neuroscience of Cognition</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_335</td>
<td>Drugs and Behaviour</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_348</td>
<td>Health Psychology</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_349</td>
<td>Positive Psychology</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_354</td>
<td>Psychological Aspects of Human Sexuality II</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_356</td>
<td>Forensic Psychology II</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_362</td>
<td>Psychology of Humour</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_373</td>
<td>Advanced Research Methods and Statistics</td>
<td>W3</td>
</tr>
<tr>
<td>PSYO_379</td>
<td>Advanced Research Methods and Statistics</td>
<td>W3</td>
</tr>
<tr>
<td>PSYO_420</td>
<td>Advanced Topics in Developmental Psychology</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_480</td>
<td>Advanced Special Topics in Psychology</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_480</td>
<td>Advanced Special Topics in Psychology</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_480</td>
<td>Advanced Special Topics in Psychology</td>
<td>W2</td>
</tr>
<tr>
<td>PSYO_480</td>
<td>Advanced Special Topics in Psychology</td>
<td>W2</td>
</tr>
</tbody>
</table>

An examination of memory systems and how they work. Topics will focus on how we input, store, and retrieve memories; the systems that process these memories; and the disruptions of memory in amnesia, false memory, and eyewitness testimony. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 230, PSYO 231, 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. 12:30 p.m. - 2:00 p.m.

Although vision is our primary source of information, we have several other well-developed perceptual systems. 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. Lecture. In Person Learning. Mon Wed. 8:00 a.m. - 9:00 a.m.

Focuses on the perceptual aspects of touch. Perception of texture and layout, development of haptic perception, intermodality relations between vision and touch, Braille, and tactile pictures. [3-0-0] Prerequisite: PSYO 315. Lecture. In Person Learning. Mon Wed. 10:00 a.m. - 11:00 a.m.

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 230, PSYO 241, PSYO 252, PSYO 270, PSYO 271, PSYO 298, PSYO 299. or 3 credits of 200-level Psychology. Lecture. In Person Learning. Wed. 10:30 a.m. - 2:00 p.m.

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

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, tranquilizers, 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 6 credits of 200-level Psychology. Lecture. In Person Learning. Wed. 3:30 p.m. - 5:00 p.m.

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 illnesses. [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. Wed. 3:30 p.m. - 5:00 p.m.

The psychological processes that play a role in the use and study of human sexuality. Exercises in critical thinking to help students understand how psychological processes influence sexual behavior. [3-0-0] Prerequisites: 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. 11:00 a.m. - 12:30 p.m.

Academic overview of human sexuality from a biological, psychosocial, and behavioral perspective. Sexual behaviour, sexual complications and their treatment, attraction and love, sexual orientation, and problematic sexual behaviour. [3-0-0] Prerequisite: PSYO 355. Lecture. In Person Learning. Wed. 2:00 p.m. - 3:30 p.m.

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

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

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. Corequisite: Enrolment in a three-hour laboratory section is required. Lecture. In Person Learning. Thu. 2:00 p.m. - 3:30 p.m.

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. Corequisite: Enrolment in a three-hour laboratory section is required. Lecture. In Person Learning. Thu. 8:00 a.m. - 11:00 a.m.

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

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 hour/week lecture] Prerequisite: Third-year standing and permission of the department head. Lecture. In Person Learning. Thu. 2:00 p.m. - 5:00 p.m.

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 hour/week lecture] Prerequisite: Third-year standing and permission of the department head. Lecture. Online Learning. Tue. 2:00 p.m. - 5:00 p.m.

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 hour/week lecture] Prerequisite: Third-year standing and permission of the department head. Lecture. In Person Learning. Mon. 8:00 a.m. - 9:30 a.m.

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 hour/week lecture] Prerequisite: Third-year standing and permission of the department head. Lecture. In Person Learning. Mon. 8:00 a.m. - 9:30 a.m.

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 hour/week lecture] Prerequisite: Third-year standing and permission of the department head. Lecture. In Person Learning. Mon. 8:00 a.m. - 9:30 a.m.
PSYD_O 511-101  PSYD_O  101  Advanced Clinical Diagnostics  W2  An advanced overview of psychopathology from an historical and current scientific perspective. [3-0-0]  Lecture  In Person Learning  Wed  2:00 p.m. - 5:00 p.m.

PSYD_O 515-101  PSYD_O  101  Psychological Assessment II  W2  Advanced topics in psychological assessment including in-depth coverage of the major commonly used standardized objective and self-report personality measures. Additional content will vary depending on the topic selected. Restricted to the Graduate Clinical Psychology Program. [3-0-0]  Lecture  In Person Learning  Thu  8:00 a.m. - 11:00 a.m.

PSYD_O 517-101  PSYD_O  101  Psychological Intervention II: Advanced Topics w/ R2  W2  Evidence-based treatments in Cognitive Behavioural Therapy. Content will focus on cognitive behavioral models of intervention for a variety of mental health conditions. Restricted to the Graduate Clinical Psychology Program. [3-0-0]  Lecture  In Person Learning  Tue  8:00 a.m. - 11:00 a.m.


SOCI_O 111-101  SOCI_O  101  Introduction to Sociology  W2  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  Online Learning  Mon Wed  9:30 a.m. - 11:00 a.m.

SOCI_O 111-102  SOCI_O  102  Introduction to Sociology  W2  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  Mon Wed Fri  2:00 p.m. - 3:00 p.m.

SOCI_O 209-101  SOCI_O  101  Foundations of Sociological Thought  W2  Foundational ideas in the historical development of sociological thought. Ways in which these ideas have influenced new generations of sociologists. [3-0-0] Prerequisite: SOCI 111  In Person Learning  Thu Thu  11:00 a.m. - 12:30 p.m.

SOCI_O 216-101  SOCI_O  101  Media and Society  W2  Critical and contextual analysis of the form and content of mass communication. Relationship between culture, social behavior, and public channels of communication such as print media, advertising, television, film, and popular literature. [3-0-0] Prerequisite: SOCI 111.  In Person Learning  Thu Thu  12:30 p.m. - 2:00 p.m.

SOCI_O 246-101  SOCI_O  101  Sociology of Sports  W2  Key concepts and theoretical ideas in the sociology of sport. Relationships between sports and socialization, intersectional inequalities (race, class, gender, ability), deviance and violence, health and injuries, politics and social movements, media, nationality and the environment. Prerequisite: SOCI 111.  In Person Learning  Wed Fri  11:00 a.m. - 12:30 p.m.

SOCI_O 249-101  SOCI_O  101  Crime and Society  W2  Introduction to crime as a social phenomenon. Changing definitions of crime in relation to social and political change; scope and nature of crime; criminalization; growth of criminality; institutional responses to criminal behavior by the justice system. [3-0-0] Prerequisite: SOCI 111.  In Person Learning  Wed Fri  11:00 a.m. - 12:30 p.m.

SOCI_O 263-101  SOCI_O  101  Political Sociology  W2  Social and economic basis of political power. State and inter-state relations; ideology and control; alienation and anomie; political movements and social revolutions; political violence and terrorism; the political economy of world conflict. Credit will be granted for only one of SOCI 263 or SOCI 463. [3-0-0] Prerequisite: Either (a) SOCI 111 or (b) POLI 100 or (c) all of HIST 125, HST 145.  In Person Learning  Thu Thu  2:00 p.m. - 3:30 p.m.

SOCI_O 305-101  SOCI_O  101  Sociology of Families  W2  Theoretical and methodological approaches to family structures and relations. [3-0-0] Prerequisite: SOCI 111 and third-year standing.  Lecture  In Person Learning  Mon Wed  12:30 p.m. - 2:00 p.m.

SOCI_O 362 B_101  SOCI_O  B B_101  Social Inequality  W2  Structural and interactional approaches to relations of power that reproduce inequality with a focus on the intersections of race, class, gender, and sexualities. [3-0-0] Prerequisite: SOCI 111 and third-year standing.  Lecture  In Person Learning  Mon Wed  9:30 a.m. - 11:00 a.m.

SOCI_O 371 B_101  SOCI_O  B B_101  Deviance and Social Control  W2  The social construction of deviance. Perspectives on social control such as moral regulation, surveillance, and punishment. Theoretical frameworks will be stressed. [3-0-0] Prerequisite: SOCI 111 and third-year standing.  Lecture  In Person Learning  Mon Wed  3:30 p.m. - 5:00 p.m.

SOCI_O 377-101  SOCI_O  101  Contemporary Sociological Theory  W2  Contemporary sociological theories and their relationship to methodological issues. Emphasis on the procedures by which sociological explanations are made. Credit will be granted for only one of SOCI 377 or SOCI 375. [3-0-0] Prerequisite: SOCI 376. and third-year standing.  Lecture  In Person Learning  Fri  8:00 a.m. - 11:00 a.m.

SOCI_O 411-C_101  SOCI_O  C C_101  Special Studies in Canadian Society  W2  Advanced analysis of issues in Canadian society. Consult the department head for frequency of offering and course topic. [3-0-0] Prerequisite: SOCI 111 and third-year standing.  Seminar  In Person Learning  Mon  6:30 p.m. - 9:30 p.m.

SOCI_O 415-101  SOCI_O  101  Feminist Theory  W2  Development of feminist theories and their relationship to sociology. Social and cultural bases of feminism. Special attention to contemporary debates. [1-0-2] Prerequisite: SOCI 317. and third-year standing.  Seminar  In Person Learning  Fri  2:00 p.m. - 5:00 p.m.

SOCI_O 465-101  SOCI_O  101  Nations and nationalisms  W2  Social bases of nationhood. Sociological examination of issues related to national identities and nationalism: theories of nationalism; social roots and implications of national identity and belonging; nationalism and conflict; nationalism, ethnicity, and genocide. [3-0-0] Prerequisite: Either (a) SOCI 111 or (b) POLI 221 or (c) all of HIST 125, HST 145. Third-year standing.  Seminar  In Person Learning  Mon  11:00 a.m. - 2:00 p.m.

SOCI_O 496 B_101  SOCI_O  B B_101  Advanced Studies in Sociology  W2  In-depth examination of selected topics in sociology. Topic may change each time the course is offered. Consult the department for frequency of offering and current course topic. Repeatable for up to 9 credits on different topics during a complete program of study. [3-0-0] Prerequisite: SOCI 111 and third-year standing.  Seminar  In Person Learning  Wed  6:30 p.m. - 9:30 p.m.

SOCW_O 513-001  SOCW_O  001  Assessment Skills for Clinical Social Work  W2  Theoretical perspectives and foundational skills for assessment in clinical social work. 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 513-002  SOCW_O  002  Assessment Skills for Clinical Social Work  W2  Theoretical perspectives and foundational skills for assessment in clinical social work. 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 515-001  SOCW_O  001  Social Welfare Policy in Canada  W2  Historical and current forces shaping Canadian legislation, policies, programs, and services; impacts of these on social work practice and service users. 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 518-001  SOCW_O  001  Integrative Seminar for Field Education  W2  Links classroom education with field education. Consists of independent readings, invited speakers, and online discussions. Pass/Fail. Prerequisite: Restricted to students in the M.S.W. program.  Lecture  In Person Learning  Fri (Alternate weeks)  11:00 a.m. - 2:00 p.m.

SOCW_O 518-002  SOCW_O  002  Integrative Seminar for Field Education  W2  Links classroom education with field education. Consists of independent readings, invited speakers, and online discussions. Pass/Fail. Prerequisite: Restricted to students in the M.S.W. program.  Lecture  In Person Learning  Fri (Alternate weeks)  11:00 a.m. - 2:00 p.m.

SOCW_O 525-001  SOCW_O  001  Human Development for Clinical Social Work  W2  Empirical and theoretical knowledge of human development relevant to clinical social work practice across the lifespan.  Lecture  In Person Learning  Wed  11:00 a.m. - 2:00 p.m.

SOCW_O 531-001  SOCW_O  001  Anti-Racist and Anti-Oppressive Clinical Practice  W2  Provides an opportunity to expand theoretical and analytical foundation in the awareness, knowledge, understanding, and skills needed to effectively carry out anti-oppressive 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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Degree Requirements</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCW 555-001</td>
<td>Research Knowledge and Evidence in Clinical Social Work Practice</td>
<td>5.0</td>
<td>Knowledge and skills for utilizing empirical evidence to guide clinical social work practice.</td>
<td>Restricted to students in the M.S.W. program.</td>
</tr>
<tr>
<td>SOCW 555-001</td>
<td>Organizations and Leadership</td>
<td>5.0</td>
<td>Knowledge of human service organizations and tools for effective leadership.</td>
<td>Restricted to students in the M.S.W. program.</td>
</tr>
<tr>
<td>SOCW 555-002</td>
<td>Organizations and Leadership</td>
<td>5.0</td>
<td>Knowledge of human service organizations and tools for effective leadership.</td>
<td>Restricted to students in the M.S.W. program.</td>
</tr>
<tr>
<td>SOCW 558-001</td>
<td>Advanced Integrative Seminar for Field Education</td>
<td>5.0</td>
<td>Integrates theoretical knowledge and practice experience in direct/cClinical settings.</td>
<td>Course is graded on a pass/fail basis.</td>
</tr>
<tr>
<td>SOCW 558-002</td>
<td>Advanced Integrative Seminar for Field Education</td>
<td>5.0</td>
<td>Integrates theoretical knowledge and practice experience in direct/cClinical settings.</td>
<td>Course is graded on a pass/fail basis.</td>
</tr>
<tr>
<td>SOCW 598-002</td>
<td>Graduating Paper</td>
<td>5.0</td>
<td>A scholarly paper in an area of interest that conforms to the demands of a peer-reviewed social work journal.</td>
<td>Pass/Fail.</td>
</tr>
</tbody>
</table>

**SPAN Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Degree Requirements</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN 102-001</td>
<td>Beginners' Spanish II</td>
<td>5.0</td>
<td>Development of listening, speaking, reading, and writing in Spanish.</td>
<td>Completes level A1 of the Common European Framework of Reference for Languages (CEFRL).</td>
</tr>
<tr>
<td>SPAN 102-003</td>
<td>Beginners' Spanish II</td>
<td>5.0</td>
<td>Development of listening, speaking, reading, and writing in Spanish.</td>
<td>Completes level A1 of the Common European Framework of Reference for Languages (CEFRL).</td>
</tr>
<tr>
<td>SPAN 102-004</td>
<td>Beginners' Spanish II</td>
<td>5.0</td>
<td>Development of listening, speaking, reading, and writing in Spanish.</td>
<td>Completes level A1 of the Common European Framework of Reference for Languages (CEFRL).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Degree Requirements</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN 402-002</td>
<td>Advanced Spanish II</td>
<td>5.0</td>
<td>Descriptive and inferential statistics, elementary probability, probability distributions, estimation of parameters, hypothesis testing, correlation, linear regression.</td>
<td>Credit will be granted for only one of STAT 221 or STAT 212 or STAT 124. [3-0-0] Prerequisite: Either (a) a score of 60% or higher in STAT 124 (or) (b) a score of 67% or higher in one of MATH 125, MATH 126 or (c) a score of 67% or higher in one of MATH 127, BREC 12.</td>
</tr>
<tr>
<td>STAT 121-101</td>
<td>Elementary Statistics</td>
<td>5.0</td>
<td>Introduction to surveys and simple sampling strategies; descriptive methods for one and two variables; frequency distributions; correlation and regression; descriptive methods for time series and index numbers; and probability and relationship to statistical inference.</td>
<td>Good for CA, CMA credit. Credit will be granted for only one of STAT 121, STAT 124. [3-0-0] Prerequisite: One of Principles of Mathematics 11, Pre-Calculus 11, Foundations of Mathematics 12.</td>
</tr>
<tr>
<td>STAT 124-101</td>
<td>Business Statistics</td>
<td>5.0</td>
<td>Sampling distribution theory.</td>
<td>Probability estimation; Confidence intervals and hypothesis testing; simple regression; analysis of variance and contingency table analysis. Credit will be granted for only one of STAT 205 or STAT 210. [3-0-0] Prerequisite: STAT 203.</td>
</tr>
<tr>
<td>STAT 205-101</td>
<td>Introduction to Mathematical Statistics</td>
<td>5.0</td>
<td>Applied statistics for students with a first-year calculus background. Estimation and testing of hypotheses, problem formulation, models and basic methods in analysis of variance, linear regression, and non-parametric methods. Descriptive statistics and probability are presented as a basis for such procedures.</td>
<td>[3-0-0] Prerequisite: One of MATH 101, MATH 103, MATH 142 and one of DATA 101, COSC 221.</td>
</tr>
<tr>
<td>STAT 210-101</td>
<td>Introductory Statistics</td>
<td>5.0</td>
<td>Theory of statistical modelling: distributions of data, likelihood-based inference for learning unknown parameters, construction of confidence intervals and development of tests. Bayesian methods will be used to contrast standard statistical procedures.</td>
<td>[3-0-0] Prerequisite: STAT 205.</td>
</tr>
<tr>
<td>STAT 401-101</td>
<td>Probability and Statistical Inference</td>
<td>5.0</td>
<td>Random walks, Markov chains, Poisson processes, continuous time Markov chains, birth and death processes, exponential models, and applications of Markov chains.</td>
<td>[3-0-0] Prerequisite: STAT 303.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Degree Requirements</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 507-101</td>
<td>Sampling and Design</td>
<td>5.0</td>
<td>Experimental design review. Credit will be granted for only one of DATA 407, or STAT 507.</td>
<td>Learning and practice of data collection. Observational and experimental data pros and cons. Standard methods in survey samples.</td>
</tr>
<tr>
<td>STAT 538-101</td>
<td>Advanced Statistical Modelling</td>
<td>5.0</td>
<td>Least-squares, generalized least-squares and likelihood estimation. Theory and application of parametric and non-parametric regression models such as splines, penalized splines, and generalized additive models. Assessment and treatment of data issues including missingness and measurement error. Credit will be granted for only one of DATA 430, or STAT 538. [3-0-0]</td>
<td></td>
</tr>
<tr>
<td>STAT 547-I</td>
<td>Topics in Statistics</td>
<td>5.0</td>
<td>Topics chosen from different areas within the field of statistics, such as time series, longitudinal and multi-level modelling, multivariate analysis, machine learning, resampling and permutation methods, smoothing and filtering, survival analysis, sports analytics and spatial statistics. Content will be determined so as to complement course offerings and meet the needs of the students.</td>
<td>With the permission of the department head, this course may be taken more than once on a different topic. [3-0-0]</td>
</tr>
</tbody>
</table>

*In Person Learning*
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Credits</th>
<th>Prerequisite</th>
<th>College</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT_150-001</td>
<td>Probability and Stochastic Processes</td>
<td>W2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUSI_100-101</td>
<td>Sustainability: People, Place, and Process</td>
<td>W2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUSI_204-001</td>
<td>Creative Communication and Engagement</td>
<td>W2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUSI_205-001</td>
<td>Sustainability Economics</td>
<td>W2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THTR_103-101</td>
<td>Acting for Stage and Screen</td>
<td>W2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THTR_104-101</td>
<td>The Art of Public Speaking</td>
<td>W2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VISA_100-010</td>
<td>Safety Training</td>
<td>W2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VISA_105-001</td>
<td>Drawing and Two-Dimensional Art Practices II</td>
<td>W2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VISA_256-001</td>
<td>Photography II</td>
<td>W2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VISA_269-001</td>
<td>Strategies in Digital Art: Virtual Worlds</td>
<td>W2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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. This course is a prerequisite for STAT 204 or THTR 204. [3-0-0]. Prerequisite: STAT 104 recommended. Equivalency: STAT 204.

Living experimental 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 STAT 204 or THTR 204. [3-0-0]. Prerequisite: STAT 104 recommended. Equivalency: THTR 204.

Explores and contrasts approaches and tools from mainstream science and humanities 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: STAT 200 recommended.

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: SUSI 200.

An introduction to acting techniques pertinent 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.

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.

Using experimental 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 STAT 204. Prerequisite: SUSI 304 recommended. Equivalency: SUSI 204.

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.

Explores world theatre and cultural performance traditions and practices from South, Southeast and East 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 WRLD 304. Prerequisite: Third-year standing. Equivalency: WRLD 304.

Introduction to digital media and contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0]. Prerequisite: VISA 106.

Exploration of world theatre and cultural performance traditions and practices from South, Southeast and East 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 WRLD 304. Prerequisite: Third-year standing. Equivalency: WRLD 304.

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. [3-3-0]. Prerequisite: 6 credits of Creative Writing and/or Theatre. Credit will be granted for only one of THTR 384 or WRLD 304. Prerequisite: Third-year standing. Equivalency: WRLD 304.

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.

Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0]. Prerequisite: VISA 106.

Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0]. Prerequisite: VISA 106.

Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0]. Prerequisite: VISA 106.

Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0]. Prerequisite: VISA 106.

Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0]. Prerequisite: VISA 106.

Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0]. Prerequisite: VISA 106.

Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0]. Prerequisite: VISA 106.

Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0]. Prerequisite: VISA 106.

Expands on digital media in contemporary art practices through computer imaging, animation, and other emerging digital technologies. [1-3-0]. Prerequisite: VISA 106.

Introduces core principles and techniques required for the creation of two-dimensional digital animation projects. [3-3-0]. Prerequisite: VISA 108.

Introduces core principles and techniques required for the creation of two-dimensional digital animation projects. [3-3-0]. Prerequisite: VISA 108.

Introduces core principles and techniques required for the creation of two-dimensional digital animation projects. [3-3-0]. Prerequisite: VISA 108.

Critical understanding and research-creation of virtual environments employing non-linear storytelling, media aesthetics, modeling, animation, interaction design and coding using 3D modeling software. [3-3-0]. Prerequisite: VISA 108.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Level</th>
<th>Days</th>
<th>Time</th>
<th>Location</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>VISA_O 271-101</td>
<td>VISA_O 101 Video II</td>
<td>W2</td>
<td></td>
<td>1:00 p.m. - 5:00 p.m.</td>
<td>In Person Learning</td>
<td>Fri</td>
</tr>
<tr>
<td>VISA_O 283-001</td>
<td>VISA_O 001 Drawing IV</td>
<td>W2</td>
<td></td>
<td>2:00 p.m. - 6:00 p.m.</td>
<td>In Person Learning</td>
<td>Mon</td>
</tr>
<tr>
<td>VISA_O 300_X_101</td>
<td>VISA_O X_X_101 Advanced Practice in Painting</td>
<td>W2</td>
<td></td>
<td>To present students' abilities in mark making, image production, and expression of meaning through drawing. Emphasis on developing personal visual language. [2-2-0] Prerequisite: VISA 282.</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></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></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></td>
<td>Opportunities 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 336_C_101</td>
<td>VISA_O C_C_101 Advanced Practice in Printmaking</td>
<td>W3</td>
<td></td>
<td>Advanced studio course in digital- and film-based photography. Emphasis on photography as an artistic tool. No more than 12 credits in total will be granted for VISA 382, CULT 382, or any combination thereof. Prerequisite: VISA 265. or permission of the instructor. Equivalency: CULT 3762.</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></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, CULT 382, or any combination thereof. Prerequisite: One of VISA 206, VISA 266, VISA 268, VISA 269, VISA 261, or the permission of the instructor. Equivalency: CULT 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></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, CULT 382, or any combination thereof. Prerequisite: One of VISA 206, VISA 266, VISA 268, VISA 269, VISA 261, or the permission of the instructor. Equivalency: CULT 382.</td>
<td>Studio</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>VISA_O 483-001</td>
<td>VISA_O 001 Advanced Art Practices II</td>
<td>W2</td>
<td></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></td>
<td>Visiting Undergraduate Research Students</td>
<td>Lecture</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>WRLD_O 150-101</td>
<td>WRLD_O 101 Introduction to Intercultural Communication</td>
<td>W2</td>
<td></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 practical 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></td>
<td>Introduction to basic Japanese language and to key intercultural and sociolinguistic concepts in Japanese-speaking environments. Not available to students with a CEFR 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></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>In Person Learning</td>
</tr>
<tr>
<td>WRLD_O 304-001</td>
<td>WRLD_O 101 World Theatre and Cultural Performance</td>
<td>W2</td>
<td></td>
<td>Explorations of world theatre and cultural performance traditions and practices from South, Southeast and East 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 WRLD 304. Prerequisite: Third-year standing. Equivalency: THTR 304.</td>
<td>Lecture</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>WRLD_O 310-001</td>
<td>WRLD_O 001 Mythologies in Motion</td>
<td>W2</td>
<td></td>
<td>Literary study of a selection of transnational 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 Moghuls</td>
<td>W2</td>
<td></td>
<td>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 role of Hindus, Khiljis, and Sikhs, 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 ARTH 375, DHUJ 375, or WRLD 375. Prerequisite: Third-year standing. Equivalency: ARTH 375, DHUJ 375.</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></td>
<td>Experiential learning course combining introduction to intercultural American literature and the literary study of cross-cultural migration narratives. Prerequisite: Third-year standing.</td>
<td>Lecture</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>WRLD_O 428-101</td>
<td>WRLD_O 101 Anti-Semitism: Then and Now</td>
<td>W2</td>
<td></td>
<td>An overview of social and cultural anthropology, its origins, its distinctive methods and concepts, and its role in the contemporary world. A critical examination of human diversity and social and cultural differences are produced and shared by local and global patterns. [3-0-0] Prerequisite: Introductory level.</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></td>
<td>An overview of social and cultural anthropology, its origins, its distinctive methods and concepts, and its role in the contemporary world. A critical examination of human diversity and social and cultural differences are produced and shared by local and global patterns. [3-0-0] Prerequisite: Introductory level.</td>
<td>Lecture</td>
<td>Online Learning</td>
</tr>
<tr>
<td>ANTH_O 100-002</td>
<td>ANTH_O 002 Introduction to Cultural Anthropology</td>
<td>W1</td>
<td></td>
<td>An overview of social and cultural anthropology, its origins, its distinctive methods and concepts, and its role in the contemporary world. A critical examination of human diversity and social and cultural differences are produced and shared by local and global patterns. [3-0-0] Prerequisite: Introductory level.</td>
<td>Lecture</td>
<td>Online Learning</td>
</tr>
<tr>
<td>ANTH_O 100-003</td>
<td>ANTH_O 003 Introduction to Cultural Anthropology</td>
<td>W1</td>
<td></td>
<td>An overview of social and cultural anthropology, its origins, its distinctive methods and concepts, and its role in the contemporary world. A critical examination of human diversity and social and cultural differences are produced and shared by local and global patterns. [3-0-0] Prerequisite: Introductory level.</td>
<td>Lecture</td>
<td>Online Learning</td>
</tr>
<tr>
<td>ANTH_O 103-001</td>
<td>ANTH_O 001 Introduction to World Archaeology</td>
<td>W1</td>
<td></td>
<td>Peoples and cultures of prehistory. Examines archaeologists and their work in archaeological sites around the world, from the earliest evidence of humanized and hunting and gathering culture, to the emergence of civilization and state-level societies. [3-0-0] Prerequisite: Introductory level.</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></td>
<td>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: Introductory level.</td>
<td>Lecture</td>
<td>In Person Learning</td>
</tr>
</tbody>
</table>
Examines challenges and opportunities for archaeologists in the 21st century, including tensions in the discipline, the complex 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.

ANTH_O 218-001
ANTH_O 001
Tourism, Desire and Difference
WS
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.

ANTH_O 227-001
ANTH_O 001
Introduction to Medical Anthropology
WS
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.

ANTH_O 252-001
ANTH_O 001
Visual Anthropology and New Media
WS
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] Prerequisite: Second-year standing.

ANTH_O 270-001
ANTH_O 001
Phonology
WS
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.

ANTH_O 307-001
ANTH_O 001
Ethnographic Methods: Acquiring Research Skills
WS
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 200, ANTH 252. Third-year standing.

ANTH_O 313-001
ANTH_O 001
Anthropology of Gender
WS
Nature of gender relations, their social and cultural expression, and theories of gender inequality drawn from anthropological research. [3-0-0] Prerequisite: ANTH 100.

ANTH_O 345-001
ANTH_O 001
Living in the Anthropocene
WS
The human impact on the environment is now so far-reaching that the term Anthropocene is being used to refer to the current geological epoch. An examination of the defining characteristics of this 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 490H1. [3-0-0] Prerequisite: One of ANTH 100, SUST 104. Third-year standing.

ANTH_O 373-001
ANTH_O 001
The Acquisition of Language and Cultural Practice
WS
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.

ANTH_O 400-001
ANTH_O 001
History of Anthropology
WS
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.

ANTH_O 409-D_001
ANTH_O D_001
Topics in Applied Anthropology
WS
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.

ANTH_O 429-001
ANTH_O 001
Global Health and International Development
WS
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 272 is strongly recommended. [3-0-0] Prerequisite: ANTH 100. and third-year standing.

ANTH_O 445-001
ANTH_O 101
Political Ecology
WS
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.

ANTH_O 473-001
ANTH_O 001
Endangered Language Documentation and Revital
WS
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 480. [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.

APSC_O 107-001
APSC_O 001
Introduction to Applied Science Co-op
WS-2
An introduction to Applied Science Co-op including: completion of preemployment workshops, career skills workshops, networking opportunities, interview training, individual coaching sessions, and job search skills. Restricted to students meeting the requirements of the Faculty of Applied Science Co-operative Education Program.

APSC_O 110-71C
APSC_O 71C
Co-operative Education Work Term I
WS
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_O 110-71E
APSC_O 71E
Co-operative Education Work Term I
WS
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.
In Person Learning
Engineering Analysis I
L2H
Lecture
Wed Fri
5:00 p.m. - 6:00 p.m.

In Person Learning
Laboratory
In Person Learning
Discussion
Fundamentals of Sustainable Engineering Design
In Person Learning
In Person Learning
W1
12:30 p.m. - 2:00 p.m.
5:00 p.m. - 6:30 p.m.
Discussion
4:00 p.m. - 5:00 p.m.
W1
2:00 p.m. - 3:00 p.m.

Mon Wed
Fundamentals of Sustainable Engineering Design
Laboratory
In Person Learning
202
2:00 p.m. - 3:30 p.m.

Tue Thu
Fundamentals of Sustainable Engineering Design
Arranged
4:00 p.m. - 6:00 p.m.
T1H
Thu
Tue

Lecture
W1
7HF Co-operative Education Work Term I WS
In Person Learning
7TF Co-operative Education Work Term I WS
Experiential

In Person Learning
Arranged

APSC_O 110-71F APSC_O 71F Co-operative Education Work Term I WS
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

APSC_O 110-71M APSC_O 71M Co-operative Education Work Term I WS
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] Lecture
In Person Learning
Thu Tu
12:30 p.m. - 2:00 p.m.
2:00 p.m. - 3:30 p.m.

APSC_O 169-201 APSC_O 201 Fundamentals of Sustainable Engineering Design WS
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] Lecture
In Person Learning
Tue Thu

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] Lecture
In Person Learning
Tue Thu
8:00 a.m. - 10:00 a.m.

APSC_O 169-21A APSC_O 21A Fundamentals of Sustainable Engineering Design WS
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] Laboratory
In Person Learning
Thu
8:00 a.m. - 10:00 a.m.

APSC_O 169-21B APSC_O 21B Fundamentals of Sustainable Engineering Design WS
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] Laboratory
In Person Learning
Thu
8:00 a.m. - 10:00 a.m.

APSC_O 169-21C APSC_O 21C Fundamentals of Sustainable Engineering Design WS
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] Laboratory
In Person Learning
Thu
8:00 a.m. - 10:00 a.m.

APSC_O 169-22D APSC_O 22D Fundamentals of Sustainable Engineering Design WS
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] Laboratory
In Person Learning
Fri
10:00 a.m. - 12:00 p.m.

APSC_O 169-22E APSC_O 22E Fundamentals of Sustainable Engineering Design WS
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] Laboratory
In Person Learning
Mon
2:00 p.m. - 4:00 p.m.

APSC_O 169-22F APSC_O 22F Fundamentals of Sustainable Engineering Design WS
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] Laboratory
In Person Learning
Wed
4:00 p.m. - 6:00 p.m.

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

APSC_O 169-22H APSC_O 22H Fundamentals of Sustainable Engineering Design WS
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] Laboratory
In Person Learning
Mon
8:00 a.m. - 10:00 a.m.

APSC_O 169-22I APSC_O 22I Fundamentals of Sustainable Engineering Design WS
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] Laboratory
In Person Learning
Fri
8:00 a.m. - 10:00 a.m.

APSC_O 169-22J APSC_O 22J Fundamentals of Sustainable Engineering Design WS
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] Laboratory
In Person Learning
Wed
4:00 p.m. - 6:00 p.m.

APSC_O 169-22K APSC_O 22K Fundamentals of Sustainable Engineering Design WS
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] Laboratory
In Person Learning
Thu
4:00 p.m. - 6:00 p.m.

APSC_O 169-22L APSC_O 22L Fundamentals of Sustainable Engineering Design WS
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] Laboratory
In Person Learning
Tue
10:00 a.m. - 12:00 p.m.

APSC_O 172-201 APSC_O 201 Engineering Analysis I WS
Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Lecture
In Person Learning
Thu Tu
6:30 p.m. - 8:00 p.m.

APSC_O 172-202 APSC_O 202 Engineering Analysis I WS
Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Lecture
In Person Learning
Wed Fri
12:30 p.m. - 2:00 p.m.

APSC_O 172-21A APSC_O 21A Engineering Analysis I WS
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_O 172-21B APSC_O 21B Engineering Analysis I WS
Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Discussion
In Person Learning
Thu
11:00 a.m. - 12:00 p.m.

APSC_O 172-21C APSC_O 21C Engineering Analysis I WS
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_O 172-21D APSC_O 21D Engineering Analysis I WS
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_O 172-21E APSC_O 21E Engineering Analysis I WS
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_O 172-21F APSC_O 21F Engineering Analysis I WS
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_O 172-21G APSC_O 21G Engineering Analysis I WS
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_O 172-21H APSC_O 21H Engineering Analysis I WS
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_O 172-21I APSC_O 21I Engineering Analysis I WS
Functions, limits, differentiation, applications of derivatives, integration, applications of definite integrals. [3-0-1] Discussion
In Person Learning
Tue
5:00 p.m. - 6:00 p.m.

APSC_O 176-201 APSC_O 201 Engineering Communication WS
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_O 176-202 APSC_O 202 Engineering Communication WS
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 Thu
2:00 p.m. - 3:30 p.m.
**APSC 176-103** APSC 180-T1J
103 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 Tue Thu 11:00 a.m. - 12:30 p.m.

**APSC 176-104** APSC 180-T1I
104 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 176-105** APSC 180-T1F
105 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 Wed Fri 3:30 p.m. - 5:00 p.m.

**APSC 176-106** APSC 180-T1D
106 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 Tue Fri 11:00 a.m. - 12:30 p.m.

**APSC 176-107** APSC 180-T1B
107 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 Tue Thu 9:30 a.m. - 11:00 a.m.

**APSC 176-108** APSC 180-T1A
108 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 Wed Fri 3:30 p.m. - 5:00 p.m.

**APSC 176-109** APSC 180-202
109 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 Wed Fri 3:30 p.m. - 5:00 p.m.

**APSC 176-110** APSC 180-110
110 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 Wed Fri 9:30 a.m. - 11:00 a.m.

**APSC 176-111** APSC 180-108
111 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 Tue Thu 9:30 a.m. - 11:00 a.m.

**APSC 176-112** APSC 180-105
112 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 Tue Thu 3:30 p.m. - 5:00 p.m.

**APSC 179-101** APSC 180-103
101 Linear Algebra for Engineers W1 Systems of linear equations, Gaussian elimination, engineering application of linear algebra, matrix operations, special matrices, determinants, vector space, orthogonality, eigenvalues and eigenvectors, linear transformation. [3-0-0] Lecture In Person Learning Mon Wed 8:00 a.m. - 9:30 a.m.

**APSC 179-102** APSC 180-102
102 Linear Algebra for Engineers W1 Systems of linear equations, Gaussian elimination, engineering application of linear algebra, matrix operations, special matrices, determinants, vector space, orthogonality, eigenvalues and eigenvectors, linear transformation. [3-0-0] Lecture In Person Learning Tue Thu 8:00 a.m. - 9:30 a.m.

**APSC 180-201** APSC 180-101
201 Statics W1 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. Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

**APSC 180-202** APSC 180-102
202 Statics W1 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. Lecture In Person Learning Tue Thu 5:00 p.m. - 6:30 p.m.

**APSC 180-T1A** APSC 180-111
T1A Statics W1 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 Mon 2:00 p.m. - 4:00 p.m.

**APSC 180-T1B** APSC 180-112
T1B Statics W1 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 Fri 10:00 a.m. - 12:00 p.m.

**APSC 180-T1C** APSC 180-201
T1C Statics W1 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 2:00 p.m. - 4:00 p.m.

**APSC 180-T1D** APSC 180-202
T1D Statics W1 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 Fri 12:00 p.m. - 2:00 p.m.

**APSC 180-T1E** APSC 180-111
T1E Statics W1 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 Thu 2:00 p.m. - 4:00 p.m.

**APSC 180-T1F** APSC 180-112
T1F Statics W1 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 Thu 2:00 p.m. - 4:00 p.m.

**APSC 180-T1G** APSC 180-201
T1G Statics W1 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 Mon 2:00 p.m. - 4:00 p.m.

**APSC 180-T1H** APSC 180-202
T1H Statics W1 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 Thu 10:00 a.m. - 12:00 p.m.

**APSC 180-T1I** APSC 180-111
T1I Statics W1 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 12:00 p.m. - 2:00 p.m.

**APSC 180-T1J** APSC 180-112
T1J Statics W1 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 Mon 8:00 a.m. - 10:00 a.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Type</th>
<th>Credits</th>
<th>Title</th>
<th>Activities</th>
<th>Schedule</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>APSC_180-T1K</td>
<td>Lecture</td>
<td>3</td>
<td>Statics</td>
<td>Discussion</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4:00 p.m. - 6:00 p.m.</td>
</tr>
<tr>
<td>APSC_180-T1I</td>
<td>Lecture</td>
<td>3</td>
<td>Matter and Energy I</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>APSC_180-T1J</td>
<td>Lecture</td>
<td>3</td>
<td>Matter and Energy I</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2:00 p.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>APSC_180-T1A</td>
<td>Laboratory</td>
<td>3</td>
<td>Matter and Energy I</td>
<td>Laboratory</td>
<td>In Person Learning</td>
<td>Wed (Alternate weeks)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>APSC_180-T1B</td>
<td>Lecture</td>
<td>3</td>
<td>Matter and Energy I</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed (Alternate weeks)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>APSC_180-T1C</td>
<td>Lecture</td>
<td>3</td>
<td>Matter and Energy I</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed (Alternate weeks)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>APSC_180-T1D</td>
<td>Lecture</td>
<td>3</td>
<td>Matter and Energy I</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed (Alternate weeks)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>APSC_180-T1E</td>
<td>Lecture</td>
<td>3</td>
<td>Matter and Energy I</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue (Alternate weeks)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>APSC_180-T1F</td>
<td>Lecture</td>
<td>3</td>
<td>Matter and Energy I</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue (Alternate weeks)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>APSC_180-T1G</td>
<td>Lecture</td>
<td>3</td>
<td>Matter and Energy I</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue (Alternate weeks)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>APSC_180-T1H</td>
<td>Lecture</td>
<td>3</td>
<td>Matter and Energy I</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Thu (Alternate weeks)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12:00 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>APSC_180-T1I</td>
<td>Lecture</td>
<td>3</td>
<td>Matter and Energy I</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Thu (Alternate weeks)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12:00 p.m. - 2:00 p.m.</td>
</tr>
</tbody>
</table>

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 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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Instructor</th>
<th>Type</th>
<th>Title</th>
<th>Lecture Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>APSC 246-101</td>
<td>APSC_O</td>
<td>W1</td>
<td>System Dynamics</td>
<td>101</td>
</tr>
<tr>
<td>APSC 246-102</td>
<td>APSC_O</td>
<td>W1</td>
<td>System Dynamics</td>
<td>102</td>
</tr>
<tr>
<td>APSC 246-T1A</td>
<td>APSC_O</td>
<td>W1</td>
<td>System Dynamics</td>
<td>T1A</td>
</tr>
<tr>
<td>APSC 246-T1B</td>
<td>APSC_O</td>
<td>W1</td>
<td>System Dynamics</td>
<td>T1B</td>
</tr>
<tr>
<td>APSC 246-T1C</td>
<td>APSC_O</td>
<td>W1</td>
<td>System Dynamics</td>
<td>T1C</td>
</tr>
<tr>
<td>APSC 246-T1D</td>
<td>APSC_O</td>
<td>W1</td>
<td>System Dynamics</td>
<td>T1D</td>
</tr>
<tr>
<td>APSC 246-T1E</td>
<td>APSC_O</td>
<td>W1</td>
<td>System Dynamics</td>
<td>T1E</td>
</tr>
<tr>
<td>APSC 246-T1F</td>
<td>APSC_O</td>
<td>W1</td>
<td>System Dynamics</td>
<td>T1F</td>
</tr>
<tr>
<td>APSC 246-T1G</td>
<td>APSC_O</td>
<td>W1</td>
<td>System Dynamics</td>
<td>T1G</td>
</tr>
<tr>
<td>APSC 246-T1H</td>
<td>APSC_O</td>
<td>W1</td>
<td>System Dynamics</td>
<td>T1H</td>
</tr>
<tr>
<td>APSC 246-301</td>
<td>APSC_O</td>
<td>W1</td>
<td>In Person Learning</td>
<td></td>
</tr>
</tbody>
</table>
APSC 0 248-T1B APSC_O T1B Engineering Analysis III WS Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorem; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.

APSC 0 248-T1C APSC_O T1C Engineering Analysis III WS Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorem; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.

APSC 0 248-T1D APSC_O T1D Engineering Analysis III WS Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorem; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.

APSC 0 248-T1E APSC_O T1E Engineering Analysis III WS Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorem; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.

APSC 0 248-T1F APSC_O T1F Engineering Analysis III WS Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorem; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.

APSC 0 248-T1G APSC_O T1G Engineering Analysis III WS Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorem; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.

APSC 0 248-T1H APSC_O T1H Engineering Analysis III WS Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorem; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.

APSC 0 248-T1I APSC_O T1I Engineering Analysis III WS Multivariable functions, Lagrange multipliers; line integrals, surface integrals, volume integrals; divergence, curl, gradient; divergence and Stokes' theorem; engineering applications of vector field theory. Introduction to partial differential equations. [3-0-1] Prerequisite: APSC 173.

APSC 0 252-201 APSC_O BI1 Thermodynamics WS 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 Wed Mon Wed 9:30 a.m. - 11:00 a.m.

APSC 0 252-202 APSC_O T2A Thermodynamics WS 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 4:00 p.m. - 5:00 p.m.

APSC 0 252-203 APSC_O T2B Thermodynamics WS 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 Tue 10:00 a.m. - 11:00 a.m.

APSC 0 252-204 APSC_O T2C Thermodynamics WS 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. - 9:00 a.m.

APSC 0 252-205 APSC_O T2D Thermodynamics WS 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. - 9:00 a.m.

APSC 0 252-206 APSC_O T2E Thermodynamics WS 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.

APSC 0 252-207 APSC_O T2F Thermodynamics WS 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.

APSC 0 252-208 APSC_O T2G Thermodynamics WS 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. - 9:00 a.m.

APSC 0 252-209 APSC_O T2H Thermodynamics WS 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.

APSC 0 252-210 APSC_O T2I Thermodynamics WS 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.

APSC 0 254-201 APSC_O L1B 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. Lecture In Person Learning Tue Thu 8:00 a.m. - 9:30 a.m.

APSC 0 254-202 APSC_O L1C 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. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

APSC 0 254-211 APSC_O L1A 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 Mon (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC 0 254-212 APSC_O L1B 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 Mon (Alternate weeks) 12:00 p.m. - 2:00 p.m.

APSC 0 254-213 APSC_O L1C 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 0 254-214 APSC_O L1D 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 0 254-215 APSC_O L1E 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) 2:00 p.m. - 4:00 p.m.

APSC 0 254-216 APSC_O L1F 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) 2:00 p.m. - 4:00 p.m.

APSC 0 254-217 APSC_O L1G 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 0 254-218 APSC_O L1H 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.
In Person Learning
Laboratory

Numerical Methods for Analysis
Wed
In Person Learning
Laboratory

Instrumentation and Data Analysis
101
Lecture
In Person Learning

Discussion
5:00 p.m. - 6:00 p.m.

Laboratory

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

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

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

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

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

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

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory

Laboratory
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Section</th>
<th>Title</th>
<th>Description</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>APSC 256-L2G</td>
<td>L1G</td>
<td>Numerical Methods for Analysis</td>
<td>Introduction to numerical modeling 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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 256-L2H</td>
<td>L1H</td>
<td>Numerical Methods for Analysis</td>
<td>Introduction to numerical modeling 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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 256-L2I</td>
<td>L1I</td>
<td>Numerical Methods for Analysis</td>
<td>Introduction to numerical modeling 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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 256-L2J</td>
<td>L1J</td>
<td>Numerical Methods for Analysis</td>
<td>Introduction to numerical modeling 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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 256-L2K</td>
<td>L1K</td>
<td>Numerical Methods for Analysis</td>
<td>Introduction to numerical modeling 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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 256-L2L</td>
<td>L1L</td>
<td>Numerical Methods for Analysis</td>
<td>Introduction to numerical modeling 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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 256-L2M</td>
<td>L1M</td>
<td>Numerical Methods for Analysis</td>
<td>Introduction to numerical modeling 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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 256-L2N</td>
<td>L1N</td>
<td>Numerical Methods for Analysis</td>
<td>Introduction to numerical modeling 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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 259-201</td>
<td>201</td>
<td>Materials Science I</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>
<td>WS</td>
<td>Lecture</td>
</tr>
<tr>
<td>APSC 259-202</td>
<td>202</td>
<td>Materials Science I</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>
<td>WS</td>
<td>Lecture</td>
</tr>
<tr>
<td>APSC 259-22A</td>
<td>22A</td>
<td>Materials Science I</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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 259-22B</td>
<td>22B</td>
<td>Materials Science I</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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 259-22C</td>
<td>22C</td>
<td>Materials Science I</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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 259-22D</td>
<td>22D</td>
<td>Materials Science I</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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 259-22E</td>
<td>22E</td>
<td>Materials Science I</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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 259-22F</td>
<td>22F</td>
<td>Materials Science I</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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 259-22G</td>
<td>22G</td>
<td>Materials Science I</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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 259-22H</td>
<td>22H</td>
<td>Materials Science I</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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>APSC 259-22I</td>
<td>22I</td>
<td>Materials Science I</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>
<td>WS</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Schedule</td>
<td>Credits</td>
<td>Prerequisite</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
<td>----------</td>
<td>---------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>APSC 259-L2I</td>
<td>Materials Science I</td>
<td>L2I</td>
<td>3</td>
<td>APSC 182, APSC 183.</td>
<td></td>
</tr>
<tr>
<td>APSC 259-L2K</td>
<td>Materials Science I</td>
<td>L2K</td>
<td>3</td>
<td>APSC 182, APSC 183.</td>
<td></td>
</tr>
<tr>
<td>APSC 259-L2L</td>
<td>Materials Science I</td>
<td>L2L</td>
<td>3</td>
<td>APSC 182, APSC 183.</td>
<td></td>
</tr>
<tr>
<td>APSC 259-L2M</td>
<td>Materials Science I</td>
<td>L2M</td>
<td>3</td>
<td>APSC 182, APSC 183.</td>
<td></td>
</tr>
<tr>
<td>APSC 259-L2O</td>
<td>Materials Science I</td>
<td>L2O</td>
<td>3</td>
<td>APSC 182, APSC 183.</td>
<td></td>
</tr>
<tr>
<td>APSC 259-L2P</td>
<td>Materials Science I</td>
<td>L2P</td>
<td>3</td>
<td>APSC 182, APSC 183.</td>
<td></td>
</tr>
<tr>
<td>APSC 259-L2Q</td>
<td>Materials Science I</td>
<td>L2Q</td>
<td>3</td>
<td>APSC 182, APSC 183.</td>
<td></td>
</tr>
<tr>
<td>APSC 259-L2R</td>
<td>Materials Science I</td>
<td>L2R</td>
<td>3</td>
<td>APSC 182, APSC 183.</td>
<td></td>
</tr>
<tr>
<td>APSC 259-L2S</td>
<td>Materials Science I</td>
<td>L2S</td>
<td>3</td>
<td>APSC 182, APSC 183.</td>
<td></td>
</tr>
<tr>
<td>APSC 259-L2T</td>
<td>Materials Science I</td>
<td>L2T</td>
<td>3</td>
<td>APSC 182, APSC 183.</td>
<td></td>
</tr>
<tr>
<td>APSC 259-L2U</td>
<td>Materials Science I</td>
<td>L2U</td>
<td>3</td>
<td>APSC 182, APSC 183.</td>
<td></td>
</tr>
<tr>
<td>APSC 310-71C</td>
<td>Co-operative Education Work Term III</td>
<td>7IC</td>
<td>3</td>
<td>APSC 210.</td>
<td></td>
</tr>
<tr>
<td>APSC 310-71E</td>
<td>Co-operative Education Work Term III</td>
<td>7IE</td>
<td>3</td>
<td>APSC 210.</td>
<td></td>
</tr>
<tr>
<td>APSC 310-71M</td>
<td>Co-operative Education Work Term III</td>
<td>7IM</td>
<td>3</td>
<td>APSC 210.</td>
<td></td>
</tr>
<tr>
<td>APSC 310-71C</td>
<td>Co-operative Education Work Term IV</td>
<td>7IC</td>
<td>3</td>
<td>APSC 310.</td>
<td></td>
</tr>
<tr>
<td>APSC 310-71E</td>
<td>Co-operative Education Work Term IV</td>
<td>7IE</td>
<td>3</td>
<td>APSC 310.</td>
<td></td>
</tr>
<tr>
<td>APSC 310-71F</td>
<td>Co-operative Education Work Term IV</td>
<td>7IF</td>
<td>3</td>
<td>APSC 310.</td>
<td></td>
</tr>
</tbody>
</table>
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 310.

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 410.

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 411.

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 412.

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 413.

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 414.

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 415.

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 416.

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 417.

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 418.

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 419.

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 420.

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 421.

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 422.

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 423.

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 424.

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 425.

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 426.

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 427.

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 428.

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 429.

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 430.

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 431.

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 432.

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 433.

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 434.

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 435.

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 436.

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 437.

LEARN MORE ABOUT ONLINE LEARNING AT UNIVERSITY OF BRITISH COLUMBIA.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Type</th>
<th>Credits</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTR_110-001</td>
<td>Astrophysics I</td>
<td>Lecture</td>
<td>3</td>
<td>WS</td>
<td>Physical principles of the celestial sphere, laws of motion, light, and optics; observational techniques using earth-based telescopes, artificial satellites, and inter-planetary probes; planets, moons, and smaller bodies in our solar system. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 110, 111, 112. [3-3*-1] Prerequisite: One of Foundations of Mathematics 12, Pre-Calculus 12, Principles of Mathematics 11; and Physics 11.</td>
</tr>
<tr>
<td>ASTR_110-001</td>
<td>Astrophysics I</td>
<td>Laboratory</td>
<td>3</td>
<td>WS</td>
<td>Physical principles of the celestial sphere, laws of motion, light, and optics; observational techniques using earth-based telescopes, artificial satellites, and inter-planetary probes; planets, moons, and smaller bodies in our solar system. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 110, 111, 112. [3-3*-1] Prerequisite: One of Foundations of Mathematics 12, Pre-Calculus 12, Principles of Mathematics 11; and Physics 11.</td>
</tr>
<tr>
<td>ASTR_110-001</td>
<td>Astrophysics I</td>
<td>Seminar</td>
<td>3</td>
<td>WS</td>
<td>General principles of the celestial sphere, laws of motion, light, and optics; observational techniques using earth-based telescopes, artificial satellites, and interplanetary probes; planets, moons, and smaller bodies; some observational work. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 110, 111, 112. [3-3*-1] Prerequisite: One of Foundations of Mathematics 12, Pre-Calculus 12, Principles of Mathematics 11; and Physics 11.</td>
</tr>
<tr>
<td>ASTR_111-001</td>
<td>Astronomy I</td>
<td>Lecture</td>
<td>3</td>
<td>WS</td>
<td>General principles of the celestial sphere, laws of motion, light, and optics; observational techniques using earth-based telescopes, artificial satellites, and interplanetary probes; planets, moons, and smaller bodies; some observational work. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 110, 111, 112. [3-3*-1] Prerequisite: Foundations of Mathematics 11 is strongly recommended.</td>
</tr>
<tr>
<td>ASTR_111-001</td>
<td>Astronomy I</td>
<td>Laboratory</td>
<td>3</td>
<td>WS</td>
<td>General principles of the celestial sphere, laws of motion, light, and optics; observational techniques using earth-based telescopes, artificial satellites, and interplanetary probes; planets, moons, and smaller bodies; some observational work. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 110, 111, 112. [3-3*-1] Prerequisite: Foundations of Mathematics 11 is strongly recommended.</td>
</tr>
<tr>
<td>ASTR_111-001</td>
<td>Astronomy I</td>
<td>Seminar</td>
<td>3</td>
<td>WS</td>
<td>General principles of the celestial sphere, laws of motion, light, and optics; observational techniques using earth-based telescopes, artificial satellites, and interplanetary probes; planets, moons, and smaller bodies; some observational work. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 110, 111, 112. [3-3*-1] Prerequisite: Foundations of Mathematics 11 is strongly recommended.</td>
</tr>
<tr>
<td>ASTR_111-001</td>
<td>Astronomy I</td>
<td>Laboratory</td>
<td>3</td>
<td>WS</td>
<td>General principles of the celestial sphere, laws of motion, light, and optics; observational techniques using earth-based telescopes, artificial satellites, and interplanetary probes; planets, moons, and smaller bodies; some observational work. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 110, 111, 112. [3-3*-1] Prerequisite: Foundations of Mathematics 11 is strongly recommended.</td>
</tr>
<tr>
<td>ASTR_111-001</td>
<td>Astronomy I</td>
<td>Lecture</td>
<td>3</td>
<td>WS</td>
<td>General principles of the celestial sphere, laws of motion, light, and optics; observational techniques using earth-based telescopes, artificial satellites, and interplanetary probes; planets, moons, and smaller bodies; some observational work. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 110, 111, 112. [3-3*-1] Prerequisite: Foundations of Mathematics 11 is strongly recommended.</td>
</tr>
<tr>
<td>ASTR_111-001</td>
<td>Astronomy I</td>
<td>Laboratory</td>
<td>3</td>
<td>WS</td>
<td>General principles of the celestial sphere, laws of motion, light, and optics; observational techniques using earth-based telescopes, artificial satellites, and interplanetary probes; planets, moons, and smaller bodies; some observational work. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 110, 111, 112. [3-3*-1] Prerequisite: Foundations of Mathematics 11 is strongly recommended.</td>
</tr>
<tr>
<td>ASTR_111-001</td>
<td>Astronomy I</td>
<td>Lecture</td>
<td>3</td>
<td>WS</td>
<td>General principles of the celestial sphere, laws of motion, light, and optics; observational techniques using earth-based telescopes, artificial satellites, and interplanetary probes; planets, moons, and smaller bodies; some observational work. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 110, 111, 112. [3-3*-1] Prerequisite: Foundations of Mathematics 11 is strongly recommended.</td>
</tr>
<tr>
<td>ASTR_111-001</td>
<td>Astronomy I</td>
<td>Laboratory</td>
<td>3</td>
<td>WS</td>
<td>General principles of the celestial sphere, laws of motion, light, and optics; observational techniques using earth-based telescopes, artificial satellites, and interplanetary probes; planets, moons, and smaller bodies; some observational work. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 110, 111, 112. [3-3*-1] Prerequisite: Foundations of Mathematics 11 is strongly recommended.</td>
</tr>
<tr>
<td>ASTR_111-001</td>
<td>Astronomy I</td>
<td>Lecture</td>
<td>3</td>
<td>WS</td>
<td>General principles of the celestial sphere, laws of motion, light, and optics; observational techniques using earth-based telescopes, artificial satellites, and interplanetary probes; planets, moons, and smaller bodies; some observational work. Three-hour biweekly lab; satisfies 3 credits of science lab requirement for B.A. graduation. Credit will be granted for only one of ASTR 110, 111, 112. [3-3*-1] Prerequisite: Foundations of Mathematics 11 is strongly recommended.</td>
</tr>
</tbody>
</table>
ASTR_O 501-001

001

ASTR_O

Astrophysical Processes

WS

Thermodynamics, atomic and molecular spectra, ionization and excitation, radiative transport, line and continuum opacities. Basic particle and fluid dynamics of stellar and gaseous systems in astrophysics. Gravitational dynamics. Credit will be granted for only one of ASTR 401 or ASTR 501.[3-0-0]

Lecture

In Person Learning

Mon Wed

2:00 p.m. - 3:30 p.m.

BIOC_O 211-001

001

Chemical and Biochemical Analysis

WS

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 CHEM 211 or BIOC 211.[3-1-0]

Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122.

Lecture

In Person Learning

Wed Fri

8:00 a.m. - 9:30 a.m.

BIOC_O 211-101

001

Chemical and Biochemical Analysis

WS

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 CHEM 211 or BIOC 211.[3-1-0]

Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122.

Laboratory

In Person Learning

Tue

5:00 p.m. - 6:00 p.m.

BIOC_O 304-001

001

Molecular Biochemistry I

WS

Principles of thermodynamics and reaction kinetics in biochemistry. Acid-base biochemistry. Structure and function of lipids, amino acids, proteins, carbohydrates, nucleotides, and nucleic acids. Enzyme kinetics. Credit will only be granted for one of BIOC 304 or BIOL 311. [3-0-0]

Prerequisite: One of CHEM 204, CHEM 214.

Lecture

In Person Learning

Mon Wed

9:30 a.m. - 11:00 a.m.

BIOC_O 308-001

001

Pharmacology I

WS

Principles of pharmacology, including pharmacokinetics and pharmacodynamics of drug action, pharmacology associated with the autonomic nervous system (sympathetic and parasympathetic branches), the neuromuscular junction, the inflammatory response, chronic obstructive pulmonary diseases, peptic ulcers, and general and local anesthesia. [3-0-0]

Prerequisite: BIOL 200 and one of CHEM 204, CHEM 214.

Lecture

In Person Learning

Tue Thu

8:00 a.m. - 9:30 a.m.

BIOC_O 405-001

001

Lipids and Biomembranes

WS

Review of recent research on the structure, dynamics, and function of membranes, membrane lipids, and proteins. [3-0-0]

Prerequisite: One of BIOC 304, BIOL 311.

Lecture

In Person Learning

Tue Thu

5:00 p.m. - 6:30 p.m.

BIOC_O 406-001

001

Natural Product Biosynthesis and Synthetic Bio.: WS

Principles of origin and biosynthesis of natural products used as flavourings, commodities, and medicines. New approaches to identification, elucidation, characterization, 6 UBC’s Okanagan campus – Curriculum Proposal Form Version: Sept, 2022 and production of natural products, including: biological chemistry, omics, metabolic engineering, and synthetic biology. Credit will be granted for only one of BIOC 406, CHEM 480 or CHEM 585. [3-0-0]

Prerequisites: CHEM 204 or 214, and all of BIOC 310, CHEM 304, BIOL 319, BIOC305.

Lecture

In Person Learning

Tue Thu

9:30 a.m. - 11:00 a.m.

BIOC_O 410-001

001

Nucleic Acids - Structure and Function

WS

Chemical, physical, and biological properties of nucleic acids and their role in replication, transcription, translation, and regulation of expression of genetic material. [3-0-0]

Prerequisite: BIOL 366.

Lecture

In Person Learning

Tue Thu

9:30 a.m. - 11:00 a.m.

BIOC_O 412-001

001

Methods in Metabolomics

WS

Chemical analysis of the metabolites in biological samples: study design, sample extractions, method development and validation, targeted and untargeted experiments, data processing, isoype tracer studies, cheminformatics, compound identification, metabolic pathway and network mapping, data interpretation and presentation. Credit will be granted for only one of BIOC 412, CHEM 412 or CHEM 513. [3-0-0]

Prerequisite: One of CHEM 211, BIOC 211, and fourth-year standing in Biochemistry.

Lecture

In Person Learning

Wed Fri

11:00 a.m. - 12:30 p.m.

BIOC_O 425-001

001

Biosynthesis

WS

Biotechnological application of enzymes and whole cell catalysts for the synthesis of biofuels, pharmaceuticals, and other fine chemicals. Emphasis on enzymes used for organic synthesis, protein and metabolic engineering, and immobilization strategies. Credit will be granted for only one of BIOC 425 or CHEM 591. [3-0-0]

Prerequisite: One of BIOC 304, BIOL 311.

Lecture

In Person Learning

Mon Wed

1:00 p.m. - 2:00 p.m.

BIOC_O 448_A_001

A

A_001

Directed Studies in Biochemistry

WS

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

Arranged

BIOC_O 448_A_002

A

A_002

Directed Studies in Biochemistry

WS

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

Arranged

BIOC_O 448_A_003

A

A_003

Directed Studies in Biochemistry

WS

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

Arranged

BIOC_O 448_A_004

A

A_004

Directed Studies in Biochemistry

WS

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

Arranged

BIOC_O 448_A_005

A

A_005

Directed Studies in Biochemistry

WS

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

Arranged
<table>
<thead>
<tr>
<th>Code</th>
<th>Prefix</th>
<th>Course Title</th>
<th>Credits</th>
<th>Location</th>
<th>Delivery</th>
<th>Status</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC_448_A_006</td>
<td>A_006</td>
<td>Directed Studies in Biochemistry</td>
<td>W1</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
</tr>
<tr>
<td>BIOC_448_A_007</td>
<td>A_007</td>
<td>Directed Studies in Biochemistry</td>
<td>W1</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
</tr>
<tr>
<td>BIOC_448_A_008</td>
<td>A_008</td>
<td>Directed Studies in Biochemistry</td>
<td>W1</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
</tr>
<tr>
<td>BIOC_448_B_001</td>
<td>B_001</td>
<td>Directed Studies in Biochemistry</td>
<td>W1-2</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
</tr>
<tr>
<td>BIOC_448_B_002</td>
<td>B_002</td>
<td>Directed Studies in Biochemistry</td>
<td>W1-2</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
</tr>
<tr>
<td>BIOC_448_B_003</td>
<td>B_003</td>
<td>Directed Studies in Biochemistry</td>
<td>W1-2</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
</tr>
<tr>
<td>BIOC_448_B_004</td>
<td>B_004</td>
<td>Directed Studies in Biochemistry</td>
<td>W1-2</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
</tr>
<tr>
<td>BIOC_448_B_005</td>
<td>B_005</td>
<td>Directed Studies in Biochemistry</td>
<td>W1-2</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
</tr>
<tr>
<td>BIOC_448_B_006</td>
<td>B_006</td>
<td>Directed Studies in Biochemistry</td>
<td>W1-2</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
</tr>
<tr>
<td>BIOC_448_B_007</td>
<td>B_007</td>
<td>Directed Studies in Biochemistry</td>
<td>W1-2</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
</tr>
<tr>
<td>BIOC_448_B_008</td>
<td>B_008</td>
<td>Directed Studies in Biochemistry</td>
<td>W1-2</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
</tr>
<tr>
<td>BIOC_448_B_009</td>
<td>B_009</td>
<td>Directed Studies in Biochemistry</td>
<td>W1-2</td>
<td>Independent Study</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
</tr>
</tbody>
</table>

The credit value for this course will be determined in consultation with the student prior to the registration 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 in the Major in Biochemistry and Molecular Biology program with a minimum overall grade average of 72%, and permission of the supervisor’s department.

Directed Study in Biochemistry

W1-2

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.
<table>
<thead>
<tr>
<th>Code</th>
<th>Type</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Semester</th>
<th>Hours</th>
<th>Mode</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC_0 448-B_010</td>
<td>Directed Studies in Biochemistry</td>
<td>3-6</td>
<td>Original research work under the direction of a faculty member. A written thesis with a public presentation of the thesis in the form of a poster or a seminar is required. 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>WS-2</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_0 448-B_011</td>
<td>Directed Studies in Biochemistry</td>
<td>3-6</td>
<td>The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td>WS-2</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_0 448-C_001</td>
<td>Directed Studies in Biochemistry</td>
<td>3-6</td>
<td>The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td>WS-1</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_0 448-C_002</td>
<td>Directed Studies in Biochemistry</td>
<td>3-6</td>
<td>The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td>WS-1</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_0 448-C_003</td>
<td>Directed Studies in Biochemistry</td>
<td>3-6</td>
<td>The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td>WS-1</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_0 448-C_004</td>
<td>Directed Studies in Biochemistry</td>
<td>3-6</td>
<td>The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td>WS-1</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_0 448-C_005</td>
<td>Directed Studies in Biochemistry</td>
<td>3-6</td>
<td>The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td>WS-1</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_0 448-C_006</td>
<td>Directed Studies in Biochemistry</td>
<td>3-6</td>
<td>The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td>WS-1</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_0 448-C_007</td>
<td>Directed Studies in Biochemistry</td>
<td>3-6</td>
<td>The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td>WS-1</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_0 448-C_008</td>
<td>Directed Studies in Biochemistry</td>
<td>3-6</td>
<td>The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td>WS-1</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-001</td>
<td>Honours Thesis</td>
<td>3-6</td>
<td>The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td>WS-1</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-002</td>
<td>Honours Thesis</td>
<td>3-6</td>
<td>The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td>WS-1</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credits</td>
<td>Format</td>
<td>Schedule</td>
<td>Prerequisites</td>
<td>Notes</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------</td>
<td>---------</td>
<td>--------</td>
<td>----------</td>
<td>---------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-003</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-004</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-005</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-006</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-007</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-008</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-009</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-010</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-011</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-012</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-013</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-014</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-015</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-016</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-017</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-018</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-019</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-020</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>BIOC_O 449-021</td>
<td>Honours Thesis</td>
<td>W3-2</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td>Arranged</td>
<td></td>
</tr>
</tbody>
</table>
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.

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

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.

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

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.

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

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.

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

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.

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

Couse 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 530 or BIOC 635. Prerequisite: Admission to the Biochemistry and Molecular Biology graduate program.

Lecture In Person Learning Mon 11:00 a.m. - 2:00 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 11, or (b) CHEM 11 and one of BIOL 11, BIOL 12. Corequisite: One of CHEM 111, CHEM 121 is recommended.

Lecture In Person Learning Wed 11:00 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 11, or (b) CHEM 11 and one of BIOL 11, BIOL 12. Corequisite: One of CHEM 111, CHEM 121 is recommended.

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

Lecture 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 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]

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 12:30 p.m. - 3:30 p.m.

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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Section</th>
<th>Time</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 116</td>
<td>L06</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Tue 3:30 p.m. - 6:30 p.m.</td>
</tr>
<tr>
<td>BIOL 116</td>
<td>L07</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Tue 3:30 p.m. - 6:30 p.m.</td>
</tr>
<tr>
<td>BIOL 116</td>
<td>L08</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Wed 9:30 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>BIOL 116</td>
<td>L09</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Wed 12:30 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>BIOL 116</td>
<td>L10</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Wed 3:30 p.m. - 6:30 p.m.</td>
</tr>
<tr>
<td>BIOL 116</td>
<td>L11</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Wed 6:30 p.m. - 9:30 p.m.</td>
</tr>
<tr>
<td>BIOL 116</td>
<td>L12</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Thu 9:30 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>BIOL 116</td>
<td>L13</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Thu 12:30 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>BIOL 116</td>
<td>L14</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Thu 3:30 p.m. - 6:30 p.m.</td>
</tr>
<tr>
<td>BIOL 116</td>
<td>L15</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Thu 6:30 p.m. - 9:30 p.m.</td>
</tr>
<tr>
<td>BIOL 116</td>
<td>L16</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Fri 9:30 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>BIOL 116</td>
<td>L17</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Mon 12:30 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>CRN</td>
<td>Type</td>
<td>Section</td>
<td>Title</td>
<td>Days</td>
</tr>
<tr>
<td>------</td>
<td>------------</td>
<td>---------</td>
<td>--------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>BIOL 116-L18</td>
<td>BIOL_O</td>
<td>L18</td>
<td>Biology for Science Majors I</td>
<td>W1</td>
</tr>
<tr>
<td>BIOL 116-L19</td>
<td>BIOL_O</td>
<td>L19</td>
<td>Biology for Science Majors I</td>
<td>W1</td>
</tr>
<tr>
<td>BIOL 116-L20</td>
<td>BIOL_O</td>
<td>L20</td>
<td>Biology for Science Majors I</td>
<td>W1</td>
</tr>
<tr>
<td>BIOL 116-L21</td>
<td>BIOL_O</td>
<td>L21</td>
<td>Biology for Science Majors I</td>
<td>W1</td>
</tr>
<tr>
<td>BIOL 116-L22</td>
<td>BIOL_O</td>
<td>L22</td>
<td>Biology for Science Majors I</td>
<td>W1</td>
</tr>
<tr>
<td>BIOL 116-L23</td>
<td>BIOL_O</td>
<td>L23</td>
<td>Biology for Science Majors I</td>
<td>W1</td>
</tr>
<tr>
<td>BIOL 116-L24</td>
<td>BIOL_O</td>
<td>L24</td>
<td>Biology for Science Majors I</td>
<td>W1</td>
</tr>
<tr>
<td>BIOL 116-L25</td>
<td>BIOL_O</td>
<td>L25</td>
<td>Biology for Science Majors I</td>
<td>W1</td>
</tr>
<tr>
<td>BIOL 116-L26</td>
<td>BIOL_O</td>
<td>L26</td>
<td>Biology for Science Majors I</td>
<td>W1</td>
</tr>
<tr>
<td>BIOL 116-L27</td>
<td>BIOL_O</td>
<td>L27</td>
<td>Biology for Science Majors I</td>
<td>W1</td>
</tr>
</tbody>
</table>

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 117/112. [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) 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. 

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 enrol in BIOL 133 in their third 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. 

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 enrol 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. 

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 enrol in BIOL 133 in their third 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. 

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 enrol 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.
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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

Laboratory In Person Learning Arranged Arranged

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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

Laboratory In Person Learning Tue Thu 11:00 a.m. - 12:30 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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

Laboratory In Person Learning Tue Thu 11:00 a.m. - 12:30 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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

Laboratory In Person Learning Tue Thu 11:00 a.m. - 12:30 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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

Laboratory In Person Learning Tue Thu 11:00 a.m. - 12:30 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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

Laboratory In Person Learning Tue Thu 11:00 a.m. - 12:30 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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

Laboratory In Person Learning Tue Thu 11:00 a.m. - 12:30 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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

Laboratory In Person Learning Tue Thu 11:00 a.m. - 12:30 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 enrol in BIOC 133 in their second term. Credit will be granted for only one of BIOC 131, HES 101, or HMKN 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.

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Section</th>
<th>Title</th>
<th>Type</th>
<th>Days</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL_O</td>
<td>L03</td>
<td>Introduction to Biostatistics</td>
<td>Laboratory</td>
<td>Tue</td>
<td>8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>L04</td>
<td>Introduction to Biostatistics</td>
<td>Laboratory</td>
<td>Thu</td>
<td>8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>L05</td>
<td>Introduction to Biostatistics</td>
<td>Laboratory</td>
<td>Thu</td>
<td>9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>L06</td>
<td>Introduction to Biostatistics</td>
<td>Laboratory</td>
<td>Tue</td>
<td>8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>L07</td>
<td>Introduction to Biostatistics</td>
<td>Laboratory</td>
<td>Tue</td>
<td>8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>L08</td>
<td>Introduction to Biostatistics</td>
<td>Laboratory</td>
<td>Wed</td>
<td>8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>L09</td>
<td>Introduction to Biostatistics</td>
<td>Laboratory</td>
<td>Mon</td>
<td>2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>L10</td>
<td>Introduction to Biostatistics</td>
<td>Laboratory</td>
<td>Thu</td>
<td>8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>L11</td>
<td>Introduction to Biostatistics</td>
<td>Laboratory</td>
<td>Fri</td>
<td>8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>L12</td>
<td>Introduction to Biostatistics</td>
<td>Laboratory</td>
<td>Fri</td>
<td>8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>L13</td>
<td>Introduction to Biostatistics</td>
<td>Laboratory</td>
<td>Tue</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>BIOL_O</td>
<td>L14</td>
<td>Introduction to Biostatistics</td>
<td>Laboratory</td>
<td>Thu</td>
<td>11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>Time</td>
<td>Days</td>
<td>Course</td>
<td>Credits</td>
<td>Prerequisites</td>
<td>Laboratory</td>
</tr>
<tr>
<td>------------</td>
<td>------</td>
<td>---------------------------------</td>
<td>---------</td>
<td>---------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>12:30 p.m.</td>
<td>Tue</td>
<td>Vertebrate Structure and Function</td>
<td>3-3-0</td>
<td>Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>Mon</td>
<td>Vertebrate Structure and Function</td>
<td>3-3-0</td>
<td>Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>6:30 p.m.</td>
<td>Mon</td>
<td>Vertebrate Structure and Function</td>
<td>3-3-0</td>
<td>Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>12:30 p.m.</td>
<td>Tue</td>
<td>Vertebrate Structure and Function</td>
<td>3-3-0</td>
<td>Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>Mon</td>
<td>Vertebrate Structure and Function</td>
<td>3-3-0</td>
<td>Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>6:30 p.m.</td>
<td>Mon</td>
<td>Vertebrate Structure and Function</td>
<td>3-3-0</td>
<td>Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>12:30 p.m.</td>
<td>Tue</td>
<td>Vertebrate Structure and Function</td>
<td>3-3-0</td>
<td>Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>Mon</td>
<td>Vertebrate Structure and Function</td>
<td>3-3-0</td>
<td>Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>6:30 p.m.</td>
<td>Mon</td>
<td>Vertebrate Structure and Function</td>
<td>3-3-0</td>
<td>Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>12:30 p.m.</td>
<td>Tue</td>
<td>Vertebrate Structure and Function</td>
<td>3-3-0</td>
<td>Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>Mon</td>
<td>Vertebrate Structure and Function</td>
<td>3-3-0</td>
<td>Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>6:30 p.m.</td>
<td>Mon</td>
<td>Vertebrate Structure and Function</td>
<td>3-3-0</td>
<td>Either (a) BIOL 125 or (b) all of BIOL 117, BIOL 122.</td>
<td>Laboratory</td>
</tr>
</tbody>
</table>

**Introduction to the invertebrate phyla.**

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.

**Comparative Invertebrate Zoology**

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.

**Introductory Microbiology**

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.
**BIOL 328-L06** BIOL O Introductory Microbiology W5 Discussion 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.

**BIOL 328-L07** BIOL O Introductory Microbiology W5 Discussion 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.

**BIOL 328-L08** BIOL O Introductory Microbiology W5 Discussion 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.

**BIOL 328-L09** BIOL O Introductory Microbiology W5 Discussion 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.

**BIOL 328-L10** BIOL O Introductory Microbiology W5 Discussion 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.

**BIOL 328-L11** BIOL O Introductory Microbiology W5 Discussion 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.

**BIOL 328-L12** BIOL O Introductory Microbiology W5 Discussion 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.

**BIOL 228-XMT** BIOL O Introductory Microbiology W5 Lecture 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.

**BIOL 265-001** BIOL O Principles of Genetics W2 Lecture 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. [3-0-2] Prerequisite: BIOL 125.

**BIOL 300-001** BIOL O Advanced Cell Biology W5 Lecture Functional anatomy of structural cells and other specialized types. Structures and processes including extracellular matrix, cell adhesion, cytoskeleton, apoptosis and autophagy. Techniques for analysis of subcellular components. [3-0-0] Prerequisite: BIOL 200.

**BIOL 301-001** BIOL O Evolutionary Principles and Methods W5 Lecture An exploration of the field of Evolutionary Biology as an ongoing scientific endeavour. Current research methodologies 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.

**BIOL 308-001** BIOL O Population Biology W5 Lecture 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.

**BIOL 308-T01** BIOL O Population Biology W5 Lecture Discussion 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.

**BIOL 308-T02** BIOL O Population Biology W5 Lecture Discussion 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.

**BIOL 308-T03** BIOL O Population Biology W5 Lecture Discussion 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.

**BIOL 308-T04** BIOL O Population Biology W5 Lecture Discussion 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.

**BIOL 311-001** BIOL O Biochemistry I W3 Lecture 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 BIOL 304. [3-0-0] Prerequisite: BIOL 116 and one of CHEM 204, CHEM 214.

**BIOL 314-001** BIOL O Medical Microbiology W5 Lecture 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.

**BIOL 341-001** BIOL O Neurobiology W5 Lecture 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.

**BIOL 354-001** BIOL O Cell Physiology W5 Lecture 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.
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.

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.

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.

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.
<table>
<thead>
<tr>
<th>Code</th>
<th>Program</th>
<th>Level</th>
<th>W1-2</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL_O 440-004</td>
<td>BIOL_O</td>
<td>004</td>
<td>Honours Thesis</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>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>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>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>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>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>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 440-011</td>
<td>BIOL_O</td>
<td>011</td>
<td>Honours Thesis</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 440-012</td>
<td>BIOL_O</td>
<td>012</td>
<td>Honours Thesis</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 440-013</td>
<td>BIOL_O</td>
<td>013</td>
<td>Honours Thesis</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>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>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 440-016</td>
<td>BIOL_O</td>
<td>016</td>
<td>Honours Thesis</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 440-017</td>
<td>BIOL_O</td>
<td>017</td>
<td>Honours Thesis</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 440-018</td>
<td>BIOL_O</td>
<td>018</td>
<td>Honours Thesis</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>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>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>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>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>
</tbody>
</table>
BIOL_O 440-023  BIOL_O 023  Honours Thesis  W1-2  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 seminar. Prerequisite: Permission of the department head and course supervisor.  Thesis  In Person Learning  Arranged  Arranged

BIOL_O 440-024  BIOL_O 024  Honours Thesis  W1-2  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 seminar. Prerequisite: Permission of the department head and course supervisor.  Thesis  In Person Learning  Arranged  Arranged

BIOL_O 440-025  BIOL_O 025  Honours Thesis  W1-2  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 seminar. Prerequisite: Permission of the department head and course supervisor.  Thesis  In Person Learning  Arranged  Arranged

BIOL_O 440-026  BIOL_O 026  Honours Thesis  W1-2  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 seminar. Prerequisite: Permission of the department head and course supervisor.  Thesis  In Person Learning  Arranged  Arranged

BIOL_O 440-027  BIOL_O 027  Honours Thesis  W1-2  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 seminar. Prerequisite: Permission of the department head and course supervisor.  Thesis  In Person Learning  Arranged  Arranged

BIOL_O 440-028  BIOL_O 028  Honours Thesis  W1-2  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 seminar. Prerequisite: Permission of the department head and course supervisor.  Thesis  In Person Learning  Arranged  Arranged

BIOL_O 440-029  BIOL_O 029  Honours Thesis  W1-2  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 seminar. Prerequisite: Permission of the department head and course supervisor.  Thesis  In Person Learning  Arranged  Arranged

BIOL_O 440-030  BIOL_O 030  Honours Thesis  W1-2  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 seminar. Prerequisite: Permission of the department head and course supervisor.  Thesis  In Person Learning  Arranged  Arranged

BIOL_O 409-001  BIOL_O 001  Behavioural Ecology  WS  Ecological and evolutionary basis for behaviour, the role of behaviour in enabling an organism to adapt to its environment. Topics include optimization and game theoretic approaches, foraging, sociality, mating, and parental care. [3-0-1] Prerequisite: BIOL 201.  Lecture  In Person Learning  Tue Thu  8:00 a.m. - 9:30 a.m.

BIOL_O 501-001  BIOL_O 001  Biology Seminar  WS  Required for all Biology M.Sc. students. Based on Biology seminar speakers and their research programs. Students will attend the seminars and learn skills required to critically evaluate research.  Lecture  In Person Learning  Mon  11:00 a.m. - 2:00 p.m.

BIOL_O 510-001  BIOL_O 001  Plant-Microbe Interactions  WS  Examination of major spatial patterns in ecology, exploring ways to describe variation and the 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 512 or BIOL 401. [3-0-0]  Lecture  In Person Learning  Wed 12:30 p.m. - 2:00 p.m.

BIOL_O 512-001  BIOL_O 001  Spatial Ecology  WS  Ecological, physiological, and molecular perspectives will be covered on root-associated micro-organisms with the potential to benefit plants. Implications for agriculture, forestry, bioremediation, and conservation. Credit will be granted for only one of BIOS 510 or BIOL 410.  Lecture  In Person Learning  Mon Wed  5:00 p.m. - 6:30 p.m.

BIOL_O 530-A,001  BIOL_O A A_001  Special Topics in Biology, Lecture Format  WS  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.  Lecture  Online Learning  Tue Thu  8:00 a.m. - 9:30 a.m.

BIOL_O 530-B,001  BIOL_O B B_001  Special Topics in Biology, Lecture Format  WS  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.  Lecture  Online Learning  Tue Thu  10:00 a.m. - 11:30 a.m.

BIOL_O 530-C,001  BIOL_O C C_001  Special Topics in Biology, Lecture Format  WS  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.  Lecture  Online Learning  Tue Thu  10:00 a.m. - 11:30 a.m.

BIOL_O 530-D,001  BIOL_O D D_001  Special Topics in Biology, Lecture Format  WS  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.  Lecture  Online Learning  Tue Thu  8:00 a.m. - 9:30 a.m.


CCS_O 250-001  CCS_O 001  Creative and Critical Art Theory II  WS  The continued study of Western, Indigenous, and global art practices and the theoretical discourse that contribute to the development of contemporary art. [3-0-0] Prerequisite: CCS 150.  Lecture  In Person Learning  Mon  2:00 p.m. - 6:00 p.m.

CCS_O 506-001  CCS_O 001  M.F.A. Graduate Colloquium I  WS  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. Restricted to students in the M.F.A. program. Restricted to students in the M.F.A program or permission of the Department of Creative Studies.  Seminar  In Person Learning  Fri  11:00 a.m. - 2:00 p.m.

CCS_O 599-001  CCS_O 001  Master's Thesis  WS  Pass/Fail.  Thesis  In Person Learning  Arranged  Arranged


CHEM_O 121-001  CHEM_O 001  Atomic and Molecular Chemistry  WS  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  Wed 12:30 p.m. - 2:00 p.m.
CHEM_O 121-002 CHEM_O 002 Atomic and Molecular Chemistry WS 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 WS 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 WS 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 WS 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-L04 CHEM_O L04 Atomic and Molecular Chemistry WS 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 WS 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 WS 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 WS 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 WS 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 WS 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 WS 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 WS 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 WS 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 WS 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 WS 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 WS 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 WS 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 WS 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 WS 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.
<table>
<thead>
<tr>
<th>CRN</th>
<th>Section</th>
<th>Course Title</th>
<th>Days</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM_O</td>
<td>121-L19</td>
<td>Atomic and Molecular Chemistry</td>
<td>W1</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Wed 2:00 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>CHEM_O</td>
<td>121-L20</td>
<td>Atomic and Molecular Chemistry</td>
<td>W2</td>
<td>1:30 p.m. - 4:30 p.m.</td>
<td>Laboratory In Person Learning Wed 5:30 p.m. - 8:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O</td>
<td>121-L21</td>
<td>Atomic and Molecular Chemistry</td>
<td>W3</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Wed 5:30 p.m. - 8:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O</td>
<td>121-L22</td>
<td>Atomic and Molecular Chemistry</td>
<td>W4</td>
<td>1:30 p.m. - 4:30 p.m.</td>
<td>Laboratory In Person Learning Thu 9:30 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O</td>
<td>121-L23</td>
<td>Atomic and Molecular Chemistry</td>
<td>W5</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Thu 9:30 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O</td>
<td>121-L24</td>
<td>Atomic and Molecular Chemistry</td>
<td>W6</td>
<td>1:30 p.m. - 4:30 p.m.</td>
<td>Laboratory In Person Learning Thu 1:30 p.m. - 4:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O</td>
<td>121-L25</td>
<td>Atomic and Molecular Chemistry</td>
<td>W7</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Thu 1:30 p.m. - 4:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O</td>
<td>121-L26</td>
<td>Atomic and Molecular Chemistry</td>
<td>W8</td>
<td>1:30 p.m. - 4:30 p.m.</td>
<td>Laboratory In Person Learning Thu 1:30 p.m. - 4:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O</td>
<td>121-L27</td>
<td>Atomic and Molecular Chemistry</td>
<td>W9</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Thu 5:30 p.m. - 8:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O</td>
<td>121-L28</td>
<td>Atomic and Molecular Chemistry</td>
<td>W10</td>
<td>1:30 p.m. - 4:30 p.m.</td>
<td>Laboratory In Person Learning Thu 5:30 p.m. - 8:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O</td>
<td>121-L29</td>
<td>Atomic and Molecular Chemistry</td>
<td>W11</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Thu 5:30 p.m. - 8:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O</td>
<td>121-L30</td>
<td>Atomic and Molecular Chemistry</td>
<td>W12</td>
<td>1:30 p.m. - 4:30 p.m.</td>
<td>Laboratory In Person Learning Thu 5:30 p.m. - 8:30 p.m.</td>
</tr>
<tr>
<td>CHEM_O</td>
<td>121-L31</td>
<td>Atomic and Molecular Chemistry</td>
<td>W13</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Laboratory In Person Learning Thu 5:30 p.m. - 8:30 p.m.</td>
</tr>
</tbody>
</table>

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.
Structure, bonding, and physical properties of aliphatic and aromatic compounds; conformational analysis, stereochemistry, and NMR spectroscopy; substitution and elimination reactions of alkyl halides; ethers, epoxides, aldehydes, ketones. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123. A minimum grade of 65% in CHEM 113 is strongly recommended. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.

Laboratory

In Person Learning

Mon Wed Fri

11:00 a.m. - 12:00 p.m.

CHEM_O 203-L02

CHEM_O

L02

Introduction to Organic Chemistry

W1

Structure, bonding, and physical properties of aliphatic and aromatic compounds; conformational analysis, stereochemistry, and NMR spectroscopy; substitution and elimination reactions of alkyl halides; ethers, epoxides, aldehydes, ketones. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123. A minimum grade of 65% in CHEM 113 is strongly recommended. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.

Laboratory

In Person Learning

Tue

9:30 a.m. - 12:30 p.m.

CHEM_O 203-L03

CHEM_O

L03

Introduction to Organic Chemistry

W1

Structure, bonding, and physical properties of aliphatic and aromatic compounds; conformational analysis, stereochemistry, and NMR spectroscopy; substitution and elimination reactions of alkyl halides; ethers, epoxides, aldehydes, ketones. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123. A minimum grade of 65% in CHEM 113 is strongly recommended. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.

Laboratory

In Person Learning

Tue

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

CHEM_O 203-L04

CHEM_O

L04

Introduction to Organic Chemistry

W1

Structure, bonding, and physical properties of aliphatic and aromatic compounds; conformational analysis, stereochemistry, and NMR spectroscopy; substitution and elimination reactions of alkyl halides; ethers, epoxides, aldehydes, ketones. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123. A minimum grade of 65% in CHEM 113 is strongly recommended. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.

Laboratory

In Person Learning

Tue

5:30 p.m. - 8:30 p.m.

CHEM_O 203-L06

CHEM_O

L06

Introduction to Organic Chemistry

W1

Structure, bonding, and physical properties of aliphatic and aromatic compounds; conformational analysis, stereochemistry, and NMR spectroscopy; substitution and elimination reactions of alkyl halides; ethers, epoxides, aldehydes, ketones. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123. A minimum grade of 65% in CHEM 113 is strongly recommended. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.

Laboratory

In Person Learning

Wed

2:00 p.m. - 5:00 p.m.

CHEM_O 203-L07

CHEM_O

L07

Introduction to Organic Chemistry

W1

Structure, bonding, and physical properties of aliphatic and aromatic compounds; conformational analysis, stereochemistry, and NMR spectroscopy; substitution and elimination reactions of alkyl halides; ethers, epoxides, aldehydes, ketones. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123. A minimum grade of 65% in CHEM 113 is strongly recommended. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.

Laboratory

In Person Learning

Wed

5:30 p.m. - 8:30 p.m.

CHEM_O 203-L08

CHEM_O

L08

Introduction to Organic Chemistry

W1

Structure, bonding, and physical properties of aliphatic and aromatic compounds; conformational analysis, stereochemistry, and NMR spectroscopy; substitution and elimination reactions of alkyl halides; ethers, epoxides, aldehydes, ketones. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123. A minimum grade of 65% in CHEM 113 is strongly recommended. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.

Laboratory

In Person Learning

Thu

9:30 a.m. - 12:30 p.m.

CHEM_O 203-L09

CHEM_O

L09

Introduction to Organic Chemistry

W1

Structure, bonding, and physical properties of aliphatic and aromatic compounds; conformational analysis, stereochemistry, and NMR spectroscopy; substitution and elimination reactions of alkyl halides; ethers, epoxides, aldehydes, ketones. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123. A minimum grade of 65% in CHEM 113 is strongly recommended. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.

Laboratory

In Person Learning

Thu

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

CHEM_O 203-L10

CHEM_O

L10

Introduction to Organic Chemistry

W1

Structure, bonding, and physical properties of aliphatic and aromatic compounds; conformational analysis, stereochemistry, and NMR spectroscopy; substitution and elimination reactions of alkyl halides; ethers, epoxides, aldehydes, ketones. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123. A minimum grade of 65% in CHEM 113 is strongly recommended. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.

Laboratory

In Person Learning

Thu

5:30 p.m. - 8:30 p.m.

CHEM_O 203-XMT

CHEM_O

XMT

Introduction to Organic Chemistry

W1

Structure, bonding, and physical properties of aliphatic and aromatic compounds; conformational analysis, stereochemistry, and NMR spectroscopy; substitution and elimination reactions of alkyl halides; ethers, epoxides, aldehydes, ketones. Credit will be granted for only one of CHEM 203 or CHEM 213. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123. A minimum grade of 65% in CHEM 113 is strongly recommended. For Chemistry, Biochemistry, and Environmental Chemistry majors. Other students should enrol in CHEM 213.

Laboratory

In Person Learning

Arranged

Arranged
CHEM_211-001 CHEM_O 001 Analytical Chemistry WS Methods of measurement, statistical analysis and errors of measurement, method development and validation, the meaning of test results, accuracy, precision, biosensors, analytical electrochemistry, chemical separation, introduction to gas and liquid chromatography. Credit will be granted for only one of CHEM 211 or BIOC 211. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Lecture In Person Learning Wed Fri 8:00 a.m. - 9:30 a.m.

CHEM_211-L01 CHEM_O L01 Analytical Chemistry WS BIOC 211. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Laboratory In Person Learning Mon 12:00 p.m. - 3:00 p.m.

CHEM_211-L02 CHEM_O L02 Analytical Chemistry WS Methods of measurement, statistical analysis and errors of measurement, method development and validation, the meaning of test results, accuracy, precision, biosensors, analytical electrochemistry, chemical separation, introduction to gas and liquid chromatography. Credit will be granted for only one of CHEM 211 or BIOC 211. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Laboratory In Person Learning Tue 9:30 a.m. - 12:30 p.m.

CHEM_211-L03 CHEM_O L03 Analytical Chemistry WS Methods of measurement, statistical analysis and errors of measurement, method development and validation, the meaning of test results, accuracy, precision, biosensors, analytical electrochemistry, chemical separation, introduction to gas and liquid chromatography. Credit will be granted for only one of CHEM 211 or BIOC 211. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Laboratory In Person Learning Tue 1:30 p.m. - 4:30 p.m.

CHEM_211-L04 CHEM_O L04 Analytical Chemistry WS Methods of measurement, statistical analysis and errors of measurement, method development and validation, the meaning of test results, accuracy, precision, biosensors, analytical electrochemistry, chemical separation, introduction to gas and liquid chromatography. Credit will be granted for only one of CHEM 211 or BIOC 211. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Laboratory In Person Learning Tue 5:30 p.m. - 8:30 p.m.

CHEM_211-L05 CHEM_O L05 Analytical Chemistry WS Methods of measurement, statistical analysis and errors of measurement, method development and validation, the meaning of test results, accuracy, precision, biosensors, analytical electrochemistry, chemical separation, introduction to gas and liquid chromatography. Credit will be granted for only one of CHEM 211 or BIOC 211. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Laboratory In Person Learning Wed 9:30 a.m. - 12:30 p.m.

CHEM_211-LMT CHEM_O LMT Analytical Chemistry WS 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 211 or BIOC 211. [3-3*-0] Prerequisite: One of CHEM 113, CHEM 123. Not for Chemistry, Biochemistry, or Environmental Chemistry majors. Such students should enrol in CHEM 203. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Laboratory In Person Learning Arranged Arranged

CHEM_213-001 CHEM_O 001 Organic Chemistry for Biological Sciences I WS 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 enrol in CHEM 203. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Lecture In Person Learning Mon Wed Fri 2:00 p.m. - 3:00 p.m.

CHEM_213-L01 CHEM_O L01 Organic Chemistry for Biological Sciences I WS 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 enrol in CHEM 203. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Laboratory In Person Learning Tue (Alternate weeks) 2:00 p.m. - 5:00 p.m.

CHEM_213-L02 CHEM_O L02 Organic Chemistry for Biological Sciences I WS 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 enrol in CHEM 203. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Laboratory In Person Learning Tue (Alternate weeks) 2:00 p.m. - 5:00 p.m.

CHEM_213-L03 CHEM_O L03 Organic Chemistry for Biological Sciences I WS 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 enrol in CHEM 203. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Laboratory In Person Learning Tue (Alternate weeks) 5:30 p.m. - 8:30 p.m.

CHEM_213-L04 CHEM_O L04 Organic Chemistry for Biological Sciences I WS 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 enrol in CHEM 203. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Laboratory In Person Learning Tue (Alternate weeks) 5:30 p.m. - 8:30 p.m.

CHEM_213-L05 CHEM_O L05 Organic Chemistry for Biological Sciences I WS 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 enrol in CHEM 203. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Lecture In Person Learning Wed (Alternate weeks) 9:30 a.m. - 12:30 p.m.

CHEM_213-L06 CHEM_O L06 Organic Chemistry for Biological Sciences I WS 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 enrol in CHEM 203. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Laboratory In Person Learning Wed (Alternate weeks) 9:30 a.m. - 12:30 p.m.

CHEM_213-L07 CHEM_O L07 Organic Chemistry for Biological Sciences I WS 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 enrol in CHEM 203. [3-3-0] Prerequisite: One of CHEM 113, CHEM 123 and one of PHYS 121, PHYS 122. Laboratory In Person Learning Wed (Alternate weeks) 5:30 p.m. - 8:30 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 enrol in CHEM 203.

Laboratory In Person Learning Wed (Alternate weeks) 5:30 p.m. - 8:30 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 enrol 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 enrol 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 enrol in CHEM 203.

Laboratory In Person Learning Thu (Alternate weeks) 1:30 p.m. - 4:30 p.m.

CHEM_O 338-001 | CHEM_O | 001 | Organometallic Chemistry | WS | Examination of the structure, bonding, reactivity, and catalysis of organometallic compounds of the d-block metals. A survey of ligands unique to organometallic chemistry is followed by an examination of the mechanisms of common reactions and important catalytic cycles. [3-4*-0] Prerequisite: CHEM 220 and one of CHEM 204, CHEM 214. | Lecture | In Person Learning | Mon Wed Fri | 3:00 p.m. - 4:00 p.m.

CHEM_O 338-L01 | CHEM_O | L01 | Organometallic Chemistry | WS | Examination of the structure, bonding, reactivity, and catalysis of organometallic compounds of the d-block metals. A survey of ligands unique to organometallic chemistry is followed by an examination of the mechanisms of common reactions and important catalytic cycles. [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 338-L02 | CHEM_O | L02 | Organometallic Chemistry | WS | Examination of the structure, bonding, reactivity, and catalysis of organometallic compounds of the d-block metals. A survey of ligands unique to organometallic chemistry is followed by an examination of the mechanisms of common reactions and important catalytic cycles. [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 338-XMT | CHEM_O | XMT | Organometallic Chemistry | WS | Examination of the structure, bonding, reactivity, and catalysis of organometallic compounds of the d-block metals. A survey of ligands unique to organometallic chemistry is followed by an examination of the mechanisms of common reactions and important catalytic cycles. [3-4*-0] Prerequisite: CHEM 220 and one of CHEM 204, CHEM 214. | Laboratory | In Person Learning | Arranged | Arranged

CHEM_O 412-001 | CHEM_O | 001 | Methods in Metabolomics | WS | Chemical analysis of the metabolites in biological samples: study design, sample extractions, method development and validation, targeted and untargeted experiments, data processing, isotope tracer studies, cheminformatics, compound identification, metabolic pathway and network mapping, data interpretation and presentation. Credit will be granted for only one of CHEM 422 or CHEM 529. [3-0-0] Prerequisite: CHEM 220 and one of CHEM 204, CHEM 214. | Lecture | In Person Learning | Wed Fri | 11:00 a.m. - 12:30 p.m.

CHEM_O 429-001 | CHEM_O | 001 | Main Group Chemistry | WS | Principles, patterns, and trends of the characteristic structures, bonding, and reactivity of compounds of the s- and p block elements, including aspects relevant to polymer chemistry, materials chemistry, industrial chemistry, and advanced main group synthesis. Credit will be granted for only one of CHEM 429 or CHEM 529. [3-0-0] Prerequisite: CHEM 220 and one of CHEM 204, CHEM 214. | Lecture | In Person Learning | Mon Wed Fri | 12:00 p.m. - 1:00 p.m.

CHEM_O 434-001 | CHEM_O | 001 | Chromatography and Mass Spectrometry | WS | Gas, liquid, and supercritical fluid chromatography. Mass spectrometry: ionization processes, mass analyses, ion molecule reactions, fragmentation processes. Credit will be granted for only one of CHEM 434 or CHEM 411. [3-0-0] Prerequisite: CHEM 311. | Lecture | In Person Learning | Mon Wed Fri | 1:00 p.m. - 2:00 p.m.

CHEM_O 446-A_001 | CHEM_O | A_001 | Special Topics in Chemistry, Lecture Format | WS-2 | Original research under the direction of a faculty member for either one (3 credits) or two (6 credits) semesters. Includes a written thesis and poster presentation. It is recommended that CHEM 448 be not 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. | Independent Study | In Person Learning | Arranged | Arranged

CHEM_O 446-A_002 | CHEM_O | A_002 | Special Topics in Chemistry, Lecture Format | WS | Original research under the direction of a faculty member for either one (3 credits) or two (6 credits) semesters. Includes a written thesis and poster presentation. It is recommended that CHEM 448 be not 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. | Independent Study | In Person Learning | Arranged | Arranged

CHEM_O 446-A_003 | CHEM_O | A_003 | Special Topics in Chemistry, Lecture Format | WS | Original research under the direction of a faculty member for either one (3 credits) or two (6 credits) semesters. Includes a written thesis and poster presentation. It is recommended that CHEM 448 be not 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. | Independent Study | In Person Learning | Arranged | Arranged

CHEM_O 446-B_001 | CHEM_O | B_001 | Special Topics in Chemistry, Lecture Format | WS-2 | Original research under the direction of a faculty member for either one (3 credits) or two (6 credits) semesters. Includes a written thesis and poster presentation. It is recommended that CHEM 448 be not 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. | Independent Study | In Person Learning | Arranged | Arranged

CHEM_O 446-B_002 | CHEM_O | B_002 | Special Topics in Chemistry, Lecture Format | WS-2 | Original research under the direction of a faculty member for either one (3 credits) or two (6 credits) semesters. Includes a written thesis and poster presentation. It is recommended that CHEM 448 be not 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. | Independent Study | In Person Learning | Arranged | Arranged

CHEM_O 446-B_003 | CHEM_O | B_003 | Special Topics in Chemistry, Lecture Format | WS-2 | Original research under the direction of a faculty member for either one (3 credits) or two (6 credits) semesters. Includes a written thesis and poster presentation. It is recommended that CHEM 448 be not 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. | Independent Study | In Person Learning | Arranged | Arranged

CHEM_O 446-C_001 | CHEM_O | C_001 | Special Topics in Chemistry, Lecture Format | WS | Original research work under the direction of a faculty member. A written thesis, public poster presentation, and public thesis defence is required. It is recommended that CHEM 449 be not 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 76% (in all courses taken applicable to the Chemistry Major) and approval of the Chemistry Curriculum Committee. | Independent Study | In Person Learning | Arranged | Arranged

CHEM_O 449-001 | CHEM_O | 001 | Honours Thesis | W1-2 | Thesis | In Person Learning | Arranged | Arranged

CHEM_O 449-002 | CHEM_O | 002 | Honours Thesis | W1-2 | Thesis | In Person Learning | Arranged | Arranged
CHEM_O 449-003 CHEM_O 003 Honours Thesis W1-2
Original research work under the direction of a faculty member. A written thesis, public poster presentation, and public thesis defence is required. It is recommended that CHEM 449 not 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 76% (in all courses taken applicable to the Chemistry Major) and approval of the Chemistry Curriculum Committee.

CHEM_O 449-004 CHEM_O 004 Honours Thesis W1-2
Original research work under the direction of a faculty member. A written thesis, public poster presentation, and public thesis defence is required. It is recommended that CHEM 449 not 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 76% (in all courses taken applicable to the Chemistry Major) and approval of the Chemistry Curriculum Committee.

CHEM_O 449-005 CHEM_O 005 Honours Thesis W1-2
Original research work under the direction of a faculty member. A written thesis, public poster presentation, and public thesis defence is required. It is recommended that CHEM 449 not 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 76% (in all courses taken applicable to the Chemistry Major) and approval of the Chemistry Curriculum Committee.

CHEM_O 449-006 CHEM_O 006 Honours Thesis W1-2
Original research work under the direction of a faculty member. A written thesis, public poster presentation, and public thesis defence is required. It is recommended that CHEM 449 not 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 76% (in all courses taken applicable to the Chemistry Major) and approval of the Chemistry Curriculum Committee.

CHEM_O 449-007 CHEM_O 007 Honours Thesis W1-2
Original research work under the direction of a faculty member. A written thesis, public poster presentation, and public thesis defence is required. It is recommended that CHEM 449 not 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 76% (in all courses taken applicable to the Chemistry Major) and approval of the Chemistry Curriculum Committee.

CHEM_O 449-008 CHEM_O 008 Honours Thesis W1-2
Original research work under the direction of a faculty member. A written thesis, public poster presentation, and public thesis defence is required. It is recommended that CHEM 449 not 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 76% (in all courses taken applicable to the Chemistry Major) and approval of the Chemistry Curriculum Committee.

CHEM_O 461-001 CHEM_O 001 Advanced Analytical Chemistry Laboratory W1-2
Integrated laboratory course designed to illustrate principles of modern analytical chemistry. [0-6-0] Prerequisite: CHEM 311. Laboratory In Person Learning Tue 8:00 a.m. - 2:00 p.m.

CHEM_O 461-002 CHEM_O 002 Advanced Analytical Chemistry Laboratory W1-2
Integrated laboratory course designed to illustrate principles of modern analytical chemistry. [0-6-0] Prerequisite: CHEM 311. Laboratory In Person Learning Mon 9:00 a.m. - 3:00 p.m.

CHEM_O 464-001 CHEM_O 001 Advanced Physical and Biophysical Chemistry I W1-2
Integrated laboratory course designed to illustrate principles of modern physical and biophysical chemistry. [0-6-0] Prerequisite: Two of CHEM 304, CHEM 305, CHEM 312. Laboratory In Person Learning Thu 8:30 a.m. - 2:30 p.m.

CHEM_O 485-001 CHEM_O 001 Natural Product Biosynthesis and Synthetic Biology W1
Origin and biosynthesis of natural products used as flavors, commodities, and medicines. New approaches to identification, elucidation, characterization, and production of natural products, including; biological chemistry, omics, metabolic engineering, and synthetic biology. Credit will be granted for only one of BIOC 406, CHEM 485 or CHEM 585. [3-0-0] Prerequisites: CHEM 204 or 214, and all of BIOC 310, CHEM 304, BIOC 319, BIOC 320. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

CHEM_O 533-001 CHEM_O 001 Metabolomics W1
Chemical analysis of the metabolites in biological samples. Targeted and untargeted metabolomics, chemometrics, metabolite identification, pathway and network mapping, data interpretation and presentation. Credit will be granted for only one of CHEM 533, CHEM 412 or BIOC 412. [3-0-0] Lecture In Person Learning Wed Fri 11:00 a.m. - 12:30 p.m.

CHEM_O 534-001 CHEM_O 001 Chromatography and Mass Spectrometry W1
Gas, liquid, and supercritical fluid chromatography. Mass spectrometry: ionization processes, mass analysis, ion molecule reactions, fragmentation processes. [3-0-0] Lecture In Person Learning Mon Wed Fri 1:00 p.m. - 2:00 p.m.

CHEM_O 540-201 CHEM_O 001 Graduate Seminar in Chemistry W1-2
Students present a one-hour lecture on a topic agreed upon jointly with the instructor, but unrelated to their previous or current research projects. Students will be assessed on their seminar and a related written paper. [2-0-0] Seminar In Person Learning Thu 4:00 p.m. - 6:00 p.m.

CHEM_O 549-001 CHEM_O 001 M.Sc. Thesis W1-2
Thesis In Person Learning Arranged

CHEM_O 549-002 CHEM_O 001 M.Sc. Thesis W1-2
Thesis In Person Learning Arranged

CHEM_O 549-003 CHEM_O 001 M.Sc. Thesis W1-2
Thesis In Person Learning Arranged

CHEM_O 558-001 CHEM_O 001 Natural Product Biosynthesis and Synthetic Biology W1
CHEM 485 or CHEM 585. [3-0-0] Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

CHEM_O 649-001 CHEM_O 001 Ph.D. Thesis W1
Original research work under the direction of a faculty member. A written thesis, public poster presentation, and public thesis defence is required. It is recommended that CHEM 449 not 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 76% (in all courses taken applicable to the Chemistry Major) and approval of the Chemistry Curriculum Committee.

CHEM_O 649-201 CHEM_O 001 Ph.D. Thesis W1-2
Original research work under the direction of a faculty member. A written thesis, public poster presentation, and public thesis defence is required. It is recommended that CHEM 449 not 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 76% (in all courses taken applicable to the Chemistry Major) and approval of the Chemistry Curriculum Committee.

CHEM_O 680-001 CHEM_O 001 Basic Chinese I W1
An introduction to the grammar, syntax, and function of modern spoken and written Mandarin Chinese. For absolute beginners; not available to students who have obtained the equivalent of CEFR Level A1 in any Chinese language. Lecture In Person Learning Mon Wed Fri 10:00 a.m. - 11:00 a.m.

CMPE_O 201-001 CMPE_O 001 Computing for Science, Engineering, and Techn W1
Invention and evolution of computers; impact of computing technology on science and engineering including Internet of Things (IoT) and Industry 4.0. [3-0-0] Co-requisite: APSC 176 or a three-credit English course. Lecture In Person Learning Tue Thu 8:00 a.m. - 9:30 a.m.

COOP_O 401-010 COOP_O 010 Co-op Education Work Experience I W1
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'. Experiential In Person Learning Arranged

COOP_O 402-010 COOP_O 010 Co-op Education Work Experience II W1
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 401. Experiential In Person Learning Arranged
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Type</th>
<th>Credits</th>
<th>Description</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>COOP_O 403-101</td>
<td>Co-op Education Work Experience III</td>
<td>Online Learning</td>
<td>3-2-0</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>
<td>Prerequisite: COOP 402.</td>
</tr>
<tr>
<td>COOP_O 404-101</td>
<td>Co-op Education Work Experience IV</td>
<td>Online Learning</td>
<td>3-2-0</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>
<td>Prerequisite: COOP 403.</td>
</tr>
<tr>
<td>COOP_O 405-101</td>
<td>Co-op Education Work Experience V</td>
<td>Online Learning</td>
<td>3-2-0</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>
<td>Prerequisite: COOP 404.</td>
</tr>
<tr>
<td>COOP_O 406-101</td>
<td>Co-op Education Work Experience VI</td>
<td>Online Learning</td>
<td>3-2-0</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>
<td>Prerequisite: COOP 405.</td>
</tr>
<tr>
<td>CORH_O 205-001</td>
<td>Communication in the Sciences</td>
<td>Lecture</td>
<td>1-0-0</td>
<td>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.</td>
<td>Prerequisite: One of ENG 109, ENG 112, ENG 114, ENG 150, ENG 151, ENG 153, ENG 155, ENG 156, APSC 176.</td>
</tr>
<tr>
<td>CORH_O 205-002</td>
<td>Communication in the Sciences</td>
<td>Lecture</td>
<td>1-0-0</td>
<td>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.</td>
<td>Prerequisite: One of ENG 109, ENG 112, ENG 114, ENG 150, ENG 151, ENG 153, ENG 155, ENG 156, APSC 176.</td>
</tr>
<tr>
<td>CORH_O 204-001</td>
<td>Communications in the Humanities</td>
<td>Lecture</td>
<td>1-0-0</td>
<td>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.</td>
<td>Prerequisite: One of ENG 109, ENG 112, ENG 114, ENG 150, ENG 151, ENG 153, ENG 154, ENG 155, ENG 156, APSC 176.</td>
</tr>
<tr>
<td>CORH_O 205-001</td>
<td>Communication in the Social Sciences</td>
<td>Lecture</td>
<td>1-0-0</td>
<td>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.</td>
<td>Prerequisite: One of ENG 109, ENG 112, ENG 114, ENG 150, ENG 151, ENG 153, ENG 154, ENG 155, ENG 156, APSC 176.</td>
</tr>
<tr>
<td>CORH_O 205-002</td>
<td>Communication in the Social Sciences</td>
<td>Lecture</td>
<td>1-0-0</td>
<td>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.</td>
<td>Prerequisite: One of ENG 109, ENG 112, ENG 114, ENG 150, ENG 151, ENG 153, ENG 154, ENG 155, ENG 156, APSC 176.</td>
</tr>
<tr>
<td>CORH_O 321-101</td>
<td>Personal and Professional Identity and Interpers</td>
<td>Lecture</td>
<td>1-0-0</td>
<td>Practice-based approach to social media through writing studies’ scholarship, with a focus on rhetorical analysis of social writing in digital platforms that inform self-representation and connect with groups/communities. Prerequisite: Third-year standing or permission of the instructor.</td>
<td>Prerequisite: Third-year standing or permission of the instructor.</td>
</tr>
<tr>
<td>COSC_O 111-001</td>
<td>Computer Programming I</td>
<td>Lecture</td>
<td>1-0-0</td>
<td>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.</td>
<td>Prerequisite: CSC 121-3 [2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 125, MATH 126.</td>
</tr>
<tr>
<td>COSC_O 111-002</td>
<td>Computer Programming I</td>
<td>Lecture</td>
<td>1-0-0</td>
<td>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.</td>
<td>Prerequisite: CSC 121-3 [2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 125, MATH 126.</td>
</tr>
<tr>
<td>COSC_O 111-003</td>
<td>Computer Programming I</td>
<td>Lecture</td>
<td>1-0-0</td>
<td>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.</td>
<td>Prerequisite: CSC 121-3 [2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 125, MATH 126.</td>
</tr>
<tr>
<td>COSC_O 111-011</td>
<td>Computer Programming I</td>
<td>Lecture</td>
<td>1-0-0</td>
<td>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.</td>
<td>Prerequisite: CSC 121-3 [2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 125, MATH 126.</td>
</tr>
<tr>
<td>COSC_O 111-012</td>
<td>Computer Programming I</td>
<td>Lecture</td>
<td>1-0-0</td>
<td>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.</td>
<td>Prerequisite: CSC 121-3 [2-0] Prerequisite: A score of 70% or higher in one of PREC 12, MATH 125, MATH 126.</td>
</tr>
<tr>
<td>Course</td>
<td>Credits</td>
<td>Type</td>
<td>Days</td>
<td>Time</td>
<td>Location</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>------------</td>
<td>------</td>
<td>------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>COSC_O 111-L03</td>
<td>4</td>
<td>In Person Learning</td>
<td>L03</td>
<td>8:00 a.m. - 10:00 a.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L04</td>
<td>4</td>
<td>In Person Learning</td>
<td>L04</td>
<td>2:00 p.m. - 4:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L05</td>
<td>4</td>
<td>In Person Learning</td>
<td>L05</td>
<td>4:00 p.m. - 6:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L06</td>
<td>4</td>
<td>In Person Learning</td>
<td>L06</td>
<td>8:00 a.m. - 10:00 a.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L07</td>
<td>4</td>
<td>In Person Learning</td>
<td>L07</td>
<td>12:00 p.m. - 2:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L08</td>
<td>4</td>
<td>In Person Learning</td>
<td>L08</td>
<td>2:00 p.m. - 4:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L09</td>
<td>4</td>
<td>In Person Learning</td>
<td>L09</td>
<td>8:00 a.m. - 10:00 a.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L10</td>
<td>4</td>
<td>In Person Learning</td>
<td>L10</td>
<td>12:00 p.m. - 2:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L11</td>
<td>4</td>
<td>In Person Learning</td>
<td>L11</td>
<td>8:00 a.m. - 10:00 a.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L12</td>
<td>4</td>
<td>In Person Learning</td>
<td>L12</td>
<td>2:00 p.m. - 4:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L13</td>
<td>4</td>
<td>In Person Learning</td>
<td>L13</td>
<td>4:00 p.m. - 6:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L14</td>
<td>4</td>
<td>In Person Learning</td>
<td>L14</td>
<td>8:00 a.m. - 10:00 a.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L15</td>
<td>4</td>
<td>In Person Learning</td>
<td>L15</td>
<td>12:00 p.m. - 2:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L16</td>
<td>4</td>
<td>In Person Learning</td>
<td>L16</td>
<td>8:00 a.m. - 10:00 a.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L17</td>
<td>4</td>
<td>In Person Learning</td>
<td>L17</td>
<td>10:00 a.m. - 12:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L18</td>
<td>4</td>
<td>In Person Learning</td>
<td>L18</td>
<td>12:00 p.m. - 2:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L19</td>
<td>4</td>
<td>In Person Learning</td>
<td>L19</td>
<td>8:00 a.m. - 10:00 a.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L20</td>
<td>4</td>
<td>In Person Learning</td>
<td>L20</td>
<td>4:00 p.m. - 6:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>COSC_O 111-L21</td>
<td>4</td>
<td>In Person Learning</td>
<td>L21</td>
<td>8:00 a.m. - 10:00 a.m.</td>
<td>Laboratory</td>
</tr>
</tbody>
</table>

**Description:**

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.

**Prerequisites:**

PREC 12, MATH 12, MATH 125, MATH 126.
COSC 121-001 COSC 221-001 Computer Programming II 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 12:00 p.m. - 2:00 p.m.

COSC 121-01 COSC 121-01 Computer Programming II 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 121-02 COSC 121-02 Computer Programming II 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 121-03 COSC 121-03 Computer Programming II 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 121-04 COSC 121-04 Computer Programming II 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 121-05 COSC 121-05 Computer Programming II 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 121-06 COSC 121-06 Computer Programming II 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 121-07 COSC 121-07 Computer Programming II 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 8:00 a.m. - 10:00 a.m.

COSC 121-08 COSC 121-08 Computer Programming II 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 8:00 a.m. - 10:00 a.m.

COSC 121-09 COSC 121-09 Computer Programming II 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 211-001 COSC 211-001 Machine Architecture 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 221-001 COSC 221-001 Discrete Structures in Computing 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 221-001 COSC 221-001 Discrete Structures in Computing 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.
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  Tue  5:00 p.m. - 6:00 p.m.

Introduction to the design, implementation and analysis of data structures. Topics will include lists, stacks, queues, trees, and graphs. Credit will only be granted for one of COSC 210 or COSC 222. [3-2-0] Prerequisite: A score of 60% or higher in COSC 121.

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

Introduction to the design, implementation and analysis of data structures. Topics will include lists, stacks, queues, trees, and graphs. Credit will only be 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  10:00 a.m. - 12:00 p.m.

Introduction to the design, implementation and analysis of data structures. Topics will include lists, stacks, queues, trees, and graphs. Credit will only be 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  10:00 a.m. - 12:00 p.m.

Introduction to the design, implementation and analysis of data structures. Topics will include lists, stacks, queues, trees, and graphs. Credit will only be 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  12:00 p.m. - 2:00 p.m.

Introduction to the design, implementation and analysis of data structures. Topics will include lists, stacks, queues, trees, and graphs. Credit will only be 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  Fri  2:00 p.m. - 4:00 p.m.

Introduction to the design, implementation and analysis of data structures. Topics will include lists, stacks, queues, trees, and graphs. Credit will only be 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  Fri  2:00 p.m. - 4:00 p.m.

Introduction to the design, implementation and analysis of data structures. Topics will include lists, stacks, queues, trees, and graphs. Credit will only be 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  Thu  8:00 a.m. - 10:00 a.m.

Introduction to the design, implementation and analysis of data structures. Topics will include lists, stacks, queues, trees, and graphs. Credit will only be 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  Tue  4:00 p.m. - 6:00 p.m.

Introduction to the design, implementation and analysis of data structures. Topics will include lists, stacks, queues, trees, and graphs. Credit will only be 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  Tue  8:00 a.m. - 10:00 a.m.

Software development and techniques for computation, analysis, and visualization of data. Manipulation of small and large data sets. Automatic using scripting. Credit will be granted for only one of COSC 301, DATA 301 or DATA 501. [3-2-0] Prerequisite: Third-year standing. Corequisite: COSC 304.

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

Software development and techniques for computation, analysis, and visualization of data. Manipulation of small and large data sets. Automatic using scripting. Credit will be granted for only one of COSC 301, DATA 301 or DATA 501. [3-2-0] Prerequisite: Third-year standing. Corequisite: COSC 304.

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

Software development and techniques for computation, analysis, and visualization of data. Manipulation of small and large data sets. Automatic using scripting. Credit will be granted for only one of COSC 301, DATA 301 or DATA 501. [3-2-0] Prerequisite: Third-year standing. Corequisite: COSC 304.

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

Software development and techniques for computation, analysis, and visualization of data. Manipulation of small and large data sets. Automatic using scripting. Credit will be granted for only one of COSC 301, DATA 301 or DATA 501. [3-2-0] Prerequisite: Third-year standing. Corequisite: COSC 304.

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

Software development and techniques for computation, analysis, and visualization of data. Manipulation of small and large data sets. Automatic using scripting. Credit will be granted for only one of COSC 301, DATA 301 or DATA 501. [3-2-0] Prerequisite: Third-year standing. Corequisite: COSC 304.

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

Software development and techniques for computation, analysis, and visualization of data. Manipulation of small and large data sets. Automatic using scripting. Credit will be granted for only one of COSC 301, DATA 301 or DATA 501. [3-2-0] Prerequisite: Third-year standing. Corequisite: COSC 304.

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

Databases from a user's perspective: querying with SQL, designing with UML, and using programs to analyze data. Construction of database-driven applications and websites and experience with current database technologies. Completion of COSC 121 is recommended. [3-0-0] Prerequisite: One of COSC 111, COSC 123, COSC 210. Third-year standing.

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

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  Tue Thu  5:00 p.m. - 6:30 p.m.
### COSC 310-L01  
**COSC_O**

**L01** Software Engineering  
**WS**  
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 Tue 12:00 p.m. - 2:00 p.m.

### COSC 310-L02  
**COSC_O**

**L02** Software Engineering  
**WS**  
Introduction to batch, multiprogramming, and time-sharing systems. Process synchronization and communication. Main memory allocation techniques including virtual memory; process scheduling; deadlock avoidance and prevention; file organization and device management. [3-2-0] Prerequisite: All of COSC 221, COSC 222.  
Laboratory In Person Learning Mon 4:00 p.m. - 6:00 p.m.

### COSC 315-001  
**COSC_O**

**001** Introduction to Operating Systems  
**WS**  
Introduction to batch, multiprogramming, and time-sharing systems. Process synchronization and communication. Main memory allocation techniques including virtual memory; process scheduling; deadlock avoidance and prevention; file organization and device management. [3-2-0] Prerequisite: All of COSC 221, COSC 222.  
Lecture In Person Learning Tue Thu 12:30 p.m. - 2:00 p.m.

### COSC 315-L01  
**COSC_O**

**L01** Introduction to Operating Systems  
**WS**  
Introduction to batch, multiprogramming, and time-sharing systems. Process synchronization and communication. Main memory allocation techniques including virtual memory; process scheduling; deadlock avoidance and prevention; file organization and device management. [3-2-0] Prerequisite: All of COSC 221, COSC 222.  
Laboratory In Person Learning Mon 10:00 a.m. - 12:00 p.m.

### COSC 315-L02  
**COSC_O**

**L02** Introduction to Operating Systems  
**WS**  
Introduction to batch, multiprogramming, and time-sharing systems. Process synchronization and communication. Main memory allocation techniques including virtual memory; process scheduling; deadlock avoidance and prevention; file organization and device management. [3-2-0] Prerequisite: All of COSC 221, COSC 222.  
Laboratory In Person Learning Tue 10:00 a.m. - 12:00 p.m.

### COSC 315-L03  
**COSC_O**

**L03** Introduction to Operating Systems  
**WS**  
Introduction to batch, multiprogramming, and time-sharing systems. Process synchronization and communication. Main memory allocation techniques including virtual memory; process scheduling; deadlock avoidance and prevention; file organization and device management. [3-2-0] Prerequisite: All of COSC 221, COSC 222.  
Laboratory In Person Learning Mon 12:00 p.m. - 2:00 p.m.

### COSC 315-L04  
**COSC_O**

**L04** Introduction to Operating Systems  
**WS**  
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 211, APS1 179.  
Laboratory In Person Learning Thu 2:00 p.m. - 4:00 p.m.

### COSC 320-001  
**COSC_O**

**001** Analysis of Algorithms  
**WS**  
History of human-computer interaction. Basic design principles, user-centered design, user task analysis, interaction models, input and output devices, graphical interface design, prototyping, and evaluation. [3-0-0] Prerequisite: One of COSC 111, COSC 121, COSC 123, DATA 301, and Third-year standing.  
Laboratory In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

### COSC 341-001  
**COSC_O**

**001** Human Computer Interaction  
**WS**  
Fundamental theoretical and practical concepts for processing and analyzing real-world digital images and videos, image enhancement and filtering, frequency domain and other transform analysis, morphological image operations, image segmentation, and object recognition. Credit will be granted for only one of COSC 344, COSC 445, or COSC 449. [3-0-0] Prerequisite: One of COSC 210, COSC 222 and one of MATH 200, APSC 248 and one of MATH 221, APSC 179.  
Laboratory In Person Learning Wed Fri 12:30 p.m. - 2:00 p.m.

### COSC 344-101  
**COSC_O**

**101** Image Processing and Applications  
**WS**  
Numeric dynamic systems models and emphasis on discrete stochastic systems. State description of models, common model components, entities. Common simulation language. Simulation using algebraic languages. Simulation methodology: data collection, model design, output analysis, optimization, validation. Elements of queuing theory, relationship to simulation. Applications to computer systems models. Credit will be granted for only one of COSC 405, DATA 405, COSC 505, or DATA 505. [3-2-0] Prerequisite: All of COSC 221, COSC 222.  
Laboratory In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

### COSC 405-001  
**COSC_O**

**001** Modeling and Simulation  
**WS**  
Numerical dynamic systems models and emphasis on discrete stochastic systems. State description of models, common model components, entities. Common simulation language. Simulation using algebraic languages. Simulation methodology: data collection, model design, output analysis, optimization, validation. Elements of queuing theory, relationship to simulation. Applications to computer systems models. Credit will be granted for only one of COSC 405, DATA 405, COSC 505, or DATA 505. [3-2-0] Prerequisite: All of COSC 221, COSC 222.  
Laboratory In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

### COSC 405-L01  
**COSC_O**

**L01** Modeling and Simulation  
**WS**  
Formulation and analysis of algorithms for continuous optimization problems; linear, quadratic, semi-definite, nonlinear (constrained and unconstrained), convex (smooth and non-smooth) optimization; large-scale problems; software packages and their implementation; elements of duality theory. Credit will not be granted for both COSC 406 and COSC 506. [3-0-0] Prerequisite: One of MATH 200, APSC 248 and one of MATH 221, APSC 179.  
Laboratory In Person Learning Wed Fri 12:30 p.m. - 2:00 p.m.

### COSC 406-001  
**COSC_O**

**001** Numerical Optimization  
**WS**  
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. [3-2-0] Prerequisite: All of COSC 221, COSC 222 and one of STAT 230, STAT 205.  
Laboratory In Person Learning Wed Fri 2:00 p.m. - 3:30 p.m.

### COSC 421-101  
**COSC_O**

**101** Network Science  
**WS**  
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. [3-2-0] Prerequisite: COSC 341, and Fourth-year standing.  
Laboratory In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

### COSC 441-001  
**COSC_O**

**001** Advanced Human Computer Interaction  
**WS**  
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. [3-2-0] Prerequisite: COSC 341, and Fourth-year standing.  
Laboratory In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

### COSC 441-L01  
**COSC_O**

**L01** Advanced Human Computer Interaction  
**WS**  
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. [3-2-0] Prerequisite: COSC 341, and Fourth-year standing.  
Laboratory In Person Learning Mon 4:00 p.m. - 6:00 p.m.
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. [3-2-0] Prerequisite: COSC 341 and Fourth-year standing.

COSC 441-102 COSC O 102 Advanced Human Computer Interaction WS 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.
Laboratory In Person Learning Tue 10:00 a.m. - 12:00 p.m.

COSC 448-A_001 COSC O A A_001 Directed Studies in Computer Science WS 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 448-A_005 COSC O A A_005 Directed Studies in Computer Science WS 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 448-B_001 COSC O B B_001 Directed Studies in Computer Science WS-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 448-B_002 COSC O B B_002 Directed Studies in Computer Science WS-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 448-B_003 COSC O B B_003 Directed Studies in Computer Science WS-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 448-C_001 COSC O C C_001 Directed Studies in Computer Science WS 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 448-C_002 COSC O C C_002 Directed Studies in Computer Science WS 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 449-001 COSC O 001 Honours Thesis WS-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 449-002 COSC O 002 Honours Thesis WS-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 449-003 COSC O 003 Honours Thesis WS-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 449-004 COSC O 004 Honours Thesis WS-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 449-005 COSC O 005 Honours Thesis WS-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 449-002 COSC O 002 Capstone Software Engineering Project WS-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 330, COSC 341.
Laboratory In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.

COSC 449-003 COSC O 003 Capstone Software Engineering Project WS-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 330, COSC 341.
Laboratory In Person Learning Thu Tue 3:30 p.m. - 5:00 p.m.

COSC 505-001 COSC O 001 Modelling and Simulation WS Simulation methodology: data collection, model design, output analysis, optimization, validation. Credit will be granted for only one of COSC 405, DATA 408, COSC 505, or DATA 505.
Lecture In Person Learning Thu Tue 2:00 p.m. - 3:30 p.m.

COSC 506-001 COSC O 001 Numerical Optimization WS 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 406 or COSC 506.
Lecture In Person Learning Wed Fri 12:30 p.m. - 2:00 p.m.

COSC 519-J_001 COSC O J J_001 Topics in Computer Science WS 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.

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

COSC 541-001 COSC O 001 Advanced Human Computer Interaction WS 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 549-001 COSC O 001 Master’s Thesis WS Pass/Fail.
Thesis In Person Learning Arranged Arranged

Thesis In Person Learning Arranged Arranged

COSC 590-D_001 COSC O D D_001 Graduate Seminar WS 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 649-001 COSC O 001 Doctoral Dissertation WS Pass/Fail.
Thesis In Person Learning Arranged Arranged

Thesis In Person Learning Arranged Arranged
CRWR_O 150-001 CRWR_O 001 Introduction to Writing Poetry and Non-Fiction WS 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 WS 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 WS 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 WS Lecture In Person Learning Mon Wed 12:30 p.m. - 2:00 p.m.

CRWR_O 250-001 CRWR_O 001 Workshop in Creative Writing: Screenwriting WS Lecture In Person Learning Wed Thu 9:30 a.m. - 11:00 a.m.

CRWR_O 310-001 CRWR_O 001 The Power of Metaphor WS 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 WS 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 WS Lecture In Person Learning Tue 2:00 p.m. - 5:00 p.m.

CRWR_O 470-A_001 CRWR_O A A_001 Portfolio WS Lecture In Person Learning Thu 11:00 a.m. - 2:00 p.m.

CRWR_O 474-001 CRWR_O 001 Writing with Media WS Lecture In Person Learning Wed Fri 2:00 p.m. - 4:00 p.m.

CULT_O 581-A_001 CRWR_O A A_001 Graduate Workshop in Creative Writing - Lyric WS Lecture In Person Learning Tue 11:00 a.m. - 2:00 p.m.

CRWR_O 582-A_001 CRWR_O A A_001 Graduate Workshop in Creative Writing - Narrative WS Lecture In Person Learning Tue 8:00 a.m. - 11:00 a.m.

CULT_O 100-001 CULT_O 001 Media and Popular Cultures in Global Context WS 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 WS Lecture In Person Learning Thu 5:00 p.m. - 6:30 p.m.

CULT_O 100-003 CULT_O 003 Media and Popular Cultures in Global Context WS Lecture In Person Learning Mon Wed 2:00 p.m. - 3:30 p.m.

CULT_O 101-001 CULT_O 001 Cultural Studies Practices WS Lecture In Person Learning Wed Fri 8:00 a.m. - 9:30 a.m.

CULT_O 101-002 CULT_O 002 Cultural Studies Practices WS Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

CULT_O 101-003 CULT_O 003 Cultural Studies Practices WS Lecture In Person Learning Thu 3:30 p.m. - 5:00 p.m.

CULT_O 101-004 CULT_O 004 Cultural Studies Practices WS Lecture In Person Learning Thu 9:30 a.m. - 11:00 a.m.

CULT_O 210-001 CULT_O 001 Reading Screens WS Lecture In Person Learning Wed 12:30 p.m. - 2:00 p.m.

CULT_O 215-001 CULT_O 001 Cultural Industries WS Lecture In Person Learning Thu 12:30 p.m. - 2:00 p.m.

CULT_O 220-101 CULT_O 101 Research with Media in the Humanities WS Lecture In Person Learning Thu 3:30 p.m. - 5:00 p.m.
CULT_230-001  CULT_0 001 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 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.

CULT_250-101  CULT_0 101 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 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  Mon Wed  11:00 a.m. - 2:00 p.m.

CULT_275-001  CULT_0 001 Foundations: Interdisciplinary Theory and Method  WS
   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 225. [3-0-0] Prerequisite: 3 credits of first-year CULT and 3 credits of first-year ENGL. Equivalency: ENGL225
   Lecture  In Person Learning  Thu  3:30 p.m. - 5:00 p.m.

CULT_303-001  CULT_0 001 Narrative Film Production  WS
   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 336, FILM 303, or THTR 303. VISA 106, VISA 261, VISA 271, CULT 210, THTR 101, CRWR 256, 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  Tue Thu  12:30 p.m. - 2:00 p.m.

CULT_309-001  CULT_0 001 Performance Art: Global Perspectives  WS
   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.

CULT_312-A_001  CULT_0 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 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: DHU312
   Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

CULT_315-001  CULT_0 001 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 DHU 315. [3-0-0] Prerequisite: Third-year standing. CULT 201, CULT 215, or CULT 220 recommended. Equivalency: DHU 315
   Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

CULT_362-A_001  CULT_0 A A_001 Advanced Practice in Photography  WS
   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 Thu  3:30 p.m. - 7:30 p.m.

CULT_371-A_001  CULT_0 A A_001 Modern Critical Theory and Interdisciplinary Theory  WS
   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/Minor in CULT can apply no more than 6 credits in total of CULT 371, ENGL 309 or any combination thereof. [3-0-0] Prerequisite: 3 credits of 200-level CULT 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.

CULT_382-A_001  CULT_0 A A_001 Advanced Practice in Media Arts  WS
   Advanced survey of major trends within critical theory, with attention to issues such as subjectivity and power, the body, culture and imperialism, and social discourse. No more than 6 credits in total will be granted for CULT 371, ENGL 309 or any combination thereof. [3-0-0] Prerequisite: 3 credits of 200-level CULT or 200-level ENGL. One of CULT 270, CULT 275 recommended. Equivalency: ENGL309
   Lecture  In Person Learning  Tue Thu  3:30 p.m. - 7:30 p.m.

CULT_390-A_001  CULT_0 A A_001 Identities and Power: Areas and Themes  WS
   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.

CULT_390-B_001  CULT_0 B B_001 Identities and Power: Areas and Themes  WS
   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.

CULT_411-001  CULT_0 001 Performance Studies  WS
   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 WRLD 411. [3-0-0] Prerequisite: Third-year standing. Equivalency: THTR411, WRLD411
   Lecture  In Person Learning  Tue Thu  2:00 p.m. - 5:00 p.m.

CULT_417-B_001  CULT_0 B B_001 Postcolonial Studies  WS
   Examines colonization, 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 9 credits in total will be granted for CULT 417, ENGL 417, or any combination thereof. [3-0-0] Prerequisite: 3 credits of CULT and third-year standing. CULT 230 is recommended. Equivalency: ENGL417
   Lecture  In Person Learning  Mon  11:00 a.m. - 2:00 p.m.

CULT_450-001  CULT_0 001 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 450. [3-0-0] Prerequisite: 3 credits of 200-level CULT. CULT 250 recommended. Equivalency: ENGL473
   Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

DATA_101-001  DATA_0 001 Making Predictions with Data  WS
   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.

DATA_101-002  DATA_0 002 Making Predictions with Data  WS
   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  Tue Thu  5:00 p.m. - 6:30 p.m.

DATA_101-010  DATA_0 010 Making Predictions with Data  WS
   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.

DATA_101-020  DATA_0 020 Making Predictions with Data  WS
   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.

DATA_101-030  DATA_0 030 Making Predictions with Data  WS
   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.
DATA_O 101-104 DATA_O 104 Making Predictions with Data WS2 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 Fri 11:00 a.m. - 12:00 p.m.

DATA_O 101-105 DATA_O 105 Making Predictions with Data WS5 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 Fri 9:00 a.m. - 10:00 a.m.

DATA_O 310-101 DATA_O 101 Applied Regression Analysis WS5 Regression; classification, re特派ng, model selection and validation, fundamental properties of matrices, dimension reduction, tree-based methods, unsupervised learning. [3-2-0] Prerequisite: Either (a) one of STAT 205, STAT 230 or (b) a score more than 75% in one of APSC 254, BIOL 202, PSYO 173; and one of COSC 111, APSC 177. Lecture In Person Learning Wed Fri 3:30 p.m. - 5:00 p.m.

DATA_O 311-101 DATA_O 101 Machine Learning WS5 Regression; classification, re特派ng, model selection and validation, fundamental properties of matrices, dimension reduction, tree-based methods, unsupervised learning. [3-2-0] Prerequisite: Either (a) one of STAT 205, STAT 230 or (b) a score more than 75% in one of APSC 254, BIOL 202, PSYO 173; and one of COSC 111, APSC 177. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

DATA_O 311-101 DATA_O 101 Machine Learning WS5 Regression; classification, re特派ng, model selection and validation, fundamental properties of matrices, dimension reduction, tree-based methods, unsupervised learning. [3-2-0] Prerequisite: Either (a) one of STAT 205, STAT 230 or (b) a score more than 75% in one of APSC 254, BIOL 202, PSYO 173; and one of COSC 111, APSC 177. Laboratory In Person Learning Fri 10:00 a.m. - 12:00 p.m.

DATA_O 311-104 DATA_O 104 Machine Learning WS1 Regression; classification, re特派ng, model selection and validation, fundamental properties of matrices, dimension reduction, tree-based methods, unsupervised learning. [3-2-0] Prerequisite: Either (a) one of STAT 205, STAT 230 or (b) a score more than 75% in one of APSC 254, BIOL 202, PSYO 173; and one of COSC 111, APSC 177. Laboratory In Person Learning Thu 12:00 p.m. - 2:00 p.m.

DATA_O 311-103 DATA_O 103 Machine Learning WS2 Regression; classification, re特派ng, model selection and validation, fundamental properties of matrices, dimension reduction, tree-based methods, unsupervised learning. [3-2-0] Prerequisite: Either (a) one of STAT 205, STAT 230 or (b) a score more than 75% in one of APSC 254, BIOL 202, PSYO 173; and one of COSC 111, APSC 177. Laboratory In Person Learning Mon 12:00 p.m. - 2:00 p.m.

DATA_O 405-001 DATA_O 001 Stochastic Modelling and Simulation WS5 Pseudorandom number generation and testing. Simulation and modelling of univariate and multivariate data; stochastic models, including Poisson processes and Markov chains; MC simulation, Hidden Markov models, and queuing systems. Credit will be granted for only one of COSC 405, DATA 405, COSC 505, or DATA 505. [3-2-0] Prerequisite: One of STAT 205, STAT 230 [with 60% or above]. Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

DATA_O 405-011 DATA_O 011 Stochastic Modelling and Simulation WS5 Pseudorandom number generation and testing. Simulation and modelling of univariate and multivariate data; stochastic models, including Poisson processes and Markov chains; MC simulation, Hidden Markov models, and queuing systems. Credit will be granted for only one of COSC 405, DATA 405, COSC 505, or DATA 505. [3-2-0] Prerequisite: One of STAT 205, STAT 230 [with 60% or above]. Laboratory In Person Learning Tue 12:00 p.m. - 2:00 p.m.

DATA_O 448-A_001 DATA_O 001 Communication and Consulting in Data Science WS1 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

DATA_O 448-B_001 DATA_O 001 Directed Studies in Data Science WS1 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

DATA_O 448-B_002 DATA_O 002 Directed Studies in Data Science WS1 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

DATA_O 448-C_001 DATA_O 001 Computing Platforms for Data Science WS2 Students will undertake a research project as agreed upon by the student, supervising faculty member, and unit head. A written thesis and a public presentation (poster or seminar) are required. Restricted to students in the B.S. Data Science Honours Program. Prerequisite: Fourth-year standing and permission of the department head. Thesis In Person Learning Arranged Arranged

DATA_O 500-001 DATA_O 001 Communication and Consulting in Data Science WS1 Effective consulting practices, ethical considerations, methodology selection, data preparation, effective software development. Credit will be granted for only one of COSC 500 or STAT 400 when the subject matter is of the same nature. Effective consulting practices, ethical considerations, methodology selection, data preparation, effective software development. Credit will be granted for only one of COSC 500 or STAT 400 when the subject matter is of the same nature. Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

DATA_O 505-001 DATA_O 001 Modelling and Simulation WS1 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.

DATA_O 530-001 DATA_O 001 Computing Platforms for Data Science WS2 Introduction to software and tools for Data Science. Setup process. Restricted to students in the MDS program. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

DATA_O 530-101 DATA_O 101 Computing Platforms for Data Science WS1 Introduction to software and tools for Data Science. Setup process. Restricted to students in the MDS program. Laboratory In Person Learning Tue 12:30 p.m. - 4:30 p.m.

DATA_O 530-T1A DATA_O 101 Computing Platforms for Data Science WS1 Introduction to software and tools for Data Science. Setup process. Restricted to students in the MDS program. Discussion In Person Learning Tue 8:30 a.m. - 9:30 a.m.

DATA_O 531-101 DATA_O 001 Programming for Data Science WS5 Programming including decisions, loops, functions, and using data structures and libraries. Restricted to students in the MDS program. Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

DATA_O 531-L1 DATA_O 001 Programming for Data Science WS1 Programming including decisions, loops, functions, and using data structures and libraries. Restricted to students in the MDS program. Laboratory In Person Learning Wed 12:30 p.m. - 4:30 p.m.

DATA_O 531-T1A DATA_O 101 Programming for Data Science WS5 Programming including decisions, loops, functions, and using data structures and libraries. Restricted to students in the MDS program. Discussion In Person Learning Wed 8:30 a.m. - 9:30 a.m.

DATA_O 532-001 DATA_O 001 Algorithms and Data Structure WS1 Data structures including lists, queues, stacks, hash tables, trees and graphs. Recursion: Searching and sorting. Asymptotic complexity: Restricted to students in the MDS program. Lecture In Person Learning Thu 9:30 a.m. - 11:00 a.m.

DATA_O 532-L1 DATA_O 001 Algorithms and Data Structure WS1 Data structures including lists, queues, stacks, hash tables, trees and graphs. Recursion: Searching and sorting. Asymptotic complexity: Restricted to students in the MDS program. Laboratory In Person Learning Wed 12:30 p.m. - 4:30 p.m.

DATA_O 532-T1A DATA_O 101 Algorithms and Data Structure WS1 Data structures including lists, queues, stacks, hash tables, trees and graphs. Recursion: Searching and sorting. Asymptotic complexity: Restricted to students in the MDS program. Discussion In Person Learning Wed 8:30 a.m. - 9:30 a.m.

DATA_O 533-101 DATA_O 001 Collaborative Software Development WS5 Software life cycle, licensing, Packaging, Testing and quality control, Version control, Collaborative environments. Restricted to students in the MDS program. Prerequisite: DATA 532. Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

DATA_O 533-101 DATA_O 101 Collaborative Software Development WS5 Software life cycle, licensing, Packaging, Testing and quality control, Version control, Collaborative environments. Restricted to students in the MDS program. Prerequisite: DATA 532. Laboratory In Person Learning Mon 12:30 p.m. - 4:30 p.m.

DATA_O 540-001 DATA_O 001 Databases and Data Retrieval WS Using and querying relational and NoSQL databases for analysis. Experience with SQL, JSON, and programs that use databases. Restricted to students in the MDS program. Prerequisite: DATA 531. Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

DATA_O 540-L01 DATA_O L01 Databases and Data Retrieval WS Using and querying relational and NoSQL databases for analysis. Experience with SQL, JSON, and programs that use databases. Restricted to students in the MDS program. Prerequisite: DATA 531. Laboratory In Person Learning Mon 12:30 p.m. - 4:30 p.m.

DATA_O 540-T1A DATA_O TLA Databases and Data Retrieval WS Using and querying relational and NoSQL databases for analysis. Experience with SQL, JSON, and programs that use databases. Restricted to students in the MDS program. Prerequisite: DATA 531. Discussion In Person Learning Mon 8:30 a.m. - 9:30 a.m.

DATA_O 541-001 DATA_O 001 Scripting and Reporting WS Scripting engines for data science. Reporting tools. Automation. Restricted to students in the MDS program. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

DATA_O 541-L01 DATA_O L01 Scripting and Reporting WS Scripting engines for data science. Reporting tools. Automation. Restricted to students in the MDS program. Laboratory In Person Learning Mon 12:30 p.m. - 4:30 p.m.

DATA_O 541-T1A DATA_O TLA Scripting and Reporting WS Scripting engines for data science. Reporting tools. Automation. Restricted to students in the MDS program. Discussion In Person Learning Mon 8:30 a.m. - 9:30 a.m.

DATA_O 543-001 DATA_O 001 Data Collection WS Fundamental techniques in the collection of data. Focus will be devoted to understanding the effects of randomization, restrictions on randomization, repeated measures and blocking on the model fitting. Restricted to students in the MDS program. Prerequisite: All of DATA 540, DATA 570. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

DATA_O 543-L01 DATA_O L01 Data Collection WS Fundamental techniques in the collection of data. Focus will be devoted to understanding the effects of randomization, restrictions on randomization, repeated measures and blocking on the model fitting. Restricted to students in the MDS program. Prerequisite: All of DATA 540, DATA 570. Laboratory In Person Learning Wed 12:30 p.m. - 4:30 p.m.

DATA_O 543-T1A DATA_O TLA Data Collection WS Fundamental techniques in the collection of data. Focus will be devoted to understanding the effects of randomization, restrictions on randomization, repeated measures and blocking on the model fitting. Restricted to students in the MDS program. Prerequisite: All of DATA 540, DATA 570. Discussion In Person Learning Wed 8:30 a.m. - 9:30 a.m.

DATA_O 553-001 DATA_O 001 Privacy, Security and Professional Ethics WS Data privacy laws and expectations. Freedom of information. Ethics board. Licensing. Data security. Restricted to students in the MDS program. Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

DATA_O 553-L01 DATA_O L01 Privacy, Security and Professional Ethics WS Data privacy laws and expectations. Freedom of information. Ethics board. Licensing. Data security. Restricted to students in the MDS program. Laboratory In Person Learning Tue 12:30 p.m. - 4:30 p.m.

DATA_O 553-T1A DATA_O TLA Privacy, Security and Professional Ethics WS Introduction to regression for Data Science. Simple linear regression, multiple linear regression, interactions, mixed variable types, model assessment, simple variable selection, k-nearest-neighbours regression. 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 570-001 DATA_O 001 Predictive Modelling WS Introduction to regression for Data Science. Simple linear regression, multiple linear regression, interactions, mixed variable types, model assessment, simple variable selection, k-nearest-neighbours regression. Restricted to students in the MDS program. Prerequisite: DATA 580. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

DATA_O 570-L01 DATA_O L01 Predictive Modelling WS Introduction to regression for Data Science. Simple linear regression, multiple linear regression, interactions, mixed variable types, model assessment, simple variable selection, k-nearest-neighbours regression. Restricted to students in the MDS program. Laboratory In Person Learning Thu 12:30 p.m. - 4:30 p.m.

DATA_O 570-T1A DATA_O TLA Predictive Modelling WS Introduction to regression for Data Science. Simple linear regression, multiple linear regression, interactions, mixed variable types, model assessment, simple variable selection, k-nearest-neighbours regression. Restricted to students in the MDS program. Prerequisite: DATA 580. Discussion In Person Learning Thu 8:30 a.m. - 9:30 a.m.

DATA_O 571-001 DATA_O 001 Resampling and Regularisation WS Resampling techniques and regularization for linear models. Bootstrap, jackknife, cross-validation, ridge regression, lasso, discussion of tuning parameters. Restricted to students in the MDS program. Prerequisite: DATA 570. Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

DATA_O 571-L01 DATA_O L01 Resampling and Regularisation WS Resampling techniques and regularization for linear models. Bootstrap, jackknife, cross-validation, ridge regression, lasso, discussion of tuning parameters. Restricted to students in the MDS program. Prerequisite: DATA 570. Laboratory In Person Learning Tue 12:30 p.m. - 4:30 p.m.

DATA_O 571-T1A DATA_O TLA Resampling and Regularisation WS Resampling techniques and regularization for linear models. Bootstrap, jackknife, cross-validation, ridge regression, lasso, discussion of tuning parameters. Restricted to students in the MDS program. Prerequisite: DATA 570. Discussion In Person Learning Thu 8:30 a.m. - 9:30 a.m.

DATA_O 580-001 DATA_O 001 Modelling and Simulation I WS Pseudorandom number generation, testing and transformation to other discrete and continuous data types. Introduction to Poisson processes and the simulation of data from predictive models, as well as temporal and spatial models. Restricted to students in the MDS program. Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

DATA_O 580-L01 DATA_O L01 Modelling and Simulation I WS Pseudorandom number generation, testing and transformation to other discrete and continuous data types. Introduction to Poisson processes and the simulation of data from predictive models, as well as temporal and spatial models. Restricted to students in the MDS program. Laboratory In Person Learning Thu 12:30 p.m. - 4:30 p.m.

DATA_O 580-T1A DATA_O TLA Modelling and Simulation I WS Pseudorandom number generation, testing and transformation to other discrete and continuous data types. Introduction to Poisson processes and the simulation of data from predictive models, as well as temporal and spatial models. Restricted to students in the MDS program. Prerequisite: DATA 580. Discussion In Person Learning Thu 8:30 a.m. - 9:30 a.m.

DATA_O 581-010 DATA_O 101 Markov chains and their applications, for example, queuing and Markov Chain Monte Carlo. Restricted to students in the MDS program. Prerequisite: DATA 580. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

DATA_O 581-L01 DATA_O L01 Markov chains and their applications, for example, queuing and Markov Chain Monte Carlo. Restricted to students in the MDS program. Prerequisite: DATA 580. Laboratory In Person Learning Thu 12:30 p.m. - 4:30 p.m.

DATA_O 582-T1A DATA_O TLA Modelling and Simulation II 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 8:30 a.m. - 9:30 a.m.

DHU_O 155-001 DHU_O 001 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. Lecture In Person Learning Fri 12:00 p.m. - 2:00 p.m.

DHU_O 155-T1A DHU_O TLA 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 11:00 a.m. - 12:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Title</th>
<th>Type</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIHU_O 155-T1B</td>
<td>DIHU_O</td>
<td>Writing and Making with Technology in the Humanities</td>
<td>Discussion</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>DIHU_O 155-T1C</td>
<td>DIHU_O</td>
<td>Writing and Making with Technology in the Humanities</td>
<td>Discussion</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>DIHU_O 155-T1D</td>
<td>DIHU_O</td>
<td>Writing and Making with Technology in the Humanities</td>
<td>Discussion</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>DIHU_O 155-T1E</td>
<td>DIHU_O</td>
<td>Writing and Making with Technology in the Humanities</td>
<td>Discussion</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>DIHU_O 155-T1F</td>
<td>DIHU_O</td>
<td>Writing and Making with Technology in the Humanities</td>
<td>Discussion</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>DIHU_O 155-T1G</td>
<td>DIHU_O</td>
<td>Writing and Making with Technology in the Humanities</td>
<td>Discussion</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>DIHU_O 220-101</td>
<td>DIHU_O</td>
<td>Research with Media in the Humanities</td>
<td>Lecture</td>
<td>Online Learning</td>
</tr>
<tr>
<td>DIHU_O 312-A_001</td>
<td>DIHU_O</td>
<td>Internet Culture</td>
<td>Lecture</td>
<td>Online Learning</td>
</tr>
<tr>
<td>DIHU_O 315-001</td>
<td>DIHU_O</td>
<td>Television Studies</td>
<td>Lecture</td>
<td>Online Learning</td>
</tr>
<tr>
<td>DIHU_O 370-001</td>
<td>DIHU_O</td>
<td>Story and Image Across the Islamic World</td>
<td>Lecture</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>EADM_O 557-001</td>
<td>EADM_O</td>
<td>Leadership for Inclusion and Social Justice</td>
<td>Lecture</td>
<td>Online Learning</td>
</tr>
<tr>
<td>EAP_O 103-001</td>
<td>EAP_O</td>
<td>English for Academic Purposes Level III</td>
<td>Lecture</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>EAP_O 104-001</td>
<td>EAP_O</td>
<td>English for Academic Purposes Level IV</td>
<td>Lecture</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>EAP_O 104-002</td>
<td>EAP_O</td>
<td>English for Academic Purposes Level IV</td>
<td>Lecture</td>
<td>In Person Learning</td>
</tr>
</tbody>
</table>

**Course Descriptions:**

**DIHU_O 155-T1B**: 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

**DIHU_O 155-T1C**: 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

**DIHU_O 155-T1D**: 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

**DIHU_O 155-T1E**: 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

**DIHU_O 155-T1F**: 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

**DIHU_O 155-T1G**: 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

**DIHU_O 220-101**: 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 30% of class time involves instruction in humanities criticism, prototyping, writing, and research. Credit will be granted for one of DIHU 220 and CULT 215. Prerequisite: 3 credits of 100-level CULT, DMK, or ENGL, or FILM 100. Equivalency: CULT220

**DIHU_O 312-A_001**: 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

**DIHU_O 315-001**: The medium of television from a global perspective, and the perspective 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

**DIHU_O 370-001**: Selections from the arts of the book across the Islamic world (8th 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

**EADM_O 557-001**: An overview of the theoretical and practical elements of leadership for inclusive education, social justice, and other associated topics.

**EAP_O 103-001**: 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.

**EAP_O 104-001**: 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-proficiency-tests-and-programs). Registration limited to students in the English Foundation Program.

**EAP_O 104-002**: 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-proficiency-tests-and-programs). Registration limited to students in the English Foundation Program.
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 104 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.

Methods of observing, recording, and interpreting children's behavior in early childhood settings and in using data for educational guidance following developmentally appropriate practices. Restricted to students with at least third-year standing. Pass/Fail. [3-0-0]

Lecture

Online Learning

Arranged

Arranged

Lecture

In Person Learning

Wed Fri

11:00 a.m. - 12:30 p.m.

Lecture

In Person Learning

Wed Mon

Mon Wed

12:30 p.m. - 2:00 p.m.

Lecture

In Person Learning

Tue Thu

11:00 a.m. - 12:00 p.m.

Lecture

In Person Learning

Tue Thu

11:00 a.m. - 12:00 p.m.

Lecture

In Person Learning

Tue Thu

10:00 a.m. - 11:00 a.m.

Lecture

In Person Learning

Wed Mon

Mon Wed

9:00 a.m. - 10:00 a.m.

Lecture

In Person Learning

Wed Mon

Mon Wed

12:30 p.m. - 2:00 p.m.

Discussion

In Person Learning

Tue

10:00 a.m. - 11:00 a.m.

Discussion

In Person Learning

Mon

9:00 a.m. - 10:00 a.m.

Discussion

In Person Learning

Mon

11:00 a.m. - 12:00 p.m.

Discussion

In Person Learning

Mon

11:00 a.m. - 12:00 p.m.

Discussion

In Person Learning

Tue

12:30 p.m. - 2:00 p.m.

Discussion

In Person Learning

Tue

11:00 a.m. - 12:00 p.m.

Discussion

In Person Learning

Mon

8:00 a.m. - 9:00 a.m.

Discussion

In Person Learning

Mon

2:00 p.m. - 3:30 p.m.

Discussion

In Person Learning

Mon

9:30 a.m. - 11:00 a.m.

Discussion

In Person Learning

Tue

11:00 a.m. - 12:30 p.m.

Discussion

In Person Learning

Tue

12:30 p.m. - 2:00 p.m.

Discussion

In Person Learning

Tue

11:00 a.m. - 12:00 p.m.

Discussion

In Person Learning

Mon

8:00 a.m. - 9:00 a.m.

Discussion

In Person Learning

Mon

2:00 p.m. - 3:30 p.m.

Discussion

In Person Learning

Mon

2:00 p.m. - 3:30 p.m.

Discussion

In Person Learning

Mon

2:00 p.m. - 3:30 p.m.

Discussion

In Person Learning

Mon

2:00 p.m. - 3:30 p.m.

Discussion

In Person Learning

Mon

2:00 p.m. - 3:30 p.m.

Discussion

In Person Learning

Mon

2:00 p.m. - 3:30 p.m.

Discussion

In Person Learning

Mon

2:00 p.m. - 3:30 p.m.
ECON_351-001
ECON_O
001
Women in the Economy
WS
In Person Learning
Mon Wed
12:30 p.m. - 2:00 p.m.

ECON_353-001
ECON_O
001
Urban and Transportation Economics
WS
Lecture
In Person Learning
Wed Fri
9:30 a.m. - 11:00 a.m.

ECON_355-001
ECON_O
001
International Trade
WS
Experiential
Tue Thu
9:30 a.m. - 11:00 a.m.

ECON_360-001
ECON_O
001
Labour Economics
WS
In Person Learning
Wed Fri
9:30 a.m. - 11:00 a.m.

ECON_361-001
ECON_O
001
Economics of Industrial Relations
WS
In Person Learning
Tue Thu
3:30 p.m. - 5:00 p.m.

ECON_363-001
ECON_O
001
Health Economics
WS
In Person Learning
Tue Thu
2:00 p.m. - 3:30 p.m.

ECON_370-101
ECON_O
101
Benefit-Cost Analysis and the Economics of Props
WS
Lecture
In Person Learning
Tue Thu
12:30 p.m. - 2:00 p.m.

ECON_371-001
ECON_O
001
Economics of the Environment
WS
Lecture
In Person Learning
Tue Thu
5:00 p.m. - 6:30 p.m.

ECON_386-001
ECON_O
001
Industrial Organization and Regulation
WS
Lecture
In Person Learning
Tue Thu
9:30 a.m. - 11:00 a.m.

ECON_391_Y-001
ECON_O
Y Y_001
Topics in Economics
WS
Lecture
In Person Learning
Wed Fri
2:00 p.m. - 3:30 p.m.

ECON_402-001
ECON_O
001
Applied Macroeconomic Analysis
WS
Lecture
In Person Learning
Tue Thu
2:00 p.m. - 3:30 p.m.

ECON_427-001
ECON_O
001
Econometrics
WS
Lecture
In Person Learning
Mon Wed
3:30 p.m. - 5:00 p.m.

EDST_O 498-D_001
EDST_O
D 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. [1-0-0]
In Person Learning
Sat (Alternate weeks)
9:00 a.m. - 4:00 p.m.

EDUC_O 100-002
EDUC_O
002
Controversial Issues in Education
WS
Lecture
In Person Learning
Mon Wed
3:30 a.m. - 11:00 a.m.

EDUC_O 104-001
EDUC_O
001
Introduction to Academic Pedagogy: An Aboriginal WS
Living an Aboriginal approach to the cycle of learning, this developmental course provides an opportunity for first-year students to learn essential skills needed for academic success. [3-0-0]
In Person Learning
Wed Fri
2:00 p.m. - 3:30 p.m.

EDUC_O 104-003
EDUC_O
003
Introduction to Academic Pedagogy: An Aboriginal WS
Living an Aboriginal approach to the cycle of learning, this developmental course provides an opportunity for first-year students to learn essential skills needed for academic success. [3-0-0]
Online Learning
Arranged
Arranged

EDUC_O 160-001
EDUC_O
001
Mathematical Reasoning for Arts and Education
WS
Lecture
In Person Learning
Mon Wed
8:00 a.m. - 9:30 a.m.

EDUC_O 300-001
EDUC_O
001
Inquiry in Education
WS
Lecture
In Person Learning
Thu
5:00 p.m. - 8:00 p.m.

EDUC_O 400-001
EDUC_O
001
Designing and Facilitating Effective Learning Exp WS
Leverage evidence based principles, approaches, methods, and strategies to design and facilitate effective learning experiences. Restricted to students with at least third-year standing. [3-0-0]
Lecture
In Person Learning
Mon
2:00 p.m. - 5:00 p.m.

EDUC_O 400-002
EDUC_O
002
Experiential Inquiry in Education
WS
Lecture
In Person Learning
Mon
2:00 p.m. - 5:00 p.m.
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.

Coursework completed during the program's 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.

Building on coursework completed during the program's 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.

A quantitative and scientific approach to understanding the 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 requirements of, and opportunities for, sustainability.

Earth Science 111-015

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. [3-2-0]

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]

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.

Coursework completed during the program's 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.

Building on coursework completed during the program's 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.

A quantitative and scientific approach to understanding the 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 requirements of, and opportunities for, sustainability.

Earth Science 111-015

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. [3-2-0]

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]

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.

Coursework completed during the program's 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.

Building on coursework completed during the program's 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.

A quantitative and scientific approach to understanding the 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 requirements of, and opportunities for, sustainability.

Earth Science 111-015

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. [3-2-0]

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]

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.

Coursework completed during the program's 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.

Building on coursework completed during the program's 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.

A quantitative and scientific approach to understanding the 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 requirements of, and opportunities for, sustainability.

Earth Science 111-015

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. [3-2-0]

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]
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 required field work in lab time. Required one-day, weekend trip. Credit will be granted for only one of EESC 222 or GEOG 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: GEOG222

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 required field work in lab time. Required one-day, weekend trip. Credit will be granted for only one of EESC 222 or GEOG 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: GEOG222

Integrated approaches to freshwater science and its place in environmental science. Ecosystem ecology of inland waters relating to aquatic organisms with their physical and chemical environment. Participation in a one-day weekend field trip in September or early October is required. Credit will be granted for only one of EESC 301 or BIOL 307. [3-3-0] Prerequisite: All of BIOL 116, BIOL 125. Third-year standing in Biology. Credit will be granted for only one of EESC 301 or BIOL 307. [3-3-0] Prerequisite: All of BIOL 116, BIOL 125. Third-year standing in Biology. Equivalency: BIOL307

Legal, administrative and project management aspects of environmental impact assessment (EIA). EIA regulations, processes and systems. Assessment approaches and methods for cumulative effects, social/economic impacts, strategic and regional assessment, risk assessment and public participation. Canadian federal, territorial and provincial EIA systems. Credit will be granted for only one of EESC 314 or GEOG 314 [3-3-0] Prerequisite: Either (a) 6 credits of EESC or (b) 6 credits of GEOG. Third-year standing in the Bachelor of Science. Equivalency: GEOG314

Description, classification, and petrogenesis of igneous and metamorphic rocks. Igneous and metamorphic processes. Past and present plate tectonic implications. [3-3-0] Prerequisite: EESC 201. Credit will be granted for only one of EESC 322 or BIOL 307. [3-3-0] Prerequisite: All of BIOL 116, BIOL 125. Third-year standing in Biology. One of BIOL 201 or BIOL 375 is recommended. Equivalency: BIOL307
EESC 449-001  EESC_O 101 Structural Geology W1  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.

EESC 449-002  EESC_O 001 Hydrogeology W1  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; Geology; or (b) one of ENGR 340, ENGR 341, Third-year standing.  Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

EESC 449-003  EESC_O 002 Honours Thesis W1-2  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

EESC 449-004  EESC_O 003 Honours Thesis W1-2  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

EESC 449-005  EESC_O 004 Honours Thesis W1-2  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

EESC 449-006  EESC_O 005 Honours Thesis W1-2  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

EESC 449-007  EESC_O 006 Honours Thesis W1-2  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

EESC 449-008  EESC_O 007 Honours Thesis W1-2  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

EESC 449-009  EESC_O 008 Honours Thesis W1-2  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

EESC 456-001  EESC_O 001 Soil Science W1  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 112, PHYS 111, PHYS 112. Third-year standing. Equivalency: GEOG466  Lecture In Person Learning Mon Wed 3:30 p.m. - 5:00 p.m.
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.

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.

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.

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 114. 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.

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.

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.

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.

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.

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.

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

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

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

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
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Days</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 112-008</td>
<td>Studies in Composition</td>
<td>W1</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 112-009</td>
<td>Studies in Composition</td>
<td>W1</td>
<td>Tue Thu</td>
<td>2:00 p.m. - 3:30 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 112-010</td>
<td>Studies in Composition</td>
<td>W1</td>
<td>Wed Fri</td>
<td>3:30 p.m. - 5:00 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 112-011</td>
<td>Studies in Composition</td>
<td>W1</td>
<td>Wed Fri</td>
<td>11:00 a.m. - 12:30 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 112-012</td>
<td>Studies in Composition</td>
<td>W1</td>
<td>Mon Wed</td>
<td>5:00 p.m. - 6:30 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 112-013</td>
<td>Studies in Composition</td>
<td>W1</td>
<td>Mon Wed</td>
<td>12:30 p.m. - 2:00 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 114-001</td>
<td>Studies in Composition: Indigenous Perspectives</td>
<td>W1</td>
<td>Online Learning</td>
<td>6:30 p.m. - 8:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>ENGL 150-001</td>
<td>Introduction to Literary Genre</td>
<td>W1</td>
<td>Tue Thu</td>
<td>11:00 a.m. - 12:30 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 150-002</td>
<td>Introduction to Literary Genre</td>
<td>W1</td>
<td>Mon Wed</td>
<td>3:00 p.m. - 4:00 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 150-003</td>
<td>Introduction to Literary Genre</td>
<td>W1</td>
<td>Mon Wed</td>
<td>1:00 p.m. - 2:00 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 150-004</td>
<td>Introduction to Literary Genre</td>
<td>W1</td>
<td>Mon Wed</td>
<td>11:00 a.m. - 12:30 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 150-005</td>
<td>Introduction to Literary Genre</td>
<td>W1</td>
<td>Mon Wed</td>
<td>2:00 p.m. - 3:30 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 150-006</td>
<td>Introduction to Literary Genre</td>
<td>W1</td>
<td>Tue Thu</td>
<td>9:30 a.m. - 11:00 a.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 150-007</td>
<td>Introduction to Literary Genre</td>
<td>W1</td>
<td>Tue Wed</td>
<td>2:00 p.m. - 3:30 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 153-001</td>
<td>Readings in Narrative</td>
<td>W1</td>
<td>Fri</td>
<td>2:00 p.m. - 4:00 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 155-T01</td>
<td>Readings in Narrative</td>
<td>W1</td>
<td>Wed</td>
<td>5:00 p.m. - 6:00 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 155-T02</td>
<td>Readings in Narrative</td>
<td>W1</td>
<td>Wed</td>
<td>8:00 a.m. - 9:00 a.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 155-T03</td>
<td>Readings in Narrative</td>
<td>W1</td>
<td>Fri</td>
<td>8:00 a.m. - 9:00 a.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 155-T04</td>
<td>Readings in Narrative</td>
<td>W1</td>
<td>Tue</td>
<td>8:00 a.m. - 9:00 a.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 155-T05</td>
<td>Readings in Narrative</td>
<td>W1</td>
<td>Thu</td>
<td>12:00 p.m. - 1:00 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 155-T06</td>
<td>Readings in Narrative</td>
<td>W1</td>
<td>Tue</td>
<td>12:00 p.m. - 1:00 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 155-T07</td>
<td>Readings in Narrative</td>
<td>W1</td>
<td>Fri</td>
<td>8:00 a.m. - 9:00 a.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 155-T08</td>
<td>Readings in Narrative</td>
<td>W1</td>
<td>Fri</td>
<td>1:00 p.m. - 2:00 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 155-T09</td>
<td>Readings in Narrative</td>
<td>W1</td>
<td>Mon</td>
<td>1:00 p.m. - 2:00 p.m.</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>ENGL 155-T10</td>
<td>Readings in Narrative</td>
<td>W1</td>
<td>Mon</td>
<td>2:00 p.m. - 3:00 p.m.</td>
<td>In Person Learning</td>
</tr>
</tbody>
</table>
ENGL 155-T11 ENGL 220-001
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 155-T12 ENGL 220-001
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 215-001
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 215-001
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 215-001
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 215-001
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 215-001
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 215-001
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 215-001
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 215-001
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 215-001
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 216-001
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 Wed 5:00 p.m. - 6:30 p.m.

ENGL 156-002 ENGL 216-001
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 Thu 11:00 a.m. - 12:30 p.m.

ENGL 203-A_001 ENGL 209-001
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 209-001
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 Thu 2:00 p.m. - 3:30 p.m.

ENGL 203-A_003 ENGL 209-001
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 219-001
001 Children's Literature 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 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 221-001
001 Reading Screens 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. Equivalency: CULT210 
Lecture In Person Learning Wed Fri 12:30 p.m. - 2:00 p.m.

ENGL 220-001 ENGL 211-001
001 Foundations: Literature in Historical Context 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 Thu 3:30 p.m. - 5:00 p.m.
<table>
<thead>
<tr>
<th>ENGL 437-B_001</th>
<th>ENGL 437-B_001</th>
<th>Foundation: Literature in Historical Context 1</th>
<th>Lecture</th>
<th>In Person Learning</th>
<th>Tue Thu</th>
<th>3:30 p.m. - 5:00 p.m.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 425-A_001</td>
<td>ENGL 425-A_001</td>
<td>Foundations: Indigenous Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 424-A_001</td>
<td>ENGL 424-A_001</td>
<td>Foundations: Reading Across Borders</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 414-A_001</td>
<td>ENGL 414-A_001</td>
<td>Introduction to the profession's expectations, practices, and responsibilities. Pass/Fail.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 413-A_001</td>
<td>ENGL 413-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 412-A_001</td>
<td>ENGL 412-A_001</td>
<td>Topics in Popular Culture</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 411-A_001</td>
<td>ENGL 411-A_001</td>
<td>Topics in Indigenous literature and criticism in North America, including particular periods and individual authors. Credit will be granted for only one of ENGL 437 or CULT 437.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 410-A_001</td>
<td>ENGL 410-A_001</td>
<td>Examinations of one or more genres, writers, forms, themes, or major trends in popular literature. 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.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 409-A_001</td>
<td>ENGL 409-A_001</td>
<td>Contemporary African identities in the age of accelerating globalization.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 408-A_001</td>
<td>ENGL 408-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 407-A_001</td>
<td>ENGL 407-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 406-A_001</td>
<td>ENGL 406-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 405-A_001</td>
<td>ENGL 405-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 404-A_001</td>
<td>ENGL 404-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 403-A_001</td>
<td>ENGL 403-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 402-A_001</td>
<td>ENGL 402-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 401-A_001</td>
<td>ENGL 401-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 400-A_001</td>
<td>ENGL 400-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 399-A_001</td>
<td>ENGL 399-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 398-A_001</td>
<td>ENGL 398-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 397-A_001</td>
<td>ENGL 397-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 396-A_001</td>
<td>ENGL 396-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 395-A_001</td>
<td>ENGL 395-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 394-A_001</td>
<td>ENGL 394-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 393-A_001</td>
<td>ENGL 393-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 392-A_001</td>
<td>ENGL 392-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 391-A_001</td>
<td>ENGL 391-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 390-A_001</td>
<td>ENGL 390-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 389-A_001</td>
<td>ENGL 389-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 388-A_001</td>
<td>ENGL 388-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 387-A_001</td>
<td>ENGL 387-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 386-A_001</td>
<td>ENGL 386-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 385-A_001</td>
<td>ENGL 385-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 384-A_001</td>
<td>ENGL 384-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 383-A_001</td>
<td>ENGL 383-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 382-A_001</td>
<td>ENGL 382-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 381-A_001</td>
<td>ENGL 381-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 380-A_001</td>
<td>ENGL 380-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 379-A_001</td>
<td>ENGL 379-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 378-A_001</td>
<td>ENGL 378-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 377-A_001</td>
<td>ENGL 377-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 376-A_001</td>
<td>ENGL 376-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>ENGL 375-A_001</td>
<td>ENGL 375-A_001</td>
<td>Popular Literature</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
</tbody>
</table>
ENGR_O 327-L1B  ENGR_O  L1B  Reinforced Concrete Design I  WS  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 259, APSC 260, APSC 261. Corequisite: ENGR 325. Laboratory In Person Learning Tue (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR_O 327-L1C  ENGR_O  L1C  Reinforced Concrete Design I  WS  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 259, APSC 260, APSC 261. Corequisite: ENGR 325. Laboratory In Person Learning Fri (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 327-L1D  ENGR_O  L1D  Reinforced Concrete Design I  WS  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 259, APSC 260, APSC 261. Corequisite: ENGR 325. Laboratory In Person Learning Wed (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR_O 327-L1E  ENGR_O  L1E  Reinforced Concrete Design I  WS  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 259, APSC 260, APSC 261. Corequisite: ENGR 325. Laboratory In Person Learning Thu (Alternate weeks) 2:00 p.m. - 4:00 p.m.

ENGR_O 327-L1F  ENGR_O  L1F  Reinforced Concrete Design I  WS  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 259, APSC 260, APSC 261. Corequisite: ENGR 325. Laboratory In Person Learning Mon (Alternate weeks) 1:00 p.m. - 3:00 p.m.

ENGR_O 327-L1G  ENGR_O  L1G  Reinforced Concrete Design I  WS  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 259, APSC 260, APSC 261. Corequisite: ENGR 325. Laboratory In Person Learning Thu (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 327-L1H  ENGR_O  L1H  Reinforced Concrete Design I  WS  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 259, APSC 260, APSC 261. Corequisite: ENGR 325. Laboratory In Person Learning Mon (Alternate weeks) 5:00 p.m. - 7:00 p.m.

ENGR_O 327-T1A  ENGR_O  T1A  Reinforced Concrete Design I  WS  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 259, APSC 260, APSC 261. Corequisite: ENGR 325. Discussion In Person Learning Wed 10:00 a.m. - 11:00 a.m.

ENGR_O 327-T1B  ENGR_O  T1B  Reinforced Concrete Design I  WS  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 259, APSC 260, APSC 261. Corequisite: ENGR 325. Discussion In Person Learning Wed 2:00 p.m. - 3:00 p.m.

ENGR_O 327-T1C  ENGR_O  T1C  Reinforced Concrete Design I  WS  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 259, APSC 260, APSC 261. Corequisite: ENGR 325. Discussion In Person Learning Mon 1:00 p.m. - 2:00 p.m.

ENGR_O 327-T1D  ENGR_O  T1D  Reinforced Concrete Design I  WS  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 259, APSC 260, APSC 261. Corequisite: ENGR 325. Discussion In Person Learning Fri 10:00 a.m. - 11:00 a.m.

ENGR_O 342-101  ENGR_O  101  Engineering Hydrology  WS  Hydrologic processes, climate change and hydrologic cycle analysis, urban flood management. Emphasis on quantitative techniques. [3-0-0] Prerequisite: All of APSC 253, APSC 254. Lecture In Person Learning Wed Fri 12:30 p.m. - 2:00 p.m.

ENGR_O 342-201  ENGR_O  201  Open Channel Flow  WS  Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, unsteady flow, contaminant transport. [3-2*-0] Prerequisite: APSC 253. Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

ENGR_O 342-L2A  ENGR_O  L2A  Open Channel Flow  WS  Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, unsteady 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_O 342-L2B  ENGR_O  L2B  Open Channel Flow  WS  Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, unsteady 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_O 342-L2C  ENGR_O  L2C  Open Channel Flow  WS  Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, unsteady 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_O 342-L2D  ENGR_O  L2D  Open Channel Flow  WS  Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, unsteady 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_O 342-L2E  ENGR_O  L2E  Open Channel Flow  WS  Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, unsteady 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_O 342-L2F  ENGR_O  L2F  Open Channel Flow  WS  Channel characteristics, flow classification, specific energy and momentum, uniform flow, critical flow, hydraulic jump, flow control structures, channel design, unsteady 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_O 347-101  ENGR_O  101  Environmental Engineering  WS  Air, water, environmental pollutants, and treatment design concepts. [3-0-0] Prerequisite: All of APSC 182, APSC 183, APSC 253. Lecture In Person Learning Mon Wed 11:00 a.m. - 12:30 p.m.

ENGR_O 350-201  ENGR_O  201  Linear Circuit Theory  WS  Analysis of linear circuits, Laplace transform analysis, mutual inductance and ideal transformers, frequency response and Bode plots, passive and active filters, introduction to synthesis of passive networks, two-port network models for linear systems, and circuit simulation. [3-0-0] Prerequisite: All of APSC 246, APSC 255. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

ENGR_O 351-201  ENGR_O  201  Microelectronics I  WS  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_O 351-L0A ENGR_O L0A Microelectronics I WS 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.

ENGR_O 351-L0B ENGR_O L0B Microelectronics I WS 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.

ENGR_O 351-L0C ENGR_O L0C Microelectronics I WS 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.

ENGR_O 351-L0D ENGR_O L0D Microelectronics I WS 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.

ENGR_O 351-L0E ENGR_O L0E Microelectronics I WS 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.

ENGR_O 353-001 ENGR_O 001 Semiconductor Devices WS 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.

ENGR_O 359-101 ENGR_O 101 Microcomputer Engineering WS 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.

ENGR_O 359-104 ENGR_O 104 Microcomputer Engineering WS Microcomputer architecture, number representation, assembly language, parallel and serial input/output, interrupts, memory, peripherals. [3-2*-0] Prerequisite: APSC 255. Lecture In Person Learning Tue (Alternate weeks) 12:00 p.m. - 2:00 p.m.

ENGR_O 359-108 ENGR_O 108 Microcomputer Engineering WS Microcomputer architecture, number representation, assembly language, parallel and serial input/output, interrupts, memory, peripherals. [3-2*-0] Prerequisite: APSC 255. Lecture In Person Learning Tue (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 359-112 ENGR_O 112 Microcomputer Engineering WS Microcomputer architecture, number representation, assembly language, parallel and serial input/output, interrupts, memory, peripherals. [3-2*-0] Prerequisite: APSC 255. Lecture In Person Learning Tue (Alternate weeks) 10:00 a.m. - 12:00 p.m.

ENGR_O 359-116 ENGR_O 116 Microcomputer Engineering WS 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 (Alternate weeks) 1:00 p.m. - 3:00 p.m.

ENGR_O 360-101 ENGR_O 101 Engineering Probability and Statistics. WS Set theory, conditional probability, distribution function, functions of random variables, central limit theorem, sample distributions, confidence intervals, elements of parameter estimation and hypothesis testing, testing the fit of a distribution. Applications of probability and statistics in engineering. Credit will be granted for only one of ENGR 360 or ENGR 560. [3-0-1] Prerequisite: All of APSC 248, APSC 254. Lecture In Person Learning Thu 2:00 p.m. - 3:30 p.m.

ENGR_O 360-T1A ENGR_O T1A Engineering Probability and Statistics. WS Set theory, conditional probability, distribution function, functions of random variables, central limit theorem, sample distributions, confidence intervals, elements of parameter estimation and hypothesis testing, testing the fit of a distribution. Applications of probability and statistics in engineering. Credit will be granted for only one of ENGR 360 or ENGR 560. [3-0-1] Prerequisite: All of APSC 248, APSC 254. Discussion Online Learning Tue 9:00 a.m. - 10:00 a.m.

ENGR_O 360-T1B ENGR_O T1B Engineering Probability and Statistics. WS Set theory, conditional probability, distribution function, functions of random variables, central limit theorem, sample distributions, confidence intervals, elements of parameter estimation and hypothesis testing, testing the fit of a distribution. Applications of probability and statistics in engineering. Credit will be granted for only one of ENGR 360 or ENGR 560. [3-0-1] Prerequisite: All of APSC 248, APSC 254. Discussion Online Learning Tue 9:00 a.m. - 10:00 a.m.

ENGR_O 360-T1C ENGR_O T1C Engineering Probability and Statistics. WS Set theory, conditional probability, distribution function, functions of random variables, central limit theorem, sample distributions, confidence intervals, elements of parameter estimation and hypothesis testing, testing the fit of a distribution. Applications of probability and statistics in engineering. Credit will be granted for only one of ENGR 360 or ENGR 560. [3-0-1] Prerequisite: All of APSC 248, APSC 254. Discussion Online Learning Tue 9:00 a.m. - 10:00 a.m.

ENGR_O 376-101 ENGR_O 101 Materials Science II WS Review comprehensive study of phase diagrams, phase transformations, TTT diagrams, heat treatment, ferrous 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.

ENGR_O 381-101 ENGR_O 101 Kinematics and Dynamics of Machinery WS 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.

ENGR_O 381-T1A ENGR_O T1A Kinematics and Dynamics of Machinery WS 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 2:00 p.m. - 3:00 p.m.

ENGR_O 381-T1B ENGR_O T1B Kinematics and Dynamics of Machinery WS 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.

ENGR_O 381-T1C ENGR_O T1C Kinematics and Dynamics of Machinery WS 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.

ENGR_O 381-T1D ENGR_O T1D Kinematics and Dynamics of Machinery WS 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.

ENGR_O 381-T1E ENGR_O T1E Kinematics and Dynamics of Machinery WS 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.

ENGR_O 381-T1F ENGR_O T1F Kinematics and Dynamics of Machinery WS 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.

ENGR_O 387-101 ENGR_O 101 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. Credit will be granted for only one of ENGR 380 or ENGR 580. [3-0-1] Prerequisite: APSC 246. Lecture In Person Learning Mon Wed 5:00 p.m. - 6:30 p.m.

ENGR_O 387-T1A ENGR_O T1A 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. Credit will be granted for only one of ENGR 380 or ENGR 580. [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  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  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  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  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 387-T1F  ENGR O  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  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  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  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  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  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 327. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

ENGR O 409-001  ENGR O  Construction Digitalization 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  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. CEGEP standing. Lecture In Person Learning Mon Wed 12:30 p.m. - 2:00 p.m.

ENGR O 426-101  ENGR O  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  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  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 305, ENGR 330, ENGR 331. Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

ENGR O 432-001  ENGR O  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. Laboratory In Person Learning Fri (Alternate weeks) 12:00 p.m. - 2:00 p.m.

ENGR O 435-101  ENGR O  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.

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

Mechanical properties of intact rock. Rock mass properties and classifications. Structural mapping and stereonets. Rock and rock mass strength criteria. Stress 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. Stress 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  Fri (Alternate weeks)  10:00 a.m. - 12:00 p.m.

Prerequisite: ENGR 320. 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  Mon Wed  12:30 p.m. - 2:00 p.m.

Prerequisite: ENGR 320. 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)  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: ASPC 262.

Laboratory  In Person Learning  Mon Wed  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: ASPC 262.

Laboratory  In Person Learning  Tue Thu  12:30 p.m. - 2:00 p.m.
<table>
<thead>
<tr>
<th>CRN</th>
<th>Course Code</th>
<th>Title</th>
<th>Section</th>
<th>Type</th>
<th>Time</th>
<th>Days</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR_O 472-001</td>
<td>ENGR_O</td>
<td>Fibre Optics and Photonics</td>
<td>001</td>
<td>Lecture</td>
<td>8:00 a.m.-10:00 a.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>ENGR_O 472-12A</td>
<td>ENGR_O</td>
<td>Fibre Optics and Photonics</td>
<td>L2A</td>
<td>Laboratory</td>
<td>2:00 p.m.-4:00 p.m.</td>
<td>Mon Wed</td>
<td>In Person Learning</td>
<td>Tue (Alternate weeks)</td>
</tr>
<tr>
<td>ENGR_O 472-2B</td>
<td>ENGR_O</td>
<td>Fibre Optics and Photonics</td>
<td>L2B</td>
<td>Laboratory</td>
<td>2:00 p.m.-4:00 p.m.</td>
<td>Mon Wed</td>
<td>In Person Learning</td>
<td>Tue (Alternate weeks)</td>
</tr>
<tr>
<td>ENGR_O 473-001</td>
<td>ENGR_O</td>
<td>Antennas and Propagation</td>
<td>001</td>
<td>Lecture</td>
<td>3:30 p.m.-5:00 p.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>3:30 p.m.-5:00 p.m.</td>
</tr>
<tr>
<td>ENGR_O 473-2A</td>
<td>ENGR_O</td>
<td>Antennas and Propagation</td>
<td>L2A</td>
<td>Laboratory</td>
<td>5:00 p.m.-6:30 p.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>5:00 p.m.-6:30 p.m.</td>
</tr>
<tr>
<td>ENGR_O 476-201</td>
<td>ENGR_O</td>
<td>Mechanics of Materials II</td>
<td>201</td>
<td>Lecture</td>
<td>9:30 a.m.-11:00 a.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>9:30 a.m.-11:00 a.m.</td>
</tr>
<tr>
<td>ENGR_O 480-101</td>
<td>ENGR_O</td>
<td>Modern Control</td>
<td>101</td>
<td>Lecture</td>
<td>12:30 p.m.-2:00 p.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>12:30 p.m.-2:00 p.m.</td>
</tr>
<tr>
<td>ENGR_O 484-001</td>
<td>ENGR_O</td>
<td>Heat and Mass Transfer</td>
<td>001</td>
<td>Lecture</td>
<td>11:00 a.m.-12:30 p.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>11:00 a.m.-12:30 p.m.</td>
</tr>
<tr>
<td>ENGR_O 485-201</td>
<td>ENGR_O</td>
<td>Heating, Ventilating, and Air Conditioning</td>
<td>201</td>
<td>Lecture</td>
<td>3:30 p.m.-5:00 p.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>3:30 p.m.-5:00 p.m.</td>
</tr>
<tr>
<td>ENGR_O 492-101</td>
<td>ENGR_O</td>
<td>Finite Element Methods</td>
<td>101</td>
<td>Lecture</td>
<td>8:00 a.m.-10:00 a.m.</td>
<td>Fri</td>
<td>In Person Learning</td>
<td>8:00 a.m.-10:00 a.m.</td>
</tr>
<tr>
<td>ENGR_O 493-001</td>
<td>ENGR_O</td>
<td>Introduction to Aerodynamics and Aircraft Design</td>
<td>001</td>
<td>Lecture</td>
<td>3:30 p.m.-5:00 p.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>3:30 p.m.-5:00 p.m.</td>
</tr>
<tr>
<td>ENGR_O 499-101</td>
<td>ENGR_O</td>
<td>Engineering Capstone Design Project</td>
<td>101</td>
<td>Lecture</td>
<td>5:00 p.m.-6:30 p.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>5:00 p.m.-6:30 p.m.</td>
</tr>
<tr>
<td>ENGR_O 499-L1A</td>
<td>ENGR_O</td>
<td>Engineering Capstone Design Project</td>
<td>L1A</td>
<td>Laboratory</td>
<td>6:00 p.m.-8:00 p.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>6:00 p.m.-8:00 p.m.</td>
</tr>
<tr>
<td>ENGR_O 502-001</td>
<td>ENGR_O</td>
<td>Technical Communication for Engineering Research</td>
<td>001</td>
<td>Lecture</td>
<td>3:30 p.m.-5:00 p.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>3:30 p.m.-5:00 p.m.</td>
</tr>
<tr>
<td>ENGR_O 502-101</td>
<td>ENGR_O</td>
<td>Technical Communication for Engineering Research</td>
<td>101</td>
<td>Lecture</td>
<td>9:30 a.m.-11:00 a.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>9:30 a.m.-11:00 a.m.</td>
</tr>
<tr>
<td>ENGR_O 503-001</td>
<td>ENGR_O</td>
<td>Applied Machine Learning for Engineers</td>
<td>001</td>
<td>Lecture</td>
<td>12:30 p.m.-2:00 p.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>12:30 p.m.-2:00 p.m.</td>
</tr>
<tr>
<td>ENGR_O 528-001</td>
<td>ENGR_O</td>
<td>Earthquake Engineering</td>
<td>001</td>
<td>Lecture</td>
<td>8:00 a.m.-10:00 a.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>8:00 a.m.-10:00 a.m.</td>
</tr>
<tr>
<td>ENGR_O 533-101</td>
<td>ENGR_O</td>
<td>Construction Engineering and Management</td>
<td>101</td>
<td>Lecture</td>
<td>3:30 p.m.-5:00 p.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>3:30 p.m.-5:00 p.m.</td>
</tr>
<tr>
<td>ENGR_O 536-001</td>
<td>ENGR_O</td>
<td>Sustainable Land Use and Transportation</td>
<td>001</td>
<td>Lecture</td>
<td>12:30 p.m.-2:00 p.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>12:30 p.m.-2:00 p.m.</td>
</tr>
<tr>
<td>ENGR_O 536-L1A</td>
<td>ENGR_O</td>
<td>Sustainable Land Use and Transportation</td>
<td>L1A</td>
<td>Laboratory</td>
<td>10:00 a.m.-12:00 p.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>10:00 a.m.-12:00 p.m.</td>
</tr>
<tr>
<td>ENGR_O 558-201</td>
<td>ENGR_O</td>
<td>Power Electronics</td>
<td>201</td>
<td>Lecture</td>
<td>3:30 p.m.-5:00 p.m.</td>
<td>Tue Thu</td>
<td>In Person Learning</td>
<td>3:30 p.m.-5:00 p.m.</td>
</tr>
</tbody>
</table>
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.

Introduction to fibre optics transmission, single-mode and multimode fibre optics, dispersion and absorption design criteria, semiconductor diode lasers, LEDs, modulators, and p-n 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.

Wave propagation models, radiation patterns, directivity and gain, radiation resistance, Fris 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.

Wave propagation models, radiation patterns, directivity and gain, radiation resistance, Fris 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.

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 492 or ENGR 480.

Discuss film literacy. Credit will be granted for only one of FILM 303, CULT 303, or THTR 303.

Credit will be granted for only one of FILM 303, CULT 303, or THTR 303. [5 hours/week studio] [5 hours/week studio]

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.

Equivalency: THTR 103

An 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. Considers a variety of approaches to video, such as art installations, video art, and television productions. Credit will be granted for only one of FILM 250 or CRWR 250. [3-0-0] Prerequisite: Two of CRWR 150, CRWR 160, VISA 104, VISA 105, VISA 106, VISA 108, THTR 101, THTR 102. Equivalency: CRWR 250

Lecture In Person Learning Thu 9:30 a.m. - 11:00 a.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 FILM 303, CLT 303, or THTR 303. CLT 210, THTR 210, THTR 211. Equivalency: CRWR 210

Lecture In Person Learning Wed 8:00 a.m. - 12:00 p.m.

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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Type</th>
<th>Credits</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 101-002</td>
<td>Elementary French I</td>
<td>Lecture</td>
<td>0.00</td>
<td>Mon Wed Fri</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>FREN 101-003</td>
<td>Elementary French I</td>
<td>Lecture</td>
<td>0.00</td>
<td>Mon Wed Fri</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>FREN 101-004</td>
<td>Elementary French I</td>
<td>Lecture</td>
<td>0.00</td>
<td>Mon Wed Fri</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>FREN 101-005</td>
<td>Elementary French I</td>
<td>Lecture</td>
<td>0.00</td>
<td>Mon Wed Fri</td>
<td>In Person Learning</td>
</tr>
</tbody>
</table>

**Upper Elementary French I**

- **Lecture**
- **In Person Learning**
- **Time**: 4:00 p.m. - 5:30 p.m.

- **Laboratory**
- **In Person Learning**
- **Time**: 12:00 p.m. - 2:00 p.m., 12:30 p.m. - 2:00 p.m.

- **Prerequisites**: FREN 101-002 or FREN 301.

---

**Earth Systems: Weather, Climate, and Life**

- **Lecture**
- **In Person Learning**
- **Time**: 10:00 a.m. - 11:00 a.m.

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

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**Quebecois Literature**

- **Lecture**
- **In Person Learning**
- **Time**: 3:30 p.m. - 5:30 p.m.

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**Francophone Literature and Textual Analysis**

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

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**French Grammar**

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

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**Techniques of Oral Expression in French I**

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

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**Selected Topics in French Literature and Culture**

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

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**First Year French Grammar**

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

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**First Year French Grammar**

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

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**First Year French Grammar**

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

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**First Year French Grammar**

- **Lecture**
- **In Person Learning**
- **Time**: 12:00 p.m. - 2:00 p.m.

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**First Year French Grammar**

- **Lecture**
- **In Person Learning**
- **Time**: 12:00 p.m. - 2:00 p.m.

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**First Year French Grammar**

- **Lecture**
- **In Person Learning**
- **Time**: 12:00 p.m. - 2:00 p.m.

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**First Year French Grammar**

- **Lecture**
- **In Person Learning**
- **Time**: 12:00 p.m. - 2:00 p.m.

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**First Year French Grammar**

- **Lecture**
- **In Person Learning**
- **Time**: 12:00 p.m. - 2:00 p.m.

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**First Year French Grammar**

- **Lecture**
- **In Person Learning**
- **Time**: 12:00 p.m. - 2:00 p.m.

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**First Year French Grammar**

- **Lecture**
- **In Person Learning**
- **Time**: 12:00 p.m. - 2:00 p.m.

- **Prerequisites**: FREN 101-002 or FREN 101-003.

---

**First Year French Grammar**

- **Lecture**
- **In Person Learning**
- **Time**: 12:00 p.m. - 2:00 p.m.

- **Prerequisites**: FREN 101-002 or FREN 101-003.
**In Person Learning**

12:00 p.m. - 1:00 p.m.
Laboratory  
Human Geography: Resources, Development, and Society

---

**In Person Learning**

Discussion

In Person Learning
Geographic Data Analysis

Tue Thu
Introduction to Research in Sustainability and Geography
Seeing our World: An Introduction to Visual Geographies

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

L01

9:30 a.m. - 11:00 a.m.
Laboratory
Mon Wed

Laboratory

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

2:00 p.m. - 3:30 p.m.
Discussion

Geographic Data Analysis

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

8:00 a.m. - 11:00 a.m.
Fri

001

1:00 p.m. - 2:00 p.m.
Geomorphology
Lecture

In Person Learning

L02

2:00 p.m. - 4:00 p.m.
Geographic Data Analysis

W1

W1

W1

D02

XMT

---

**In Person Learning**

L02

2:00 p.m. - 3:30 p.m.
Geographic Data Analysis

W1

W1

W1

D01

W1

Geomorphology

Climate Change and Society

W1

L01

8:00 a.m. - 11:00 a.m.
Lecture

In Person Learning

T01

GEOG_O 271-L02

---

**In Person Learning**

L06

Earth Systems: Weather, Climate, and Life

WS

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.

---

**In Person Learning**

KMT

Earth Systems: Weather, Climate, and Life

WS

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

---

**In Person Learning**

001

Human Geography: Space, Place, and Community

WS

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] Lecture  
Online Learning  
Mon Wed  
9:30 a.m. - 11:00 a.m.

---

**In Person Learning**

001

Human Geography: Resources, Development, and Society

WS

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  
Tue Thu  
2:00 p.m. - 3:30 p.m.

---

**In Person Learning**

001

Introduction to Research in Sustainability and GIS

WS

Introduces 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 GEOG 201, SUS 201, or GEOG 371. [2-0-1] Equivalency: SUS 201 Lecture  
In Person Learning  
Mon  
12:00 p.m. - 2:00 p.m.

---

**In Person Learning**

001

Introduction to Research in Sustainability and GIS

WS

Introduces 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 GEOG 201, SUS 201, or GEOG 371. [2-0-1] Equivalency: SUS 201 Discussion  
In Person Learning  
Fri  
10:00 a.m. - 11:00 a.m.

---

**In Person Learning**

002

Introduction to Research in Sustainability and GIS

WS

Introduces 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 GEOG 201, SUS 201, or GEOG 371. [2-0-1] Equivalency: SUS 201 Discussion  
In Person Learning  
Wed  
12:00 p.m. - 1:00 p.m.

---

**In Person Learning**

001

Geospatial Analysis

WS

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

---

**In Person Learning**

001

Geospatial Analysis

WS

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 222 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.

---

**In Person Learning**

002

Geospatial Analysis

WS

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 222 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.

---

**In Person Learning**

001

Climate Change and Society

WS

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. [1.5-0.1-0.5] Lecture  
In Person Learning  
Mon  
2:00 p.m. - 3:30 p.m.

---

**In Person Learning**

001

Climate Change and Society

WS

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. [1.5-0.1-0.5] Discussion  
In Person Learning  
Wed  
2:00 p.m. - 3:30 p.m.

---

**In Person Learning**

001

Seeing our World: An Introduction to Visual Geo

WS

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 societal attitudes towards social, cultural, and environmental issues. Critical exploration of visual technologies in geographic 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.

---

**In Person Learning**

001

Geographic Data Analysis

WS

Introduction to descriptive and inferential statistical analysis in geography and Earth sciences. Topics include descriptive statistics, elementary probability, statistics for spatial analysis, hypothesis 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.

---

**In Person Learning**

001

Geographic Data Analysis

WS

Introduction to descriptive and inferential statistical analysis in geography and Earth sciences. Topics include descriptive statistics, elementary probability, statistics for spatial analysis, hypothesis 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.

---

**In Person Learning**

002

Geographic Data Analysis

WS

Introduction to descriptive and inferential statistical analysis in geography and Earth sciences. Topics include descriptive statistics, elementary probability, statistics for spatial analysis, hypothesis 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>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Title &amp; Code</th>
<th>Type</th>
<th>Schedule</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 314-001</td>
<td>GEOG_O</td>
<td>Environmental Impact Assessment: Process, Reg W1</td>
<td>Lecture</td>
<td>Mon Wed</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>GEOG 315-001</td>
<td>GEOG_O</td>
<td>Parks and Outdoor Recreation W1</td>
<td>Lecture</td>
<td>Tue Thu Fri</td>
<td>In Person Learning</td>
</tr>
<tr>
<td>GEOG 345-001</td>
<td>GEOG_O</td>
<td>Wine Geographies W1</td>
<td>Lecture</td>
<td>In Person Learning Tue Thu Fri</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>GEOG 346-001</td>
<td>GEOG_O</td>
<td>Soil Science W1</td>
<td>Lecture</td>
<td>In Person Learning Mon Wed</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>GEOG 346-01</td>
<td>GEOG_O</td>
<td>Soil Science W1</td>
<td>Lecture</td>
<td>In Person Learning Mon Wed</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>GEOG 347-001</td>
<td>GEOG_O</td>
<td>Qualitative Research in Human Geography W1</td>
<td>Lecture</td>
<td>In Person Learning Mon Wed</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>GERM 100-001</td>
<td>GERM_O</td>
<td>Beginners' German I W1</td>
<td>Lecture</td>
<td>In Person Learning Thu</td>
<td>8:00 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>GERM 100-002</td>
<td>GERM_O</td>
<td>Beginners' German I W1</td>
<td>Lecture</td>
<td>In Person Learning Thu</td>
<td>8:00 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>GISC 380-001</td>
<td>GISC_O</td>
<td>Fundamentals of Geographic Information Science W1</td>
<td>Lecture</td>
<td>In Person Learning Mon Wed</td>
<td>12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>GISC 380-01</td>
<td>GISC_O</td>
<td>Fundamentals of Geographic Information Science W1</td>
<td>Lecture</td>
<td>In Person Learning Mon Wed</td>
<td>12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>GISC 380-02</td>
<td>GISC_O</td>
<td>Fundamentals of Geographic Information Science W1</td>
<td>Lecture</td>
<td>In Person Learning Mon Wed</td>
<td>12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>GISC 380-03</td>
<td>GISC_O</td>
<td>Fundamentals of Geographic Information Science W1</td>
<td>Lecture</td>
<td>In Person Learning Mon Wed</td>
<td>12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>GISC 380-04</td>
<td>GISC_O</td>
<td>Fundamentals of Geographic Information Science W1</td>
<td>Lecture</td>
<td>In Person Learning Mon Wed</td>
<td>12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>GWST 100-001</td>
<td>GWST_O</td>
<td>Gender, Race, Sexuality, and Power I: An Introduction W1</td>
<td>Lecture</td>
<td>In Person Learning Wed Fri</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Name</td>
<td>Units</td>
<td>Time</td>
<td>Room</td>
<td>Type</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
<td>-------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>HES 100-L01</td>
<td>Foundations of Health and Exercise Sciences</td>
<td>1.00</td>
<td>Mon Wed</td>
<td>9:30 a.m. - 11:00 a.m.</td>
<td>Lecture</td>
</tr>
<tr>
<td>HES 100-L02</td>
<td>Foundations of Health and Exercise Sciences</td>
<td>1.00</td>
<td>Mon Wed</td>
<td>10:00 a.m. - 12:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>HES 100-L03</td>
<td>Foundations of Health and Exercise Sciences</td>
<td>1.00</td>
<td>Mon Wed</td>
<td>11:00 a.m. - 12:00 p.m.</td>
<td>Lecture</td>
</tr>
<tr>
<td>HES 100-L04</td>
<td>Foundations of Health and Exercise Sciences</td>
<td>1.00</td>
<td>Mon Wed</td>
<td>12:00 p.m. - 1:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>HES 100-L05</td>
<td>Foundations of Health and Exercise Sciences</td>
<td>1.00</td>
<td>Mon Wed</td>
<td>2:00 p.m. - 3:00 p.m.</td>
<td>Laboratory</td>
</tr>
<tr>
<td>HES 100-L06</td>
<td>Foundations of Health and Exercise Sciences</td>
<td>1.00</td>
<td>Mon Wed</td>
<td>5:00 p.m. - 6:00 p.m.</td>
<td>Laboratory</td>
</tr>
</tbody>
</table>

---

GWST 101 | Gender and Popular Culture | 1.00 | In Person Learning | 2:00 p.m. - 4:00 p.m. | Lecture | In Person Learning | Tue Fri | 12:30 p.m. - 2:00 p.m. |

GWST 215 | Critical Foundations: Feminism and Difference | 1.00 | In Person Learning | 9:30 a.m. - 11:00 a.m. | Lecture | In Person Learning | Tue Thu | 2:00 p.m. - 5:00 p.m. |

GWST 333 | Perspectives on Gendered Bodies | 1.00 | Online Learning | Mon | Lecture | Online Learning | Mon | 11:00 a.m. - 2:00 p.m. |

GWST 423 | Trans(Gender) Feminisms | 1.00 | Online Learning | Mon Wed | Lecture | Online Learning | Mon Wed | 5:00 p.m. - 6:30 p.m. |

---

GWST 423 | Trans(Gender) Feminisms | 1.00 | Online Learning | 5:00 p.m. - 6:30 p.m. | Lecture | In Person Learning | Mon Wed | 5:00 p.m. - 6:30 p.m. |

---

GWST 101 | Gender and Popular Culture | 1.00 | Lecture | Tue Fri | In Person Learning | Tue Fri | 12:30 p.m. - 2:00 p.m. |

GWST 215 | Critical Foundations: Feminism and Difference | 1.00 | Lecture | Tue Thu | In Person Learning | Tue Thu | 2:00 p.m. - 5:00 p.m. |

GWST 333 | Perspectives on Gendered Bodies | 1.00 | Lecture | Online Learning | Mon | Online Learning | Mon | 11:00 a.m. - 2:00 p.m. |

GWST 423 | Trans(Gender) Feminisms | 1.00 | Lecture | Online Learning | Mon Wed | Online Learning | Mon Wed | 5:00 p.m. - 6:30 p.m. |

---

GWST 423 | Trans(Gender) Feminisms | 1.00 | Lecture | 5:00 p.m. - 6:30 p.m. | Lecture | In Person Learning | Mon Wed | 5:00 p.m. - 6:30 p.m. |
The importance of exercise, fitness, 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 101 or HMKN 101. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

Laboratory In Person Learning Thu 5:00 p.m. - 7:00 p.m.

The importance of exercise, fitness, 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 101 or HMKN 101. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

Laboratory In Person Learning Thu 7:00 p.m. - 9:00 p.m.

The importance of exercise, fitness, 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 101 or HMKN 101. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

Laboratory In Person Learning Fri 6:00 p.m. - 8:00 p.m.

Human physiology from the cellular to the systemic level, including cellular function, metabolism, the neuromuscular system, and the cardiorespiratory systems. Credit will only be granted for one of HES 101, HMKN 100 or BIOL 131. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

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

Human physiology from the cellular to the systemic level, including cellular function, metabolism, the neuromuscular system, and the cardiorespiratory systems. Credit will only be granted for one of HES 101, HMKN 100 or BIOL 131. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

Laboratory In Person Learning Tue 8:00 a.m. - 10.00 a.m.

Human physiology from the cellular to the systemic level, including cellular function, metabolism, the neuromuscular system, and the cardiorespiratory systems. Credit will only be granted for one of HES 101, HMKN 100 or BIOL 131. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

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

Human physiology from the cellular to the systemic level, including cellular function, metabolism, the neuromuscular system, and the cardiorespiratory systems. Credit will only be granted for one of HES 101, HMKN 100 or BIOL 131. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

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

Human physiology from the cellular to the systemic level, including cellular function, metabolism, the neuromuscular system, and the cardiorespiratory systems. Credit will only be granted for one of HES 101, HMKN 100 or BIOL 131. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

Laboratory In Person Learning Thu 8:00 a.m. - 10.00 a.m.

Human physiology from the cellular to the systemic level, including cellular function, metabolism, the neuromuscular system, and the cardiorespiratory systems. Credit will only be granted for one of HES 101, HMKN 100 or BIOL 131. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

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

Human physiology from the cellular to the systemic level, including cellular function, metabolism, the neuromuscular system, and the cardiorespiratory systems. Credit will only be granted for one of HES 101, HMKN 100 or BIOL 131. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

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

Human physiology from the cellular to the systemic level, including cellular function, metabolism, the neuromuscular system, and the cardiorespiratory systems. Credit will only be granted for one of HES 101, HMKN 100 or BIOL 131. **[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.

Human physiology from the cellular to the systemic level, including cellular function, metabolism, the neuromuscular system, and the cardiorespiratory systems. Credit will only be granted for one of HES 101, HMKN 100 or BIOL 131. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

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

Human physiology from the cellular to the systemic level, including cellular function, metabolism, the neuromuscular system, and the cardiorespiratory systems. Credit will only be granted for one of HES 101, HMKN 100 or BIOL 131. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

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

Human physiology from the cellular to the systemic level, including cellular function, metabolism, the neuromuscular system, and the cardiorespiratory systems. Credit will only be granted for one of HES 101, HMKN 100 or BIOL 131. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

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

Human physiology from the cellular to the systemic level, including cellular function, metabolism, the neuromuscular system, and the cardiorespiratory systems. Credit will only be granted for one of HES 101, HMKN 100 or BIOL 131. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

Laboratory In Person Learning Tue 5:00 p.m. - 7:00 p.m.

Human physiology from the cellular to the systemic level, including cellular function, metabolism, the neuromuscular system, and the cardiorespiratory systems. Credit will only be granted for one of HES 101, HMKN 100 or BIOL 131. **[3-2-0]** Prerequisite: Registration limited to students in the B.H.E.S. program.

Laboratory In Person Learning Thu 7:00 p.m. - 9:00 p.m.

Introduction to human anatomy and its 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 Thu 3:30 p.m. - 5:00 p.m.

Introduction to human anatomy and its 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 8:00 a.m. - 10:00 a.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Instructor</th>
<th>Type</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HES 320</td>
<td>Exercise Physiology II</td>
<td></td>
<td>Lecture</td>
<td>3</td>
<td>This course provides a comprehensive understanding of the functional aspects of human anatomy with special attention to musculoskeletal, vascular, and neural systems that support integrated human movement. It covers Oxygen transport and vascular response during exercise in humans. Regulation and adaptation of the cardiovascular and respiratory systems during exercise. Credit will only be granted for one of HES 320 or HMKN 391. Prerequisite: Either (a) HES 100 or (b) HMKN 100. and second-year standing in the B.H.E.S or B.H.K.</td>
</tr>
<tr>
<td>HES 305</td>
<td>Functional Anatomy</td>
<td></td>
<td>Laboratory</td>
<td>3</td>
<td>This course introduces the theory, practice and analysis of safe and effective health, fitness, physiological and lifestyle assessments, including the design, implementation and analysis of standard protocols. Prerequisite: All of HES 101, HES 105, HES 111.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Title</td>
<td>Hours</td>
<td>Prerequisite</td>
<td>Credit</td>
<td>Schedule</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------</td>
<td>-------</td>
<td>------------------------------------------------------------------------------</td>
<td>--------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>HES 320-L05</td>
<td>Functional Anatomy</td>
<td>3</td>
<td>HES 120.</td>
<td>0-2</td>
<td>Tu 5:00 p.m. - 7:00 p.m.</td>
</tr>
<tr>
<td>HES 320-L06</td>
<td>Functional Anatomy</td>
<td>3</td>
<td>HES 120.</td>
<td>0-2</td>
<td>Tu 11:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>HES 320-L07</td>
<td>Functional Anatomy</td>
<td>3</td>
<td>HES 120.</td>
<td>0-2</td>
<td>Thu 1:00 p.m. - 3:00 p.m.</td>
</tr>
<tr>
<td>HES 320-L08</td>
<td>Functional Anatomy</td>
<td>3</td>
<td>HES 120.</td>
<td>0-2</td>
<td>Wed 5:00 p.m. - 7:00 p.m.</td>
</tr>
<tr>
<td>HES 320-L09</td>
<td>Functional Anatomy</td>
<td>3</td>
<td>HES 120.</td>
<td>0-2</td>
<td>Mon 6:00 p.m. - 8:00 p.m.</td>
</tr>
<tr>
<td>HES 320-L10</td>
<td>Functional Anatomy</td>
<td>3</td>
<td>HES 120.</td>
<td>0-2</td>
<td>Tue 7:00 p.m. - 9:00 p.m.</td>
</tr>
<tr>
<td>HES 330-001</td>
<td>Introduction to Community Programming</td>
<td>3</td>
<td>Either (a) HES 231 or (b) HMKN 316.</td>
<td>0-0</td>
<td>Thu 9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>HES 340-001</td>
<td>Methods of Data Analysis</td>
<td>3</td>
<td>Either (a) HES 240 or (b) HMKN 206.</td>
<td>0-0</td>
<td>Thu 8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>HES 350-001</td>
<td>Clinical Assessment</td>
<td>3</td>
<td>HES 211. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.</td>
<td>0-0</td>
<td>Thu 11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>HES 350-L01</td>
<td>Clinical Assessment</td>
<td>3</td>
<td>HES 211. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.</td>
<td>0-0</td>
<td>Tue 9:30 a.m. - 11:30 a.m.</td>
</tr>
<tr>
<td>HES 351-001</td>
<td>Clinical Exercise Physiology</td>
<td>3</td>
<td>HES 211. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.</td>
<td>0-0</td>
<td>Tue 2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>HES 351-T01</td>
<td>Clinical Exercise Physiology</td>
<td>3</td>
<td>HES 211. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.</td>
<td>0-0</td>
<td>Mon 2:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>HES 356-001</td>
<td>Health Behaviour Change for Chronic Disease M.</td>
<td>3</td>
<td>HES 211. Registration limited to students in the Clinical Exercise Physiology concentration of the B.H.E.S program.</td>
<td>0-0</td>
<td>Thu 5:00 p.m. - 6:30 p.m.</td>
</tr>
<tr>
<td>HES 371-001</td>
<td>Professional Practice in Health &amp; Exercise Sciences</td>
<td>3</td>
<td>All of HES 211, HES 212.</td>
<td>0-0</td>
<td>Wed 12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>HES 380-001</td>
<td>Exercise Metabolism</td>
<td>3</td>
<td>Either (a) HMKN 200 or (b) HES 105, and either (a) HMKN 313.</td>
<td>0-0</td>
<td>Wed 8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>HES 383-001</td>
<td>Physical Dimensions of Aging</td>
<td>3</td>
<td>Either (a) HES 105 or (b) HMKN 200, and either (a) HES 203 or (b) HMKN 203.</td>
<td>0-0</td>
<td>Fri 3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>HES 401-001</td>
<td>Community Placement Experience</td>
<td>3</td>
<td>HES 200.</td>
<td>0-0</td>
<td>Arranged</td>
</tr>
<tr>
<td>HES 402-001</td>
<td>Advanced Community Placement Experience</td>
<td>3</td>
<td>HES 200.</td>
<td>0-0</td>
<td>Arranged</td>
</tr>
<tr>
<td>HES 471-001</td>
<td>Professional Ethics in Health &amp; Exercise Sciences</td>
<td>3</td>
<td>HES 371.</td>
<td>0-0</td>
<td>Fri 2:00 p.m. - 3:30 p.m.</td>
</tr>
</tbody>
</table>
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. 
Lecture  In Person Learning  Thu  11:00 a.m. - 2:00 p.m.

HES O 486-001  HES O  001 Muscle Fatigue  WS  
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 486 or HMKN 443. [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 321 or (b) HMKN 315; and either (a) HES 340 or (b) HMKN 205. 
Lecture  In Person Learning  Thu  3:30 p.m. - 5:00 p.m.

HES O 488-001  HES O  001 Cortical Control of Movement  WS  
Cortical events associated with sensation and motor planning associated with goal-directed movement. 
Lecture  In Person Learning  Mon  2:00 p.m. - 3:30 p.m.

HES O 490-A 001  HES O  A A  001 Project in Health and Exercise Sciences  WS  
Provides opportunities to perform research pertaining to a chosen area of Human Kinetics as agreed upon by a faculty member and student. No more than 6 credits in total of HES 490. Prerequisite: Either (a) HES 240 or (b) HMKN 206; and either (a) HES 340 or (b) HMKN 205. Permission of the School of Health and Exercise Sciences required. Independent Study  In Person Learning  Arranged Arranged

HES O 490-B 002  HES O  B B  002 Project in Health and Exercise Sciences  WS-1 2  
Provides opportunities to perform research pertaining to a chosen area of Human Kinetics as agreed upon by a faculty member and student. No more than 6 credits in total of HES 490. Prerequisite: Either (a) HES 240 or (b) HMKN 206; and either (a) HES 340 or (b) HMKN 205. Permission of the School of Health and Exercise Sciences required. Independent Study  In Person Learning  Arranged Arranged

HES O 492-001  HES O  001 Undergraduate Honours Thesis  WS-1 2  
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 499. Credit will be granted for only one of HES 492 or HES 499. 
Prerequisite: Restricted to students in the B.H.E.S. Honours Program. Independent Study  In Person Learning  Tue  11:00 a.m. - 2:00 p.m.

HES O 493-001  HES O  001 Community Practicum  WS-1 2  
Practical work experience in a supervised health, fitness or performance work setting with a community-based partner. Registration limited to students in the Kinesiology and Allied Health Concentration, Health Behavior Change Concentration or Clinical Exercise Physiology concentration of the B.H.E.S program and permission of the Undergraduate Chair. 
Independent Study  In Person Learning  Arranged Arranged

HES O 505-001  HES O  001 Quantitative Analyses: Decision Making Using Data  WS  
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  Mon  11:00 a.m. - 2:00 p.m.

HES O 525-001  HES O  001 Behaviour Change Taxonomies and Theories of 1 WS  
Lecture  In Person Learning  Fri  2:00 p.m. - 5:00 p.m.

HES O 545-U 001  HES O  U U  001 Special Topics in Health and Exercise Sciences  WS  
Credit will be granted for only one of HMKN 495 or HMKN 545 when the subject matter is of the same nature. 
Lecture  In Person Learning  Tue  11:00 a.m. - 2:00 p.m.

HINT O 112-001  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] 
Lecture  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 133. 
Lecture  Hybrid Learning  Mon  2:00 p.m. - 3:30 p.m.

HINT O 231-002  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 133. 
Lecture  Hybrid Learning  Mon  3:30 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 310 or HEAL 307. [3-0-0] Prerequisite: Third-year standing. Independent Study  In Person Learning  Tue  2:00 p.m. - 5:00 p.m.

HINT O 320-002  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 310 or HEAL 307. [3-0-0] Prerequisite: Third-year standing.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Type</th>
<th>Days</th>
<th>Time</th>
<th>Instructor</th>
<th>Location</th>
<th>Credit Module</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>HINT O 429-001</td>
<td>Advanced Global Health</td>
<td>001</td>
<td>Lecture</td>
<td></td>
<td>9:30 a.m. - 11:00 a.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Wed</td>
<td>11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>HINT O 529-001</td>
<td>Advanced Global Health</td>
<td>001</td>
<td>Lecture</td>
<td></td>
<td>9:30 a.m. - 11:00 a.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Wed</td>
<td>11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>W1 106-001</td>
<td>Global Environmental History</td>
<td>001</td>
<td>Lecture</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Tue</td>
<td>12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>W1 110-001</td>
<td>Survey of the Ancient World</td>
<td>001</td>
<td>Lecture</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Wed</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>W1 112-101</td>
<td>Canadian Lands and Peoples</td>
<td>010</td>
<td>Lecture</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Tue</td>
<td>9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>W1 115-001</td>
<td>World History from First to Second World War</td>
<td>001</td>
<td>Lecture</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>5:00 p.m. - 6:30 p.m.</td>
</tr>
<tr>
<td>W1 116-001</td>
<td>Early Modern Europe 1450-1789</td>
<td>001</td>
<td>Lecture</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Tue</td>
<td>11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>W1 118-001</td>
<td>History of Science, Medicine, and Technology</td>
<td>001</td>
<td>Lecture</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>Online Learning</td>
<td>Mon Wed</td>
<td>9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>W1 145-001</td>
<td>Contemporary World History</td>
<td>001</td>
<td>Lecture</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Tue</td>
<td>12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>W1 220-001</td>
<td>History of the Islamic World</td>
<td>001</td>
<td>Lecture</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>W1 300-001</td>
<td>History of Indigenous Peoples of Canada to 1874</td>
<td>001</td>
<td>Lecture</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Tue</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>W1 303-001</td>
<td>The Hellenistic World from the Mediterranean to A.D. 330</td>
<td>001</td>
<td>Lecture</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Tue</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>W1 317-001</td>
<td>History of Southern Africa</td>
<td>001</td>
<td>Lecture</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Thu</td>
<td>11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>W1 327-001</td>
<td>American Colonial History, 1607-1763</td>
<td>001</td>
<td>Lecture</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>8:00 a.m. - 9:30 a.m.</td>
</tr>
<tr>
<td>W1 351-001</td>
<td>History of Gender and Sexuality in Latin America</td>
<td>001</td>
<td>Seminar</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Mon</td>
<td>6:30 p.m. - 9:30 p.m.</td>
</tr>
<tr>
<td>W1 373-001</td>
<td>History of Gender, Race, and Science in the Atlantic</td>
<td>001</td>
<td>Seminar</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>12:30 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>W1 381-A 001</td>
<td>Special Topics in Economic History</td>
<td>001</td>
<td>Seminar</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>3:30 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>W1 395-001</td>
<td>Environmental History of North America</td>
<td>001</td>
<td>Seminar</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>Online Learning</td>
<td>Mon Wed</td>
<td>9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>W1 420-001</td>
<td>Women in Early Modern Europe</td>
<td>001</td>
<td>Seminar</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Tue</td>
<td>9:30 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>W1 468-001</td>
<td>International Relations of the Great Powers of W Europe</td>
<td>001</td>
<td>Seminar</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Wed</td>
<td>11:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>W1 473-101</td>
<td>War and Society from the 18th to 20th Century</td>
<td>101</td>
<td>Seminar</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Tue</td>
<td>2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>W1 492-101</td>
<td>History, Theory, and Method</td>
<td>001</td>
<td>Seminar</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Tue</td>
<td>11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>W1 494-001</td>
<td>Decolonization and Africa</td>
<td>001</td>
<td>Seminar</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>2:00 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>W1 502-A 001</td>
<td>Seminar in Digital Arts and Humanities</td>
<td>001</td>
<td>Seminar</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Mon Wed</td>
<td>2:00 p.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>W1 515-A 001</td>
<td>Advanced Qualitative Methods</td>
<td>001</td>
<td>Seminar</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Fri</td>
<td>11:00 a.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>W1 524-A 001</td>
<td>Proseminar in Interdisciplinary Studies</td>
<td>001</td>
<td>Seminar</td>
<td></td>
<td>11:00 a.m. - 2:00 p.m.</td>
<td></td>
<td>In Person Learning</td>
<td>Wed (Alternate weeks)</td>
<td>8:00 a.m. - 11:00 a.m.</td>
</tr>
</tbody>
</table>
IGS_O 582-001  IGS_O 001 Indigenous Knowledge Theme Seminar  WS
Theoretical background on Indigenous Knowledge and Indigenist research. Focuses on a range of strategies and principles for research on or through Indigenous languages and culture. Restricted to students in the Indigenous Knowledge Theme.  
Seminar  In Person Learning  Tue  2:00 p.m. - 5:00 p.m.

IGS_O 584-001  IGS_O 001 Sustainability Theme Seminar  WS
Introduction to the challenges and opportunities of interdisciplinary sustainability research, including problem framing, research methods and socio-ecological applications from contributing disciplines.  
Seminar  In Person Learning  Tue  8:00 a.m. - 11:00 a.m.

IGS_O 586A_001  IGS_O A A_001 Community Engagement, Social Change, and Epistemologies  WS
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.  
Seminar  In Person Learning  Wed  2:00 p.m. - 5:00 p.m.

IGS_O 589-101  IGS_O 011 Governance  WS
Frameworks of governance systems and public policy.  
Seminar  In Person Learning  Wed  11:00 a.m. - 2:00 p.m.

IGS_O 590-101  IGS_O 001 Power and Ideas  WS
Exploration of the complex relations between power, knowledge and ideas.  
Seminar  In Person Learning  Thu  11:00 a.m. - 2:00 p.m.

IGS_O 592-101  IGS_O 011 History, Theory, and Methodology  WS
Explore selected problems and issues in the theory and practice of historical work. Credit will be granted for only one of IGS 592 or HIST 492. Equivalency: HIST 492  
Seminar  In Person Learning  Tue  11:00 a.m. - 2:00 p.m.

IGS_O 599 B 001  IGS_O B B_001 Master's Thesis  WS  Pass/Fail.  
Thesis  In Person Learning  Arranged  Arranged

IGS_O 599 C 001  IGS_O C C_001 Master's Thesis  WS  Pass/Fail.  
Thesis  In Person Learning  Arranged  Arranged

IGS_O 599 J 001  IGS_O J J_001 Master's Thesis  WS  Pass/Fail.  
Thesis  In Person Learning  Arranged  Arranged

IGS_O 699 001  IGS_O 001 Doctoral Thesis  WS  Pass/Fail.  
Thesis  In Person Learning  Arranged  Arranged

IMTC_O 505-001  IMTC_O 001 Fundamentals of Immersive Technologies  WS
Immersive technology principles; design of AR/MR/VR platforms; immersive interaction techniques; 3D user interfaces; custom XR app design; applications to mobile and wearable devices.  
Lecture  In Person Learning  Wed  2:00 p.m. - 5:00 p.m.

IMTC_O 506-001  IMTC_O 001 User-Centered Immersive Design  WS
Immersive design, user-centered and customer-oriented design; project based learning; project conceptualization; industry- and community-sourced applications of immersive technologies.  
Lecture  In Person Learning  Thu  2:00 p.m. - 5:00 p.m.

INDG_O 100-001  INDG_O 001 Introduction to Decolonization: Indigenous Studies  WS
Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous peoples.  
Lecture  Online Learning  Mon Wed  11:00 a.m. - 12:00 p.m.

INDG_O 100-002  INDG_O 002 Introduction to Decolonization: Indigenous Studies  WS
Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous peoples.  
Lecture  In Person Learning  Wed  3:30 p.m. - 5:00 p.m.

INDG_O 100-003  INDG_O 003 Introduction to Decolonization: Indigenous Studies  WS
Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous peoples.  
Discussion  Online Learning  Wed  12:00 p.m. - 1:00 p.m.

INDG_O 100-004  INDG_O 004 Introduction to Decolonization: Indigenous Studies  WS
Provides students with an overview of the discipline of Indigenous studies including the history, cultures, and experiences of Indigenous peoples.  
Discussion  In Person Learning  Fri  3:30 p.m. - 5:00 p.m.

INDG_O 204-001  INDG_O 001 Mtis Peoples and Perspectives  WS
Examining the development of the Mtis Nation from the fur trade to recent self-government agreements, the course surveys topics such as Mtis acts of resistance against colonialism, mtis 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] Prequisite: One of INDG 100, INDG 102.

INDG_O 205-001  INDG_O 001 Indigenous Identities  WS
Complexities of contemporary Indigenous identities in Canada including how Indienniality has been constructed through particular discourses and legal categorization. Culture, politics, place, and the notion of relationality are central in examining Indigenous perspectives on identity.  
[3-0-0] Prequisite: One of INDG 100, INDG 102.

INDG_O 210-001  INDG_O 001 Indigenous Peoples of the Americas  WS
Overview of the contemporary socio-economic, political, cultural, and environmental characteristics of the Indigenous peoples of the Americas.  
Lecture  Online Learning  Mon Wed  11:00 a.m. - 12:30 p.m.

INDG_O 211-001  INDG_O 001 Indigenous Peoples of the Americas  WS
Overview of the contemporary socio-economic, political, cultural, and environmental characteristics of the Indigenous peoples of the Americas.  
Lecture  In Person Learning  Tue Thu  12:30 p.m. - 2:00 p.m.

INDG_O 301-001  INDG_O 001 Examining an Indigenous Methodology: En'owkinwixw  WS
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] Prequisite: One of INDG 100, INDG 102. And third-year standing.  
Lecture  In Person Learning  Wed Fri  9:30 a.m. - 11:00 a.m.

INDG_O 302-001  INDG_O 001 Indigenous Governance  WS
Critical examination of the Indigenous governance landscape, and how the Indigenous response to European attempts to establish political control. Issues such as land ownership, sovereignty, justice, treaty making, and the roles of women in Indigenous governance will be explored.  
[3-0-0] Prequisite: One of INDG 100, INDG 102. Third-year standing.  
Lecture  In Person Learning  Tue Thu  8:00 a.m. - 9:30 a.m.

INDG_O 303-001  INDG_O 001 Indigenous Studies Theory and Methodology  WS
Conceptualizations from an Indigenous perspective are central to this course. Includes an analysis of current conceptual paradigms within the social sciences, humanities, and performing arts, with a consideration of their appropriateness and applicability for Indigenous studies.  
[3-0-0] Prequisite: One of INDG 100, INDG 102.  
Lecture  In Person Learning  Mon Wed  3:30 p.m. - 5:00 p.m.

INDG_O 305-001  INDG_O 001 Indigenous Justice  WS
Decolonial Indigenous concepts, principles and historical consciousness of justice and anti-violence praxis in community-and land-based contexts. Locating agency with Indigenous peoples and Indigenous justice practices, the course puts primacy on ways that Indigenous peoples have engaged in and continue to enact justice. Revalorization of Indigenous knowledge informs ethical and moral issues addressed in relation to healing, and collective transformation.  
Lecture  In Person Learning  Thu Tu  5:00 p.m. - 6:30 p.m.

INDG_O 307-001  INDG_O 001 Traditional Ecological Knowledge  WS
Shows how human life depends on complex systems of cultural knowledge about the natural world. Indigenous People's biological classification and epistemological systems, ethnomedicine, and Indigenous explanatory models of environmental systems and the application of this knowledge in practice.  
Lecture  In Person Learning  Tue Thu  2:00 p.m. - 5:00 p.m.

INDG_O 309-001  INDG_O 001 Indigenous Perspectives on Health  WS
Introduction to current thinking about Indigenous Peoples' health, and especially Indigenous Peoples' perspectives on health and contemporary health systems. Includes a critical examination of concepts of health within the context of ongoing processes of colonization.  
[3-0-0] Prequisite: One of INDG 100, INDG 319. Third-year standing.  
Lecture  In Person Learning  Wed Fri  12:30 p.m. - 2:00 p.m.

INDG_O 401-102  INDG_O 102 Research Applications  WS
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.  
[3-0-3] Prequisite: One of INDG 301, INDG 303, INDG 304.  
Lecture  Online Learning  Arranged  Arranged
INDG_044-001  INDG_O  001  Indigenous Peoples United Nations and Global I WS  
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.

INDG_045-001  INDG_O  001  Indigenous Education: History and Revitalization WS  
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 towards 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.

INDG_042-001  INDG_O  001  Indigenous Perspectives on Food, Place, Identity WS  
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.

INDG_040-001  INDG_O  001  Indigenous Women, Activisms, Feminisms WS  
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. [0-0-3] Prerequisite: One of INDG 100, INDG 102. Third-year standing.  
Lecture  Online Learning  Arranged  Arranged

INDG_099-101  INDG_O  101  Indigenous Studies Capstone Project WS  
Work experience in decolonizing and/or indigenizing efforts. Restricted to students in the Indigenous language fluency degrees or Indigenous Studies major program. [0-6-2*]  
Lecture  Online Learning  Arranged  Arranged

INLG_028-001  INLG_O  001  Sounds of Endangered Languages: Conservation WS  
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

INLG_040-001  INLG_O  001  Endangered Language Documentation and Revital WS  
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 INLG 480 and ANTH 473. Prerequisite: INLG 282.  
Lecture  Multi-access Learning  Thu  5:00 p.m. - 8:00 p.m.

JPSI_010-001  JPSI_O  001  Beginning Japanese Language I WS  
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 JPSI 100.  
Lecture  In Person Learning  Tue Thu  8:00 a.m. - 9:30 a.m.

JPSI_010-002  JPSI_O  002  Beginning Japanese Language I WS  
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 JPSI 100.  
Lecture  In Person Learning  Tue Thu  9:30 a.m. - 11:00 a.m.

JPSI_010-003  JPSI_O  003  Beginning Japanese Language I WS  
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 JPSI 100.  
Lecture  Laboratory  Online Learning  Mon  1:00 p.m. - 2:00 p.m.

JPSI_030-001  JPSI_O  001  Japanese Food Culture WS  
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 JPSI 370 and JPSI 395A. Prerequisite: Third-year standing.  
Lecture  In Person Learning  Tue Thu  2:00 p.m. - 3:30 p.m.

KORN_010-001  KORN_O  001  Basic Korean I WS  
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 Fri  12:00 p.m. - 1:00 p.m.

LATN_030-001  LATN_O  001  Intensive Introduction to Latin WS-2  
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.

LLED_049-001  LLED_O  001  Praxis in Additional Language Teaching and WS  
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  In Person Learning  Thu (Alternate weeks)  6:30 p.m. - 8:30 p.m.

MANN_030-001  MANN_O  001  Manufacturing Engineering Project I WS-2  
Project-based design and optimisation of manufacturing processes. Casting, bulk deformation, sheet metal, polymer, metrology, measuring cutting forces in machining, CNC machining optimization. [1-4-0, 1-4-0]  
Prerequisite: MANN 277.  
Lecture  In Person Learning  Mon  11:00 a.m. - 12:00 p.m.

MANN_030-11A  MANN_O  11A  Manufacturing Engineering Project I WS-2  
Functional area of production and operations management. Decision-making, capacity planning, aggregate planning, inventory management, distribution planning, materials requirements planning and quality control. [3-0-0]  
Prerequisite: MANN 270.  
Lecture  In Person Learning  Fri  8:00 a.m. - 12:00 p.m.

MANN_037-101  MANN_O  101  Production Systems Management WS  
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 MANN 259, MANN 260.  
Lecture  In Person Learning  Tue Thu  3:30 p.m. - 5:00 p.m.

MANN_037-001  MANN_O  001  Manufacturing Processes WS  
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 MANN 259, MANN 260.  
Lecture  In Person Learning  Wed Fri  4:00 p.m. - 5:00 p.m.

MANN_037-11A  MANN_O  11A  Manufacturing Processes WS  
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 MANN 259, MANN 260.  
Lecture  In Person Learning  Wed (Alternate weeks)  11:00 a.m. - 2:00 p.m.

MANN_037-11B  MANN_O  11B  Manufacturing Processes WS  
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 MANN 259, MANN 260.  
Lecture  In Person Learning  Wed (Alternate weeks)  11:00 a.m. - 2:00 p.m.

MANN_037-11C  MANN_O  11C  Manufacturing Processes WS  
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 MANN 259, MANN 260.  
Lecture  In Person Learning  Mon (Alternate weeks)  8:00 a.m. - 11:00 a.m.

MANN_037-11D  MANN_O  11D  Manufacturing Processes WS  
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 MANN 259, MANN 260.  
Lecture  In Person 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. Credit will be granted for only one of MANF 460 or MANF 560. [3-0-0] Prerequisite: Fourth-year B.A.Sc. standing.

Planning of resources, layout and logistics for manufacturing plants; hands-on training on modular production. Credit will be granted for only one of MANF 455 or MANF 555. [2-2-0] Prerequisite: MANF 386.

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.

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.
MANF_O 470-001 MANF_O 001 Production Systems Management II W1 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 W1 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 L01 Advanced Manufacturing W1 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 L02 Advanced Manufacturing W1 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 W1 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 L1A Factory Planning W1 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 W1 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 W1 Derivatives of elementary functions, limits. Covers applications and modelling: graphing and optimization. Credit will be granted for only one of MATH 100 or MATH 116. [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: MATH116. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

MATH_O 100-002 MATH_O 002 Differential Calculus with Applications to Physics W1 Derivatives of elementary functions, limits. Covers applications and modelling: graphing and optimization. Credit will be granted for only one of MATH 100 or MATH 116. [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: MATH116. Lecture In Person Learning Wed Fri 2:00 p.m. - 3:30 p.m.

MATH_O 100-003 MATH_O 003 Differential Calculus with Applications to Physics W1 Derivatives of elementary functions, limits. Covers applications and modelling: graphing and optimization. Credit will be granted for only one of MATH 100 or MATH 116. [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: MATH116. Lecture In Person Learning Mon Wed 9:30 a.m. - 11:00 a.m.

MATH_O 100-004 MATH_O 004 Differential Calculus with Applications to Physics W1 Derivatives of elementary functions, limits. Covers applications and modelling: graphing and optimization. Credit will be granted for only one of MATH 100 or MATH 116. [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: MATH116. Lecture In Person Learning Mon Wed 8:00 a.m. - 9:30 a.m.

MATH_O 100-005 MATH_O 005 Differential Calculus with Applications to Physics W1 Derivatives of elementary functions, limits. Covers applications and modelling: graphing and optimization. Credit will be granted for only one of MATH 100 or MATH 116. [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: MATH116. Lecture In Person Learning Tue Thu 8:00 a.m. - 9:30 a.m.

MATH_O 100-006 MATH_O 006 Differential Calculus with Applications to Physics W1 Derivatives of elementary functions, limits. Covers applications and modelling: graphing and optimization. Credit will be granted for only one of MATH 100 or MATH 116. [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: MATH116. Lecture In Person Learning Wed Fri 9:30 a.m. - 11:00 a.m.

MATH_O 100-007 MATH_O 007 Differential Calculus with Applications to Physics W1 Derivatives of elementary functions, limits. Covers applications and modelling: graphing and optimization. Credit will be granted for only one of MATH 100 or MATH 116. [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: 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 Sr W1 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. 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 9:30 a.m. - 11:00 a.m.

MATH_O 116-001 MATH_O 001 Calculus I for Management and Economics W1 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 125 for further credit. [3-0-1] Prerequisite: One of Principles of Mathematics 11, Pre-Calculus 11, Foundations of Mathematics 12. Lecture In Person Learning Wed Fri 9:30 a.m. - 11:00 a.m.

MATH_O 125-001 MATH_O 001 Pre-Calculus W1 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 W1 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 W1 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>Instructor</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 200-L01</td>
<td>L01</td>
<td>Calculus III</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.</td>
<td>Laboratory</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 200-L02</td>
<td>L02</td>
<td>Calculus III</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.</td>
<td>Laboratory</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 200-L03</td>
<td>L03</td>
<td>Calculus III</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.</td>
<td>Laboratory</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 200-L04</td>
<td>L04</td>
<td>Calculus III</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.</td>
<td>Laboratory</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 200-L05</td>
<td>L05</td>
<td>Calculus III</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.</td>
<td>Laboratory</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 200-L06</td>
<td>L06</td>
<td>Calculus III</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.</td>
<td>Laboratory</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 200-L07</td>
<td>L07</td>
<td>Calculus III</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.</td>
<td>Laboratory</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 200-L08</td>
<td>L08</td>
<td>Calculus III</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.</td>
<td>Laboratory</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 200-L09</td>
<td>L09</td>
<td>Calculus III</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.</td>
<td>Laboratory</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 200-L10</td>
<td>L10</td>
<td>Calculus III</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.</td>
<td>Laboratory</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 220-001</td>
<td>001</td>
<td>Mathematical Proof</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.</td>
<td>Lecture</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 220-T01</td>
<td>T01</td>
<td>Mathematical Proof</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.</td>
<td>Discussion</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 220-T02</td>
<td>T02</td>
<td>Mathematical Proof</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.</td>
<td>Discussion</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 220-T03</td>
<td>T03</td>
<td>Mathematical Proof</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.</td>
<td>Discussion</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 220-T04</td>
<td>T04</td>
<td>Mathematical Proof</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.</td>
<td>Discussion</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 221-001</td>
<td>001</td>
<td>Matrix Algebra</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.</td>
<td>Lecture</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 307-101</td>
<td>101</td>
<td>Applied Linear Algebra</td>
<td>LU-factorization, iterative estimates for eigenvalues, dynamical systems, orthogonality, QR-factorization, and applications of linear algebra. [3-0-0] Prerequisite: MATH 221.</td>
<td>Lecture</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 311-001</td>
<td>001</td>
<td>Abstract Algebra I</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.</td>
<td>Lecture</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 319-001</td>
<td>001</td>
<td>Introduction to Partial Differential Equations</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.</td>
<td>Lecture</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 319-T02</td>
<td>T02</td>
<td>Introduction to Partial Differential Equations</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.</td>
<td>Discussion</td>
<td>In-Person Learning</td>
</tr>
<tr>
<td>MATH 327-001</td>
<td>001</td>
<td>Analysis I</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.</td>
<td>Lecture</td>
<td>In-Person Learning</td>
</tr>
</tbody>
</table>
Alabama State University Academic Calendar:

**Courses and Schedule**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Schedule</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH_339-001</td>
<td>Introduction to Dynamical Systems</td>
<td>3-0-0</td>
<td>Mon Wed</td>
<td>Lecture</td>
</tr>
<tr>
<td>MATH_408-001</td>
<td>Differential Geometry</td>
<td>3-0-0</td>
<td>Mon Wed</td>
<td>Lecture</td>
</tr>
<tr>
<td>MATH_409-001</td>
<td>Mathematics of Financial Derivatives</td>
<td>3-0-0</td>
<td>Mon Wed</td>
<td>Lecture</td>
</tr>
<tr>
<td>MATH_448-A_001</td>
<td>Directed Studies in Mathematics</td>
<td>Arranged</td>
<td></td>
<td>Independent Study</td>
</tr>
<tr>
<td>MATH_448-B_001</td>
<td>Directed Studies in Mathematics</td>
<td>WS-2</td>
<td>Mon Wed</td>
<td>Lecture</td>
</tr>
<tr>
<td>MATH_448-C_001</td>
<td>Directed Studies in Mathematics</td>
<td>WS-2</td>
<td>Mon Wed</td>
<td>Lecture</td>
</tr>
<tr>
<td>MATH_461-101</td>
<td>Continuous Optimization</td>
<td>3-0-0</td>
<td>Arranged</td>
<td>Lecture</td>
</tr>
<tr>
<td>MATH_563-101</td>
<td>Convex Optimization and Non-smooth Analysis</td>
<td>3-0-0</td>
<td>Arranged</td>
<td>Lecture</td>
</tr>
<tr>
<td>MATH_590-D_501</td>
<td>Graduate Seminar</td>
<td>3-0-0</td>
<td>Arranged</td>
<td>Seminar</td>
</tr>
<tr>
<td>MATH_649-001</td>
<td>Ph.D. Thesis</td>
<td>3-0-0</td>
<td>Arranged</td>
<td>Thesis</td>
</tr>
<tr>
<td>MATH_669-101</td>
<td>Ph.D. Thesis</td>
<td>3-0-0</td>
<td>Arranged</td>
<td>Thesis</td>
</tr>
<tr>
<td>MDST_110-001</td>
<td>Introduction to Computational Art and Design</td>
<td>3-0-0</td>
<td>Arranged</td>
<td>Studio</td>
</tr>
<tr>
<td>MDST_210-001</td>
<td>Creative Coding</td>
<td>3-0-0</td>
<td>Arranged</td>
<td>Studio</td>
</tr>
<tr>
<td>MDST_311-001</td>
<td>Computational Poetics</td>
<td>3-0-0</td>
<td>Arranged</td>
<td>Studio</td>
</tr>
<tr>
<td>MDST_490-001</td>
<td>Seminar Series</td>
<td>3-0-0</td>
<td>Arranged</td>
<td>Lecture Online</td>
</tr>
<tr>
<td>MDST_499-001</td>
<td>Capstone Media Project</td>
<td>3-0-0</td>
<td>Arranged</td>
<td>Studio</td>
</tr>
<tr>
<td>MCGO_401-101</td>
<td>Co-op Education Work Experience I</td>
<td>3-0-0</td>
<td>Arranged</td>
<td>Experiential</td>
</tr>
<tr>
<td>MCGO_402-101</td>
<td>Co-op Education Work Experience II</td>
<td>3-0-0</td>
<td>Arranged</td>
<td>Experiential</td>
</tr>
<tr>
<td>MCGO_403-101</td>
<td>Co-op Education Work Experience III</td>
<td>3-0-0</td>
<td>Arranged</td>
<td>Experiential</td>
</tr>
<tr>
<td>MCGO_404-101</td>
<td>Co-op Education Work Experience IV</td>
<td>3-0-0</td>
<td>Arranged</td>
<td>Experiential</td>
</tr>
</tbody>
</table>

**Course Descriptions**

- **Introduction to Dynamical Systems**: Non-linear systems and iteration of functions; flows, phase portraits, periodic orbits, chaotic attractors, fractals, and invariant sets. Prerequisite: All of MATH 200, MATH 225.
- **Differential Geometry**: Local theory of curves, Frenet-Serret apparatus, fundamentals of the Gaussian theory of surface, normal curvature, geodesics, Gaussian and mean curvatures, theorema egregium, an introduction to Riemannian geometry, Gauss-Bonnet Theorem, and applications. Prerequisites: All of MATH 200, MATH 222, and 9 credits of 300-level MATH.
- **Mathematics of Financial Derivatives**: Pricing theory of financial derivative securities. Options and markets, present and future values, price movement modeled by Brownian motion, Ito's Formula, partial differential equations, Black-Scholes model. Prices of European options as solutions of initial/boundary value problems for heat equations, American options, free boundary problems. Prerequisites: All of MATH 221, MATH 319 and one of MATH 302, STAT 303.
- **Directed Studies in Mathematics**: 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. 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 in the Management Co-operative Education Program. Prerequisite: MGCO 401.
- **Directed Studies in Mathematics**: 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. 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 in the Management Co-operative Education Program. Prerequisite: MGCO 401.
- **Directed Studies in Mathematics**: 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. 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 in the Management Co-operative Education Program. Prerequisite: MGCO 401.
- **Directed Studies in Mathematics**: 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. 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 in the Management Co-operative Education Program. Prerequisite: MGCO 401.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Days</th>
<th>Time</th>
<th>Location</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGCO_405-101</td>
<td>Co-op Education Work Experience V</td>
<td>W1</td>
<td>8:00 a.m.</td>
<td>Lecture</td>
<td>3-0-0</td>
<td>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]</td>
</tr>
<tr>
<td>MGCO_406-101</td>
<td>Co-op Education Work Experience VI</td>
<td>W1</td>
<td>5:00 p.m.</td>
<td>Lecture</td>
<td>3-0-0</td>
<td>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]</td>
</tr>
<tr>
<td>MGMT_O 100-001</td>
<td>Introduction to Business</td>
<td>W1</td>
<td>1:00 p.m.</td>
<td>Lecture</td>
<td>1-0-0</td>
<td>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]</td>
</tr>
<tr>
<td>MGMT_O 100-L01</td>
<td>Introduction to Business</td>
<td>W1</td>
<td>4:00 p.m.</td>
<td>Laboratory</td>
<td>1-0-0</td>
<td>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]</td>
</tr>
<tr>
<td>MGMT_O 100-L02</td>
<td>Introduction to Business</td>
<td>W1</td>
<td>2:00 p.m.</td>
<td>Laboratory</td>
<td>1-0-0</td>
<td>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]</td>
</tr>
<tr>
<td>MGMT_O 100-L03</td>
<td>Introduction to Business</td>
<td>W1</td>
<td>10:00 a.m.</td>
<td>Laboratory</td>
<td>1-0-0</td>
<td>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]</td>
</tr>
<tr>
<td>MGMT_O 100-L04</td>
<td>Introduction to Business</td>
<td>W1</td>
<td>1:00 p.m.</td>
<td>Laboratory</td>
<td>1-0-0</td>
<td>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]</td>
</tr>
<tr>
<td>MGMT_O 100-L05</td>
<td>Introduction to Business</td>
<td>W1</td>
<td>8:00 a.m.</td>
<td>Laboratory</td>
<td>1-0-0</td>
<td>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]</td>
</tr>
<tr>
<td>MGMT_O 100-L06</td>
<td>Introduction to Business</td>
<td>W1</td>
<td>5:00 p.m.</td>
<td>Laboratory</td>
<td>1-0-0</td>
<td>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]</td>
</tr>
<tr>
<td>MGMT_O 100-L07</td>
<td>Introduction to Business</td>
<td>W1</td>
<td>11:00 a.m.</td>
<td>Laboratory</td>
<td>1-0-0</td>
<td>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]</td>
</tr>
<tr>
<td>MGMT_O 100-W01</td>
<td>Introduction to Business</td>
<td>W1</td>
<td>Workshop</td>
<td>Workshop</td>
<td>1-0-0</td>
<td>Introduces management thought in business and organizations. Utilizes critical thinking in socially and ethically responsible decision making 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]</td>
</tr>
<tr>
<td>MGMT_O 110-001</td>
<td>Introduction to Management Thought and Social Issues</td>
<td>W1</td>
<td>Lecture</td>
<td>Lecture</td>
<td>1-0-0</td>
<td>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]</td>
</tr>
<tr>
<td>MGMT_O 201-001</td>
<td>Introduction to Financial Accounting</td>
<td>W1</td>
<td>Lecture</td>
<td>Lecture</td>
<td>1-0-0</td>
<td>Construction and interpretation of financial statements. [3-0-0] Prerequisite: MGMT 100 and either (a) MATH 100 or (b) MATH 116. Second-year standing and 3 credits of ENGL Corequisite: MGMT 110.</td>
</tr>
<tr>
<td>MGMT_O 201-W01</td>
<td>Introduction to Financial Accounting</td>
<td>W1</td>
<td>Workshop</td>
<td>Workshop</td>
<td>1-0-0</td>
<td>Construction and interpretation of financial statements. [3-0-0] Prerequisite: MGMT 100 and either (a) MATH 100 or (b) MATH 116. Second-year standing and 3 credits of ENGL Corequisite: MGMT 110.</td>
</tr>
</tbody>
</table>
Applications of management concepts to the study of the nature and dynamics of an industry. [3-0-0] Prerequisite: All of MGMT 100, ECON 101. Second-year standing and 3 credits of ENGL. Corequisite: All of MGMT 110, 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. 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. 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. 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. 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. 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. 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 Income Tax Act (Canada). Focuses on fundamental tax principles as well as developing familiarity in using the Income Tax Act and other tax research tools. Topics include sources of income, computing income for tax purposes for individuals and corporations, tax planning opportunities, and other tax issues. [3-0-0] Prerequisite: 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. 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. And 3 credits of STAT.

MGMT_O 201-W02 MGMT_O 002 Introduction to Financial Accounting W1 Construction and interpretation of financial statements. [3-0-0] Prerequisite: MGMT 100 and either (a) MATH 100 or (b) MATH 116. Second-year standing and 3 credits of ENGL. Corequisite: MGMT 110.

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

MGMT_O 201-W03 MGMT_O 003 Introduction to Financial Accounting W1 Construction and interpretation of financial statements. [3-0-0] Prerequisite: MGMT 100 and either (a) MATH 100 or (b) MATH 116. Second-year standing and 3 credits of ENGL. Corequisite: MGMT 110.

Workshop In Person Learning Mon 3:00 p.m. - 4:00 p.m.

MGMT_O 201-W04 MGMT_O 004 Introduction to Financial Accounting W1 Construction and interpretation of financial statements. [3-0-0] Prerequisite: MGMT 100 and either (a) MATH 100 or (b) MATH 116. Second-year standing and 3 credits of ENGL. Corequisite: MGMT 110.

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

MGMT_O 201-W05 MGMT_O 005 Introduction to Financial Accounting W1 Construction and interpretation of financial statements. [3-0-0] Prerequisite: MGMT 100 and either (a) MATH 100 or (b) MATH 116. Second-year standing and 3 credits of ENGL. Corequisite: MGMT 110.

Workshop In Person Learning Wed 4:00 p.m. - 5:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Delivery Type</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 411-101</td>
<td>In Person Learning</td>
<td>Human Resources Management</td>
<td>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.</td>
<td>Lecture</td>
<td>Mon</td>
</tr>
<tr>
<td>MGMT 429-A_001</td>
<td>In Person Learning</td>
<td>Special Topics in Information Technology Management</td>
<td>Explores the latest concepts and/or issues in information technology management (ITM). Data warehousing, IT 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.</td>
<td>Lecture</td>
<td>Tue Thu</td>
</tr>
<tr>
<td>MGMT 429-A_L01</td>
<td>Special Topics in Information Technology Management</td>
<td>Explores the latest concepts and/or issues in information technology management (ITM). Data warehousing, IT 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.</td>
<td>Laboratory</td>
<td>Online Learning</td>
<td>Arranged</td>
</tr>
<tr>
<td>MGMT 436-001</td>
<td>Investments</td>
<td>Introduction to theories and methods of corporate finance policy used by senior managers and the board of directors to direct the financial operations and strategy of the firm. Policies examined include financial structure, dividend policy, mergers and acquisitions, and risk management. [3-0-0] Prerequisite: MGMT 310 and third-year standing.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
</tr>
<tr>
<td>MGMT 437-001</td>
<td>Intermediate Finance</td>
<td>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: Third-year standing.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>MGMT 443-101</td>
<td>New Product and Service Development</td>
<td>Examines from 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-offs, decisions, concept testing, and forecasting. [3-0-0] Prerequisite: All of MGMT 220, MGMT 290. Third-year standing.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon</td>
</tr>
<tr>
<td>MGMT 443-W01</td>
<td>New Product and Service Development</td>
<td>Examines from 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-offs, decisions, concept testing, and forecasting. [3-0-0] Prerequisite: All of MGMT 220, MGMT 290. Third-year standing.</td>
<td>Workshop</td>
<td>In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>MGMT 471-001</td>
<td>Applied Health Economics</td>
<td>Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignement 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.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>MGMT 481-001</td>
<td>Strategy and Change Management</td>
<td>Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignement 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.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon</td>
</tr>
<tr>
<td>MGMT 481-W01</td>
<td>Strategy and Change Management</td>
<td>Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignement 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.</td>
<td>Workshop</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>MGMT 481-W02</td>
<td>Strategy and Change Management</td>
<td>Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignement 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.</td>
<td>Workshop</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>MGMT 481-W03</td>
<td>Strategy and Change Management</td>
<td>Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignement 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.</td>
<td>Workshop</td>
<td>In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>MGMT 481-W04</td>
<td>Strategy and Change Management</td>
<td>Investigates how strategy and change affects the organization and how the organization can be designed or realigned to realize its strategy more effectively. Alignement 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.</td>
<td>Workshop</td>
<td>In Person Learning</td>
<td>Fri</td>
</tr>
<tr>
<td>MGMT 482-101</td>
<td>International Business</td>
<td>Examines from 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-offs, decisions, concept testing, and forecasting. [3-0-0] Prerequisite: All of MGMT 220, MGMT 290. Third-year standing.</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon</td>
</tr>
<tr>
<td>MGMT 482-W01</td>
<td>International Business</td>
<td>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 100, MGMT 110. Third-year standing and 3 credits of ENGL.</td>
<td>Workshop</td>
<td>In Person Learning</td>
<td>Tue Thu</td>
</tr>
</tbody>
</table>
MGMT_O 482-W02  MGMT_O  W02   International Business  WS

Political, legal, technological, competitive, and cultural issues that shape organizations as they operate worldwide. Understanding of the application of management theory (trade theory, modes of entry, foreign direct investment, factor mobility theory) to the strategic management problems of doing business in the international arena. Cultural aspects of operating in an international environment. [3-0-0] Prerequisite: All of MGMT 100, MGMT 110. Third-year standing and 3 credits of ENGL.  Workshop  In Person Learning  Mon  2:00 p.m. - 3:30 p.m.

MGMT_O 482-W03  MGMT_O  W03   International Business  WS

Political, legal, technological, competitive, and cultural issues that shape organizations as they operate worldwide. Understanding of the application of management theory (trade theory, modes of entry, foreign direct investment, factor mobility theory) to the strategic management problems of doing business in the international arena. Cultural aspects of operating in an international environment. [3-0-0] Prerequisite: All of MGMT 100, MGMT 110. Third-year standing and 3 credits of ENGL.  Workshop  In Person Learning  Mon  2:00 p.m. - 3:30 p.m.

MGMT_O 482-W04  MGMT_O  W04   International Business  WS

Political, legal, technological, competitive, and cultural issues that shape organizations as they operate worldwide. Understanding of the application of management theory (trade theory, modes of entry, foreign direct investment, factor mobility theory) to the strategic management problems of doing business in the international arena. Cultural aspects of operating in an international environment. [3-0-0] Prerequisite: All of MGMT 100, MGMT 110. Third-year standing and 3 credits of ENGL.  Workshop  In Person Learning  Thu  12:30 p.m. - 2:00 p.m.

MGMT_O 482-W05  MGMT_O  W05   International Business  WS

Political, legal, technological, competitive, and cultural issues that shape organizations as they operate worldwide. Understanding of the application of management theory (trade theory, modes of entry, foreign direct investment, factor mobility theory) to the strategic management problems of doing business in the international arena. Cultural aspects of operating in an international environment. [3-0-0] Prerequisite: All of MGMT 100, MGMT 110. Third-year standing and 3 credits of ENGL.  Workshop  In Person Learning  Thu  3:30 p.m. - 5:00 p.m.

MGMT_O 490-001  MGMT_O  001   Capstone Service Learning and Consulting  WS

Culminating 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. Fourth-year standing.  Experiential  In Person Learning  Thu  2:00 p.m. - 5:00 p.m.

NLEK_O 332-101  NLEK_O  101   Language Practice and Pedagogy: Creative, Corn  WS

Method 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. Equivalency: SECH 500.  Lecture  In Person Learning  Thu  2:00 p.m. - 5:00 p.m.

NLEK_O 332-011  NLEK_O  101   Language Practice and Pedagogy: Creative, Corn  WS

Method 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. Equivalency: SECH 500.  Lecture  In Person Learning  Thu  2:00 p.m. - 5:00 p.m.

NRSG_O 111-001  NRSG_O  001   Foundations of Health  WS

Meaning of health and healing. Recognize diversity of beliefs, values, and perceptions of health. Introduction to the Canadian Health Care System, conceptual frameworks of health promotion, determinants of health, disease and injury prevention, and primary health care. [3-0-0] Prerequisite: First-year BSN-O Standing Corequisite: All of NRSG 112, NRSG 113.  Lecture  In Person Learning  Mon  2:00 p.m. - 5:00 p.m.

NRSG_O 111-002  NRSG_O  002   Foundations of Health  WS

Meaning of health and healing. Recognize diversity of beliefs, values, and perceptions of health. Introduction to the Canadian Health Care System, conceptual frameworks of health promotion, determinants of health, disease and injury prevention, and primary health care. [3-0-0] Prerequisite: First-year BSN-O Standing Corequisite: All of NRSG 112, NRSG 113.  Lecture  In Person Learning  Wed  2:00 p.m. - 5:00 p.m.

NRSG_O 112-001  NRSG_O  001   Introduction to the Profession of Nursing I  WS

Critical reflection of the historical, political, and socioeconomic evolution of nursing. Exploration of foundational theories, nursing practice standards, ethical principles, ethical decision-making, and reflective and scholarly writing that guides evidence-informed professional nursing practice. [1.5-0-0] Prerequisite: First-year BSN-O Standing Corequisite: All of NRSG 113, NRSG 113.  Lecture  In Person Learning  Tue  12:30 p.m. - 2:00 p.m.

NRSG_O 112-002  NRSG_O  002   Introduction to the Profession of Nursing I  WS

Critical reflection of the historical, political, and socioeconomic evolution of nursing. Exploration of foundational theories, nursing practice standards, ethical principles, ethical decision-making, and reflective and scholarly writing that guides evidence-informed professional nursing practice. [1.5-0-0] Prerequisite: First-year BSN-O Standing Corequisite: All of NRSG 113, NRSG 113.  Lecture  In Person Learning  Wed  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. Lecture 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>Code</th>
<th>Name</th>
<th>Days</th>
<th>Time</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSG_O 201-L07</td>
<td>NRSG_O 107 Nursing Lab Practice II</td>
<td>W</td>
<td>9:30 a.m. - 11:00 a.m.</td>
<td>L10 Laboratory</td>
<td>In Person Learning Fri 10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG_O 201-L08</td>
<td>NRSG_O 108 Nursing Lab Practice II</td>
<td>W</td>
<td>10:00 a.m. - 1:00 p.m.</td>
<td>H12 Lecture</td>
<td>In Person Learning Wed 10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG_O 201-L09</td>
<td>NRSG_O 109 Nursing Lab Practice II</td>
<td>W</td>
<td>9:30 a.m. - 11:00 a.m.</td>
<td>H12 Lecture</td>
<td>In Person Learning Thu 10:00 a.m. - 1:00 p.m.</td>
</tr>
<tr>
<td>NRSG_O 201-L10</td>
<td>NRSG_O 110 Nursing Lab Practice II</td>
<td>W</td>
<td>2:00 p.m. - 5:00 p.m.</td>
<td>H12 Lecture</td>
<td>In Person Learning Thu 2:00 p.m. - 5:00 p.m.</td>
</tr>
</tbody>
</table>
| NRSG_O 201-L12 | NRSG_O 112 Nursing Lab Practice II | W | 9:00 a.m. - 3:00 p.m. | Lecture | In Person Learning |}

NRSG_O 236-P01 | NRSG_O P01 Nursing Practice II | W | 9:30 a.m. - 11:00 a.m. | H12 Lecture | Experiential In Person Learning Tue 9:00 a.m. - 3:00 p.m. |
| NRSG_O 236-P02 | NRSG_O P02 Nursing Practice II | W | 9:00 a.m. - 3:00 p.m. | H12 Lecture | Experiential In Person Learning Tue 9:00 a.m. - 3:00 p.m. |
This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

In Person Learning
Tue 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

In Person Learning
Tue 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

In Person Learning
Tue 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

In Person Learning
Tue 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

In Person Learning
Wed 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

In Person Learning
Wed 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

In Person Learning
Wed 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

In Person Learning
Wed 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

In Person Learning
Wed 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

In Person Learning
Thu 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

In Person Learning
Thu 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

In Person Learning
Thu 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

In Person Learning
Thu 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

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 for adults with episodic and chronic health challenges. Intentional learning activities integrate evidence-informed knowledge from NRSG 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

Experiential In Person Learning Thu 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

Experiential In Person Learning Thu 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

Experiential In Person Learning Fri 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

Experiential In Person Learning Fri 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

Experiential In Person Learning Fri 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops beginning 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

Experiential In Person Learning Fri 9:00 a.m. - 3:00 p.m.

This practicum in acute care settings develops 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 201 and NRSG 226. The focus is on assessment, clinical reasoning, care planning, and documentation. Pass/Fail. [0-6-0] 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.

Experiential In Person Learning Fri 9:00 a.m. - 3:00 p.m.

Practicum in community health nursing develops knowledge, skills, and abilities needed to provide to provide safe ethical nursing care for adult's health 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 evidenced-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.

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 to provide safe ethical nursing care for adult's health 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 evidenced-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.

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 to provide safe ethical nursing care for adult's health 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 evidenced-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.

Experiential In Person Learning Tue 8:00 a.m. - 12:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSG 229-P07</td>
<td>Practicum in Mental Health</td>
<td>W1</td>
<td>Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. Corequisite: All of BIOL 131, BIOL 133. Pass/Fail. [0-6-0] Prerequisite: All of BIOL 131, BIOL 133. and Second-Year BSN-O Standing Corequisite: NRSG 228.</td>
</tr>
<tr>
<td>NRSG 239-P01</td>
<td>Nursing Practice in Mental Health</td>
<td>W1</td>
<td>Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. Corequisite: All of BIOL 131, BIOL 133, and Second-Year BSN-O Standing Corequisite: NRSG 229.</td>
</tr>
<tr>
<td>NRSG 301-001</td>
<td>Nursing Practice IV</td>
<td>IV</td>
<td>Students draw on principles of social justice and the social determinants of health to engage in evidenced-informed community assessments, health promotion/illness prevention activities, and health teaching. Corequisite: All of NRSG 301, NRSG 302, NRSG 316, NRSG 336, BIOL 131, BIOL 133, HINT 231, BIOL 232.</td>
</tr>
<tr>
<td>NRSG 301-010</td>
<td>Nursing Practice IV</td>
<td>IV</td>
<td>Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. Corequisite: All of NRSG 302, NRSG 336.</td>
</tr>
<tr>
<td>NRSG 301-011</td>
<td>Nursing Practice IV</td>
<td>IV</td>
<td>Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. Corequisite: All of NRSG 302, NRSG 336.</td>
</tr>
<tr>
<td>NRSG 301-012</td>
<td>Nursing Practice IV</td>
<td>IV</td>
<td>Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. Corequisite: All of NRSG 302, NRSG 336.</td>
</tr>
<tr>
<td>NRSG 301-013</td>
<td>Nursing Practice IV</td>
<td>IV</td>
<td>Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. Corequisite: All of NRSG 302, NRSG 336.</td>
</tr>
<tr>
<td>NRSG 301-014</td>
<td>Nursing Practice IV</td>
<td>IV</td>
<td>Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. Corequisite: All of NRSG 302, NRSG 336.</td>
</tr>
<tr>
<td>NRSG 302-001</td>
<td>Nursing Practice V</td>
<td>V</td>
<td>Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. Corequisite: All of NRSG 302, NRSG 336.</td>
</tr>
<tr>
<td>NRSG 302-010</td>
<td>Nursing Practice V</td>
<td>V</td>
<td>Students advance knowledge, skills, and abilities in preparation to practice safe ethical nursing care in acute medical settings. Corequisite: All of NRSG 302, NRSG 336.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Type</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
<td>------</td>
<td>---------</td>
</tr>
<tr>
<td>NRSG 327-001</td>
<td>In Person Learning</td>
<td>Lecture</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 310-002</td>
<td>Palliative Approach to Chronic Illness</td>
<td>Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 310-001</td>
<td>Palliative Approach to Chronic Illness</td>
<td>Lecture</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 310-002</td>
<td>Palliative Approach to Chronic Illness</td>
<td>Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 311-001</td>
<td>Relational Practice V</td>
<td>Lecture</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 311-002</td>
<td>Relational Practice V</td>
<td>Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 326-001</td>
<td>Health &amp; Healing IV</td>
<td>Lecture</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 327-001</td>
<td>Health &amp; Healing V</td>
<td>Lecture</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 328-001</td>
<td>Health of the Childbearing Family</td>
<td>Lecture</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 328-002</td>
<td>Health of the Childbearing Family</td>
<td>Lecture</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 329-001</td>
<td>Child Health</td>
<td>Lecture</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 329-002</td>
<td>Child Health</td>
<td>Lecture</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 336-P01</td>
<td>Nursing Practice in Medical Settings</td>
<td>Seminar</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 336-P02</td>
<td>Nursing Practice in Medical Settings</td>
<td>Seminar</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 336-P03</td>
<td>Nursing Practice in Medical Settings</td>
<td>Seminar</td>
<td>2</td>
</tr>
</tbody>
</table>
NRSG 336-P04  
NRSG_O  
P04  Nursing Practice in Medical Settings  
W1  
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 BIOC 131, BIOC 133, HINT 231, BIOL 232. Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 326. Experiential In Person Learning Tue Wed 7:00 a.m. - 3:00 p.m.

NRSG 336-P05  
NRSG_O  
P05  Nursing Practice in Medical Settings  
W2  
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 BIOC 131, BIOC 133, HINT 231, BIOL 232. Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 326. Experiential In Person Learning Tue Wed 7:00 a.m. - 3:00 p.m.

NRSG 336-P06  
NRSG_O  
P06  Nursing Practice in Medical Settings  
W3  
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 BIOC 131, BIOC 133, HINT 231, BIOL 232. Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 326. Experiential In Person Learning Tue Wed 7:00 a.m. - 3:00 p.m.

NRSG 336-P07  
NRSG_O  
P07  Nursing Practice in Medical Settings  
W4  
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 BIOC 131, BIOC 133, HINT 231, BIOL 232. Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 326. Experiential In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

NRSG 336-P08  
NRSG_O  
P08  Nursing Practice in Medical Settings  
W5  
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 BIOC 131, BIOC 133, HINT 231, BIOL 232. Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 326. Experiential In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

NRSG 336-P09  
NRSG_O  
P09  Nursing Practice in Medical Settings  
W6  
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 BIOC 131, BIOC 133, HINT 231, BIOL 232. Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 326. Experiential In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

NRSG 336-P10  
NRSG_O  
P10  Nursing Practice in Medical Settings  
W7  
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 BIOC 131, BIOC 133, HINT 231, BIOL 232. Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 326. Experiential In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

NRSG 336-P11  
NRSG_O  
P11  Nursing Practice in Medical Settings  
W8  
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 BIOC 131, BIOC 133, HINT 231, BIOL 232. Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 326. Experiential In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

NRSG 336-P12  
NRSG_O  
P12  Nursing Practice in Medical Settings  
W9  
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 BIOC 131, BIOC 133, HINT 231, BIOL 232. Third-year BSN-O Standing. Corequisite: All of NRSG 301, NRSG 326. Experiential In Person Learning Thu Fri 7:00 a.m. - 3:00 p.m.

NRSG 337-P01  
NRSG_O  
P01  Nursing Practice in Surgical Settings  
W1  
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, NRSG 336. 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.

NRSG 337-P02  
NRSG_O  
P02  Nursing Practice in Surgical Settings  
W2  
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, NRSG 336. 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.

NRSG 337-P03  
NRSG_O  
P03  Nursing Practice in Surgical Settings  
W3  
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, NRSG 336. 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.

NRSG 337-P04  
NRSG_O  
P04  Nursing Practice in Surgical Settings  
W4  
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, NRSG 336. 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.

NRSG 337-P05  
NRSG_O  
P05  Nursing Practice in Surgical Settings  
W5  
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, NRSG 336. 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.

NRSG 337-P06  
NRSG_O  
P06  Nursing Practice in Surgical Settings  
W6  
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, NRSG 336. 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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Days</th>
<th>Start Time</th>
<th>End Time</th>
<th>Credits</th>
<th>Location</th>
<th>Prerequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSG 338-P07</td>
<td>Nursing Practice in Surgical Settings</td>
<td>W1</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Thu Fri</td>
</tr>
<tr>
<td>NRSG 338-P08</td>
<td>Nursing Practice in Surgical Settings</td>
<td>W1</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Thu Fri</td>
</tr>
<tr>
<td>NRSG 338-P09</td>
<td>Nursing Practice in Surgical Settings</td>
<td>W1</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Thu Fri</td>
</tr>
<tr>
<td>NRSG 338-P10</td>
<td>Nursing Practice in Surgical Settings</td>
<td>W1</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Thu Fri</td>
</tr>
<tr>
<td>NRSG 338-P11</td>
<td>Nursing Practice in Surgical Settings</td>
<td>W1</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Thu Fri</td>
</tr>
<tr>
<td>NRSG 338-P12</td>
<td>Nursing Practice in Surgical Settings</td>
<td>W1</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Thu Fri</td>
</tr>
<tr>
<td>NRSG 338-P01</td>
<td>Nursing Practice with Childbearing Families</td>
<td>W2</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>NRSG 338-P02</td>
<td>Nursing Practice with Childbearing Families</td>
<td>W3</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Wed</td>
</tr>
<tr>
<td>NRSG 338-P03</td>
<td>Nursing Practice with Childbearing Families</td>
<td>W5</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>NRSG 338-P04</td>
<td>Nursing Practice with Childbearing Families</td>
<td>W5</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>NRSG 338-P05</td>
<td>Nursing Practice with Childbearing Families</td>
<td>W5</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Fri</td>
</tr>
<tr>
<td>NRSG 338-P06</td>
<td>Nursing Practice with Childbearing Families</td>
<td>W6</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Tue</td>
</tr>
<tr>
<td>NRSG 338-P07</td>
<td>Nursing Practice with Childbearing Families</td>
<td>W6</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Wed</td>
</tr>
<tr>
<td>NRSG 338-P08</td>
<td>Nursing Practice with Childbearing Families</td>
<td>W8</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Thu</td>
</tr>
<tr>
<td>NRSG 338-P09</td>
<td>Nursing Practice with Childbearing Families</td>
<td>W8</td>
<td>7:00 a.m.</td>
<td>3:00 p.m.</td>
<td>3</td>
<td>Experiential In Person Learning</td>
<td>Thu</td>
</tr>
</tbody>
</table>

Corequisite: NRSG 328. Bachelor of Science in Nursing. Pass/Fail. [0-8-0] Prerequisite: All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Ethical considerations common to this area of practice will be explored within an ethical decision-making framework. Restricted to students in the Nursing care in newborn family health contexts. Intentional learning activities integrate knowledge from NRSG 328. This specialty practicum develops beginning knowledge, skills, and abilities to provide 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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSG 421-001</td>
<td>NRSG_O</td>
<td>Capstone Review</td>
<td>3-0-0</td>
<td>All of BIOL 131, BIOL 133, HINT 231, BIOL 232. Corequisite: NRSG 329. 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.</td>
</tr>
<tr>
<td>NRSG 421-002</td>
<td>NRSG_O</td>
<td>Leadership</td>
<td>3-0-0</td>
<td>Prerequisite: Fourth-Year BSN-O Standing Corequisite: All of NRSG 421, NRSG 432. 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.</td>
</tr>
<tr>
<td>NRSG 421-003</td>
<td>NRSG_O</td>
<td>Advanced Clinical Reasoning for Care of the Cor</td>
<td>3-0-0</td>
<td>Prerequisite: Fourth-Year BSN-O Standing Corequisite: All of NRSG 421, NRSG 432. Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level.</td>
</tr>
<tr>
<td>NRSG 421-004</td>
<td>NRSG_O</td>
<td>Capstone Acute Care Preceptorship</td>
<td>3-0-0</td>
<td>Prerequisite: Fourth-Year BSN-O Standing Corequisite: All of NRSG 421, NRSG 432. Preceptored practice course consolidates acute care clinical knowledge, skills, and abilities.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Name</td>
<td>Credits</td>
<td>Hours</td>
<td>Prerequisites</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
<td>---------</td>
<td>-------</td>
<td>---------------</td>
</tr>
<tr>
<td>NRSG 431-P05</td>
<td>Capstone Acute Care Preceptorship</td>
<td>2</td>
<td></td>
<td>Preceptorship course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 4 weeks]</td>
</tr>
<tr>
<td>NRSG 431-P06</td>
<td>Capstone Acute Care Preceptorship</td>
<td>2</td>
<td></td>
<td>Preceptorship course consolidates acute care clinical knowledge, skills, and abilities. Demonstrates evidence-informed practice at a graduate nurse level. Pass/Fail. [240 hours over 4 weeks]</td>
</tr>
<tr>
<td>NRSG 432-P01</td>
<td>Capstone Community Project</td>
<td>2</td>
<td></td>
<td>Preceptorship 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]</td>
</tr>
<tr>
<td>NRSG 432-P02</td>
<td>Capstone Community Project</td>
<td>2</td>
<td></td>
<td>Preceptorship 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]</td>
</tr>
</tbody>
</table>

**NRSG 434-B_P01**
Preceptorship course 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.

**NRSG 434-B_P02**
Preceptorship course 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.

**NRSG 434-B_P03**
Preceptorship course 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.

**NRSG 434-B_P04**
Preceptorship course 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.

**NRSG 434-B_P05**
Preceptorship course 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.

**NRSG 434-B_P06**
Preceptorship course 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.

**NRSG 437-B_P01**
Preceptorship course 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 432, NRSG 437. a min of 3 credits of nursing electives related to practicum context, and recommendation of practice advising committee.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSG 437-B_P02</td>
<td>Mental Health Preceptorship</td>
<td>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</td>
</tr>
<tr>
<td>NRSG 437-B_P03</td>
<td>Mental Health Preceptorship</td>
<td>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</td>
</tr>
<tr>
<td>NRSG 437-B_P04</td>
<td>Mental Health Preceptorship</td>
<td>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</td>
</tr>
<tr>
<td>NRSG 437-B_P05</td>
<td>Mental Health Preceptorship</td>
<td>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</td>
</tr>
<tr>
<td>NRSG 437-B_P06</td>
<td>Mental Health Preceptorship</td>
<td>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</td>
</tr>
<tr>
<td>NRSG 438-B_P01</td>
<td>Community Health Nursing Preceptorship</td>
<td>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 436, and recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged</td>
</tr>
<tr>
<td>NRSG 438-B_P02</td>
<td>Community Health Nursing Preceptorship</td>
<td>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 436, and recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged</td>
</tr>
<tr>
<td>NRSG 438-B_P03</td>
<td>Community Health Nursing Preceptorship</td>
<td>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 436, and recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged</td>
</tr>
<tr>
<td>NRSG 438-B_P04</td>
<td>Community Health Nursing Preceptorship</td>
<td>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 436, and recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged</td>
</tr>
<tr>
<td>NRSG 438-B_P05</td>
<td>Community Health Nursing Preceptorship</td>
<td>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 436, and recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged</td>
</tr>
<tr>
<td>NRSG 438-B_P06</td>
<td>Community Health Nursing Preceptorship</td>
<td>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 436, and recommendation of practice advising committee. Experiential In Person Learning Arranged Arranged</td>
</tr>
<tr>
<td>NRSG 439-P01</td>
<td>Global Health Practicum</td>
<td>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</td>
</tr>
<tr>
<td>NRSG 439-P02</td>
<td>Global Health Practicum</td>
<td>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</td>
</tr>
<tr>
<td>NRSG 439-P13</td>
<td>Global Health Practicum</td>
<td>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</td>
</tr>
</tbody>
</table>
NRSG_O 440-B_P01  
NRSG_O  B  B_P01  
Research Preceptorship  
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: secernment of a faculty supervisor and research elective (3/5) as determined by faculty supervisor. Experiential  
In Person Learning  
Arranged  
Arranged

NRSG_O 506-001  
NRSG_O  
001  Qualitative Research  
WS  
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] Corequisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing. Lecture  
Online Learning  
Wed  
3:30 p.m. - 5:00 p.m.

NRSG_O 522-001  
NRSG_O  
001  Introduction to Nursing Education  
WS  
Examines issues and trends in nursing education including implications for the teaching practices of nurse educators. [3-0-0] Corequisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing. Lecture  
Online Learning  
Arranged  
Arranged

NRSG_O 542-001  
NRSG_O  
001  Introduction to Nursing Leadership and Management  
WS  
Examines issues and trends in nursing leadership, including implications for management in the Canadian healthcare context. [3-0-0] Corequisite: NRSG 504 or permission of the Graduate Program Coordinator, School of Nursing. Lecture  
Online Learning  
Arranged  
Arranged

NRSG_O 580-001  
NRSG_O  
001  Philosophy of Evidence in Nursing  
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, NRS) unless permission is given by the program coordinator. Prerequisite: NRSG 500. Lecture  
Online Learning  
Tue  
10:00 a.m. - 12:00 p.m.

NRSG_O 588-001  
NRSG_O  
001  Scholarly Project  
WS-2  Pass/Fail.  
2 Pass/Fail.  
Indepeendent Study  
Online Learning  
Arranged  
Arranged

NRSG_O 599-101  
NRSG_O  
101  Research Thesis  
WS  
Pass/Fail. Prerequisite: Restricted to students in the M.S.N. program or with permission from the M.S.N. coordinator. Thesis  
Online Learning  
Arranged  
Arranged

NRSG_O 599-102  
NRSG_O  
102  Research Thesis  
WS-2  
Pass/Fail. Prerequisite: Restricted to students in the M.S.N. program or with permission from the M.S.N. coordinator. Thesis  
Online Learning  
Arranged  
Arranged

NRSG_O 601-101  
NRSG_O  
101  Doctoral Seminar  
WS-2  
Seminar  
Online Learning  
Wed (Alternates weeks)  
8:00 a.m. - 9:30 a.m.

NRSG_O 699-001  
NRSG_O  
101  Doctoral Dissertation  
WS-2  
Pass/Fail.  
Pass/Fail.  
Thesis  
Online Learning  
Arranged  
Arranged

NSYL_O 333-101  
NSYL_O  
101  Language Practice and Pedagogy: Creative, ConW  
Language Practice and Pedagogy: Creative, ConW  
Intensive language immersion class demonstrating, in and through practice, traditional Syilx visual arts. The language of instruction is Nsyilx. Restricted to students in the Bachelor of Nsyilx Language Fluency program. [1-0-4] Prerequisite: NSYL 351. Corequisite: NSYL 352. Lecture  
In Person Learning  
Arranged  
Arranged

NSYL_O 332-101  
NSYL_O  
101  Language Practice and Pedagogy: Creative, ConW  
Language Practice and Pedagogy: Creative, ConW  
Intensive language immersion class demonstrating, in and through practice, traditional Syilx visual arts. The language of instruction is Nsyilx. Restricted to students in the Bachelor of Nsyilx Language Fluency program. [1-0-4] Prerequisite: NSYL 351. Corequisite: NSYL 352. Laboratory  
In Person Learning  
Arranged  
Arranged

NSYL_O 352-101  
NSYL_O  
101  Language Applications: Literature and Performative WS  
Prerequisite: Second-year standing. 
[Laboratory  
In Person Learning  
Arranged  
Arranged

NSYL_O 439-101  
NSYL_O  
101  Captstone: Language Immersion  
Language Immersion  
Project designed to provide students an intensive language immersion experience on a specific topic or domain. Restricted to students in the Bachelor of Nsyilx Language Fluency program. Corequisite: INDG 495. Lecture  
In Person Learning  
Arranged  
Arranged

NSYL_O 439-L01  
NSYL_O  
101  Captstone: Language Immersion  
Language Immersion  
Project designed to provide students an intensive language immersion experience on a specific topic or domain. Restricted to students in the Bachelor of Nsyilx Language Fluency program. Corequisite: INDG 495. Laboratory  
In Person Learning  
Arranged  
Arranged

PHEL_O 111-001  
PHEL_O  
001  Introduction to Philosophy I  
Introduction to outstanding philosophers and their systems. Ethics, political philosophy, metaphysics, and philosophy of religion. [3-0-0] Lecture  
In Person Learning  
Tue Thu  
9:30 a.m. - 11:00 a.m.

PHEL_O 111-002  
PHEL_O  
002  Introduction to Philosophy II  
Introduction to outstanding philosophers and their systems. Ethics, political philosophy, metaphysics, and philosophy of religion. [3-0-0] Lecture  
In Person Learning  
Tue Thu  
11:00 a.m. - 12:30 p.m.

PHEL_O 120-001  
PHEL_O  
001  Introduction to Logic and Critical Thinking  
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 96 credits. [3-0-0] Lecture  
In Person Learning  
Wed Fri  
9:30 a.m. - 11:00 a.m.

PHEL_O 120-002  
PHEL_O  
002  Introduction to Logic and Critical Thinking  
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 96 credits. [3-0-0] Lecture  
In Person Learning  
Mon Wed  
12:30 p.m. - 2:00 p.m.

PHEL_O 121-001  
PHEL_O  
001  Introduction to Philosophy II  
Introduction to outstanding philosophers and their systems. Theory of knowledge, logic, and contemporary philosophy. [3-0-0] Lecture  
In Person Learning  
Tue Thu  
11:00 a.m. - 12:30 p.m.

PHEL_O 120-001  
PHEL_O  
001  Symbolic Logic I  
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] Lecture  
In Person Learning  
Mon Wed  
2:00 p.m. - 3:30 p.m.

PHEL_O 230-001  
PHEL_O  
001  Ethics  
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  
Wed Fri  
3:30 p.m. - 5:00 p.m.

PHEL_O 233-001  
PHEL_O  
001  Biomedical Ethics  
Moral problems arising in the health sciences. Topics may include abortion, death and euthanasia, genetic engineering, behavior 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. Lecture  
In Person Learning  
Mon Wed  
11:00 a.m. - 12:30 p.m.
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 in an Arts program and 3 credits of PHIL, or third-year standing in a Science program.

*PHYS_O 331-001*  
PHYS_O 331-001 Computer Ethics  
WS  

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 in an Arts program and 3 credits of PHIL, or third-year standing in a Science program.

*PHYS_O 331-002*  
PHYS_O 331-002 Computer Ethics  
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.

*PHYS_O 345-001*  
PHYS_O 345-001 Theory of Knowledge  
WS  

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.

*PHYS_O 418-H 001*  
PHYS_O 418-H 001 Topics in 20th-Century Philosophy  
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 121.

*PHYS_O 425-001*  
PHYS_O 425-001 Philosophy of Language  
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 X2 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.

*PHYS_O 111-001*  
PHYS_O 111-001 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 X2 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.

*PHYS_O 111-002*  
PHYS_O 111-002 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 X2 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.

*PHYS_O 111-003*  
PHYS_O 111-003 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 X2 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.

*PHYS_O 111-004*  
PHYS_O 111-004 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 X2 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.

*PHYS_O 111-005*  
PHYS_O 111-005 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 X2 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.
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.

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.

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.

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.

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.

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.

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.

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.

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.

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.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS_O 111-L15</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>W1 6:30 p.m. - 9:30 p.m.</td>
</tr>
<tr>
<td>PHYS_O 111-L16</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>W1 12:30 p.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>PHYS_O 111-L17</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>W1 5:00 p.m. - 6:00 p.m.</td>
</tr>
<tr>
<td>PHYS_O 111-L18</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>W1 1:00 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>PHYS_O 111-T01</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>Discussion 8:00 a.m. - 9:00 a.m.</td>
</tr>
<tr>
<td>PHYS_O 111-T02</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>Discussion 8:00 a.m. - 9:00 a.m.</td>
</tr>
<tr>
<td>PHYS_O 111-T03</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>Discussion 1:00 p.m. - 2:00 p.m.</td>
</tr>
<tr>
<td>PHYS_O 111-T04</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>Discussion 10:00 a.m. - 11:00 a.m.</td>
</tr>
<tr>
<td>PHYS_O 111-T05</td>
<td>Introductory Physics for the Physical Sciences I</td>
<td>Discussion 5:00 p.m. - 6:00 p.m.</td>
</tr>
<tr>
<td>Course</td>
<td>Section</td>
<td>Lecture</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>PHYS 111-T06</td>
<td>T06</td>
<td>Introductory Physics for the Physical Sciences</td>
</tr>
<tr>
<td>PHYS 111-T07</td>
<td>T07</td>
<td>Introductory Physics for the Physical Sciences</td>
</tr>
<tr>
<td>PHYS 111-T08</td>
<td>T08</td>
<td>Introductory Physics for the Physical Sciences</td>
</tr>
<tr>
<td>PHYS 111-XM1</td>
<td>XM1</td>
<td>Introductory Physics for the Physical Sciences</td>
</tr>
<tr>
<td>PHYS 111-XM2</td>
<td>XM2</td>
<td>Introductory Physics for the Physical Sciences</td>
</tr>
<tr>
<td>PHYS 112-001</td>
<td>001</td>
<td>Introductory Physics for the Life Sciences</td>
</tr>
<tr>
<td>PHYS 112-002</td>
<td>002</td>
<td>Introductory Physics for the Life Sciences</td>
</tr>
<tr>
<td>PHYS 112-003</td>
<td>003</td>
<td>Introductory Physics for the Life Sciences</td>
</tr>
<tr>
<td>PHYS 112-004</td>
<td>004</td>
<td>Introductory Physics for the Life Sciences</td>
</tr>
<tr>
<td>PHYS 112-005</td>
<td>005</td>
<td>Introductory Physics for the Life Sciences</td>
</tr>
<tr>
<td>PHYS 112-006</td>
<td>006</td>
<td>Introductory Physics for the Life Sciences</td>
</tr>
<tr>
<td>PHYS 112-007</td>
<td>007</td>
<td>Introductory Physics for the Life Sciences</td>
</tr>
<tr>
<td>PHYS 112-008</td>
<td>008</td>
<td>Introductory Physics for the Life Sciences</td>
</tr>
<tr>
<td>PHYS 112-009</td>
<td>009</td>
<td>Introductory Physics for the Life Sciences</td>
</tr>
<tr>
<td>PHYS 112-010</td>
<td>010</td>
<td>Introductory Physics for the Life Sciences</td>
</tr>
<tr>
<td>PHYS 112-011</td>
<td>011</td>
<td>Introductory Physics for the Life Sciences</td>
</tr>
<tr>
<td>PHYS 112-012</td>
<td>012</td>
<td>Introductory Physics for the Life Sciences</td>
</tr>
</tbody>
</table>
In Person Learning
2:30 p.m. - 5:30 p.m.
W1
Introductory Physics for the Life Sciences I
L11
Thu (Alternate weeks)
Introductory Physics for the Life Sciences I Laboratory
Thu (Alternate weeks)
W1
2:30 p.m. - 5:30 p.m.
Introductory Physics for the Life Sciences I
Introductory Physics for the Life Sciences I
2:30 p.m. - 5:30 p.m.
Wed (Alternate weeks)
In Person Learning
L09
Laboratory
In Person Learning
Tue (Alternate weeks)
Introductory Physics for the Life Sciences I
Introductory Physics for the Life Sciences I
Laboratory
6:30 p.m. - 9:30 p.m.
L07
W1
In Person Learning
W1
L06
Laboratory
Introductory Physics for the Life Sciences I
Laboratory
In Person Learning
Wed (Alternate weeks)
Wed (Alternate weeks)
6:30 p.m. - 9:30 p.m.
W1
L10
2:30 p.m. - 5:30 p.m.
In Person Learning
Introductory Physics for the Life Sciences I
Wed (Alternate weeks)
L05
Laboratory
Tue (Alternate weeks)
Tue (Alternate weeks)
Introductory Physics for the Life Sciences I
6:30 p.m. - 9:30 p.m.
L04
PHYS_O 112-L04
PHYS_O 112-L05
PHYS_O 112-L06
PHYS_O 112-L07
PHYS_O 112-L08
PHYS_O 112-L09
PHYS_O 112-L10
PHYS_O 112-L11

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 100 is strongly recommended.

Laboratory
In Person Learning
Tue (Alternate weeks)
6:30 p.m. - 9:30 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, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Laboratory
In Person Learning
Wed (Alternate weeks)
2:30 p.m. - 5:30 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, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Laboratory
In Person Learning
Thru (Alternate weeks)
2:30 p.m. - 5:30 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, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Laboratory
In Person Learning
Thru (Alternate weeks)
6:30 p.m. - 9:30 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, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Laboratory
In Person Learning
Wed (Alternate weeks)
9:30 a.m. - 12:30 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, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Laboratory
In Person Learning
Tue (Alternate weeks)
2:30 p.m. - 5:30 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, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Laboratory
In Person Learning
Tue (Alternate weeks)
6:30 p.m. - 9:30 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, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Laboratory
In Person Learning
Wed (Alternate weeks)
2:30 p.m. - 5:30 p.m.
<table>
<thead>
<tr>
<th>Subject</th>
<th>Course</th>
<th>Section</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introductory Physics for the Life Sciences I</td>
<td>PHYS 112-L14</td>
<td>1</td>
<td>3</td>
<td>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. 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.</td>
</tr>
<tr>
<td>Introductory Physics for the Life Sciences I</td>
<td>PHYS 112-L15</td>
<td>2</td>
<td>3</td>
<td>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. 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.</td>
</tr>
<tr>
<td>Introductory Physics for the Life Sciences I</td>
<td>PHYS 112-L16</td>
<td>3</td>
<td>3</td>
<td>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. 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.</td>
</tr>
<tr>
<td>Introductory Physics for the Life Sciences I</td>
<td>PHYS 112-L17</td>
<td>4</td>
<td>3</td>
<td>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. 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.</td>
</tr>
</tbody>
</table>

**Prerequisites:**
- One of MATH 12, PREC 12, MATH 125, MATH 126.
- Physics 11 and Physics 12 are strongly recommended.

**Credit:**
- Credit will be granted for only one of PHYS 111 and PHYS 112.
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 100 is strongly recommended.

Laboratory In Person Learning Thu (Alternate weeks) 6:30 p.m. - 9:30 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, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended. Laboratory In Person Learning Wed (Alternate weeks) 9:30 a.m. - 12:30 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, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Laboratory In Person Learning Tue (Alternate weeks) 2:30 p.m. - 5:30 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, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Laboratory In Person Learning Tue (Alternate weeks) 6:30 p.m. - 9:30 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, PREC 12, MATH 125, MATH 126. Physics 11 and Physics 12 are strongly recommended. Concurrently taking MATH 100 is strongly recommended.

Laboratory In Person Learning Wed (Alternate weeks) 2:30 p.m. - 5:30 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, PREC 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 10:00 a.m. - 11:00 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, PREC 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 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, PREC 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 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, PREC 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 2:00 p.m. - 3:00 p.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Section</th>
<th>Type</th>
<th>Instructor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 111-T05</td>
<td>T05</td>
<td>Introductory Physics for the Life Sciences</td>
<td>WS</td>
<td>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.</td>
</tr>
<tr>
<td>PHYS 111-T06</td>
<td>T06</td>
<td>Introductory Physics for the Life Sciences</td>
<td>WS</td>
<td>Discussion</td>
</tr>
<tr>
<td>PHYS 111-T07</td>
<td>T07</td>
<td>Introductory Physics for the Life Sciences</td>
<td>WS</td>
<td>Discussion</td>
</tr>
<tr>
<td>PHYS 111-T08</td>
<td>T08</td>
<td>Introductory Physics for the Life Sciences</td>
<td>WS</td>
<td>Discussion</td>
</tr>
<tr>
<td>PHYS 111-T09</td>
<td>T09</td>
<td>Introductory Physics for the Life Sciences</td>
<td>WS</td>
<td>Discussion</td>
</tr>
<tr>
<td>PHYS 111-T10</td>
<td>T10</td>
<td>Introductory Physics for the Life Sciences</td>
<td>WS</td>
<td>Discussion</td>
</tr>
<tr>
<td>PHYS 111-T11</td>
<td>T11</td>
<td>Introductory Physics for the Life Sciences</td>
<td>WS</td>
<td>Discussion</td>
</tr>
<tr>
<td>PHYS 111-T12</td>
<td>T12</td>
<td>Introductory Physics for the Life Sciences</td>
<td>WS</td>
<td>Discussion</td>
</tr>
<tr>
<td>PHYS 111-T13</td>
<td>T13</td>
<td>Introductory Physics for the Life Sciences</td>
<td>WS</td>
<td>Discussion</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Name</td>
<td>Credits</td>
<td>Time</td>
<td>Instructor</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------------</td>
<td>---------</td>
<td>---------------------</td>
<td>------------</td>
</tr>
<tr>
<td>PHYS_112-XM1</td>
<td>Introductory Physics for the Sciences I</td>
<td>WS</td>
<td>Mon Wed</td>
<td></td>
</tr>
<tr>
<td>PHYS_112-XM2</td>
<td>Introductory Physics for the Sciences I</td>
<td>WS</td>
<td>Wed Fri</td>
<td></td>
</tr>
<tr>
<td>PHYS_215-101</td>
<td>Thermodynamics</td>
<td>WS</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>License</td>
</tr>
<tr>
<td>PHYS_251-001</td>
<td>Introduction to Electronics</td>
<td>WS</td>
<td>1:00 p.m. - 2:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>PHYS_251-101</td>
<td>Electricity and Magnetism</td>
<td>WS</td>
<td>9:00 a.m. - 12:00 p.m.</td>
<td>License</td>
</tr>
<tr>
<td>PHYS_301-001</td>
<td>Electricity and Magnetism</td>
<td>WS</td>
<td>2:00 p.m. - 3:30 p.m.</td>
<td>Seminar</td>
</tr>
<tr>
<td>PHYS_304-001</td>
<td>Introduction to Quantum Mechanics</td>
<td>WS</td>
<td>2:00 p.m. - 3:30 p.m.</td>
<td>Seminar</td>
</tr>
<tr>
<td>PHYS_324-001</td>
<td>Waves</td>
<td>WS</td>
<td>12:00 p.m. - 1:00 p.m.</td>
<td>Seminar</td>
</tr>
<tr>
<td>PHYS_331-001</td>
<td>Experimental Physics I</td>
<td>WS</td>
<td>12:30 p.m. - 2:00 p.m.</td>
<td>Seminar</td>
</tr>
<tr>
<td>PHYS_331-101</td>
<td>Experimental Physics I</td>
<td>WS</td>
<td>9:30 a.m. - 12:30 p.m.</td>
<td>Seminar</td>
</tr>
<tr>
<td>PHYS_402-101</td>
<td>Advanced Quantum Mechanics</td>
<td>WS</td>
<td>12:30 p.m. - 2:00 p.m.</td>
<td>Seminar</td>
</tr>
<tr>
<td>PHYS_403-001</td>
<td>Statistical Mechanics</td>
<td>WS</td>
<td>3:30 p.m. - 5:00 p.m.</td>
<td>Seminar</td>
</tr>
<tr>
<td>PHYS_448-A_001</td>
<td>Directed Studies in Physics</td>
<td>WS</td>
<td>Independent Study</td>
<td></td>
</tr>
<tr>
<td>PHYS_448-A_002</td>
<td>Directed Studies in Physics</td>
<td>WS</td>
<td>Independent Study</td>
<td></td>
</tr>
<tr>
<td>PHYS_448-B_101</td>
<td>Directed Studies in Physics</td>
<td>WS</td>
<td>Independent Study</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Type</td>
<td>Description</td>
<td>Prerequisites</td>
<td>Credit Value</td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------------------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>PHYS_O 448-B</td>
<td>Directed</td>
<td>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.</td>
<td>Independent Study</td>
<td>Independent</td>
</tr>
<tr>
<td>PHYS_O 448-B</td>
<td>Directed</td>
<td>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.</td>
<td>Independent Study</td>
<td>Independent</td>
</tr>
<tr>
<td>PHYS_O 448-C</td>
<td>Directed</td>
<td>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.</td>
<td>Independent Study</td>
<td>Independent</td>
</tr>
<tr>
<td>PHYS_O 448-C</td>
<td>Directed</td>
<td>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.</td>
<td>Independent Study</td>
<td>Independent</td>
</tr>
<tr>
<td>PHYS_O 449-B</td>
<td>Honours</td>
<td>A research project undertaken under the direction of a faculty member culminating in a thesis.</td>
<td>Thesis</td>
<td>W1</td>
</tr>
<tr>
<td>PHYS_O 449-B</td>
<td>Honours</td>
<td>A research project undertaken under the direction of a faculty member culminating in a thesis.</td>
<td>Thesis</td>
<td>W1</td>
</tr>
<tr>
<td>PHYS_O 449-B</td>
<td>Honours</td>
<td>A research project undertaken under the direction of a faculty member culminating in a thesis.</td>
<td>Thesis</td>
<td>W1</td>
</tr>
<tr>
<td>PHYS_O 449-B</td>
<td>Honours</td>
<td>A research project undertaken under the direction of a faculty member culminating in a thesis.</td>
<td>Thesis</td>
<td>W1</td>
</tr>
<tr>
<td>POLI_O 100</td>
<td>Doctoral</td>
<td>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.</td>
<td>Lecture</td>
<td>T01</td>
</tr>
<tr>
<td>POLI_O 100</td>
<td>Doctoral</td>
<td>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.</td>
<td>Lecture</td>
<td>T02</td>
</tr>
<tr>
<td>POLI_O 100</td>
<td>Doctoral</td>
<td>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.</td>
<td>Lecture</td>
<td>T03</td>
</tr>
<tr>
<td>POLI_O 100</td>
<td>Doctoral</td>
<td>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.</td>
<td>Lecture</td>
<td>T04</td>
</tr>
<tr>
<td>POLI_O 100</td>
<td>Doctoral</td>
<td>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.</td>
<td>Lecture</td>
<td>T05</td>
</tr>
<tr>
<td>POLI_O 100</td>
<td>Doctoral</td>
<td>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.</td>
<td>Lecture</td>
<td>T06</td>
</tr>
<tr>
<td>POLI_O 201</td>
<td>Doctoral</td>
<td>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.</td>
<td>Lecture</td>
<td>T07</td>
</tr>
<tr>
<td>POLI_O 201</td>
<td>Doctoral</td>
<td>Critical introduction to some major ideologies and traditions of Western political thought that examines 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.</td>
<td>Lecture</td>
<td>T08</td>
</tr>
<tr>
<td>POLI_O 200</td>
<td>Doctoral</td>
<td>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.</td>
<td>Lecture</td>
<td>T09</td>
</tr>
<tr>
<td>POLI_O 309-A</td>
<td>Topics</td>
<td>Topics in Political Science.</td>
<td>Lecture</td>
<td>T10</td>
</tr>
<tr>
<td>POLI_O 309-A</td>
<td>Topics</td>
<td>Topics in Political Science.</td>
<td>Lecture</td>
<td>T11</td>
</tr>
</tbody>
</table>

**Strong Prerequisites:**
- Specific prerequisites may apply depending on the topic and level of the course.
- Students are advised to consult with the department head for approval and registration.

**Independent Study:**
- Credit value determined in consultation with the student prior to registration.

**Course Format:**
- In Person Learning
- Directed
- Doctoral Dissertation
- Master's Thesis
- Thesis
- Independent Study

**Credit Hours:**
- 3.0-6.0
- 1.5-3.0
- 0.5-3.0
- 0.0-1.5
- 1.5-2.0
- 2.0-3.0
- 3.0-4.0
- 4.0-5.0
- 5.0-6.0

**Equivalencies:**
- POLI 309
- POLI 391
- POLI 223
- POLI 201
- POLI 391
- POLI 240
- POLI 250
- POLI 309
- POLI 391

**Departments:**
- PHYS
- POLI
PSYO 315-001  
001  Psychology of Touch I  
WS  
Focusses 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 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 317-001  
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 298, PSYO 299, or 6 credits of 200-level Psychology. Lecture  Online Learning  Tue Thu 3:30 p.m. - 5:00 p.m.

PSYO 322-001  
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 of PSYO 219, PSYO 230, PSYO 241, PSYO 252, PSYO 270, 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 343-001  
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 issues and principles discussed. [3-0-0] Prerequisite: Two of PSYO 219, PSYO 220, PSYO 230, PSYO 241, PSYO 252, PSYO 270, 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 348-001  
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 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 349-001  
101  Positive Psychology  
WS  
Academic overview of human sexuality from a biological, psychological, and behavioural perspective. Examination of the difficulties of research in the area of human sexuality, biological foundations of sexuality, human reproduction, birth control, and premarital sexual 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 353-001  
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 355-001  
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 of the department head. Consequence: Enrollment in a three-hour laboratory section is required. Lecture  In Person Learning  Mon 11:00 a.m. - 2:00 p.m.

PSYO 372-001  
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: Enrollment in a three-hour laboratory section is required. Laboratory  In Person Learning  Wed 11:00 a.m. - 2:00 p.m.

PSYO 372-101  
L01  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 200-level Psychology, including at least 3 credits from the Mental Health & 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 440-001  
001  Introduction to Counselling and Interviewing  
WS  
A survey of advanced topics in statistics and research methodology, including: philosophy of science, research designs, psychological measurement, statistical reasoning, meta-analysis, regresion, multivariate analysis of variance, factor analysis, structural equation modelling, multilevel modelling, multivariate frequency analysis, and the analysis of change. [3-0-3-0] Lecture  In Person Learning  Mon 2:00 p.m. - 5:00 p.m.

PSYO 507-001  
001  Advanced Statistics and Research Methods  
WS-2  
A survey of advanced topics in statistics and research methodology, including: philosophy of science, research designs, psychological 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. [3-0-3-0] Lecture  In Person Learning  Wed Fri 11:00 a.m. - 12:30 p.m.

PSYO 512-001  
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 514-001  
001  Psychological Assessment I  
WS  
Core principles of clinical assessment; test interpretation; interview techniques; developmental factors in interpretation; integrative report writing. Restricted to the Graduate Clinical Psychology Program. [3-0-0] Lecture  In Person Learning  Mon 11:00 a.m. - 2:00 p.m.

PSYO 516-001  
001  Psychological Intervention I: Process, Motivation  
WS  
Introduction to psychotherapy, including historical 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 530-C 201  
C  
C 201  
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. Lecture  Experiential  In Person Learning  Arranged  Arranged

PSYO 559-001  
001  Master's Thesis  
WS  
Thesis  
In Person Learning  Arranged  Arranged

PSYO 559-201  
001  Master's Thesis  
WS-2  
Thesis  
In Person Learning  Arranged  Arranged
<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>CR</th>
<th>Type</th>
<th>Credits</th>
<th>Focus</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYO 625-001</td>
<td>PSYO O 001 Internship Preparation W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Clinical Psychology Practicum (Doctoral)</td>
<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. The credit value for this course will be determined in consultation with the student prior to the registration.</td>
</tr>
<tr>
<td>PSYO 630-C_001</td>
<td>PSYO O C C_001 Clinical Psychology Practicum (Doctoral) W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>PSYO 630-F_201</td>
<td>PSYO O E E_201 Clinical Psychology Practicum (Doctoral) W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>PSYO 630-G_001</td>
<td>PSYO O G G_001 Clinical Psychology Practicum (Doctoral) W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>PSYO 630-H_201</td>
<td>PSYO O H H_201 Clinical Psychology Practicum (Doctoral) W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>PSYO 630-I_201</td>
<td>PSYO O I I_201 Clinical Psychology Practicum (Doctoral) W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>PSYO 630-K_201</td>
<td>PSYO O K K_201 Clinical Psychology Practicum (Doctoral) W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>PSYO 630-L_201</td>
<td>PSYO O L L_201 Clinical Psychology Practicum (Doctoral) W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>PSYO 630-N_001</td>
<td>PSYO O N N_001 Clinical Psychology Practicum (Doctoral) W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>PSYO 630-P_201</td>
<td>PSYO O P P_201 Clinical Psychology Practicum (Doctoral) W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>PSYO 630-Q_201</td>
<td>PSYO O Q Q_201 Clinical Psychology Practicum (Doctoral) W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>PSYO 630-R_201</td>
<td>PSYO O R R_201 Clinical Psychology Practicum (Doctoral) W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>PSYO 630-S_001</td>
<td>PSYO O S S_001 Clinical Psychology Practicum (Doctoral) W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>PSYO 630-T_001</td>
<td>PSYO O T T_001 Clinical Psychology Practicum (Doctoral) W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>PSYO 630-Y_001</td>
<td>PSYO O Y Y_001 Clinical Psychology Practicum (Doctoral) W1-2</td>
<td></td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Arranged</td>
<td></td>
</tr>
<tr>
<td>PSYO 639-201</td>
<td>PSYO O 201 Doctoral Dissertation W1-2</td>
<td></td>
<td>Pass/Fail.</td>
<td>Thesis</td>
<td>In Person Learning</td>
<td>Arranged</td>
</tr>
<tr>
<td>PSYO 730-001</td>
<td>PSYO O 001 Clinical Psychology Internship W1-2</td>
<td></td>
<td>Pass/Fail.</td>
<td>Experiential</td>
<td>In Person Learning</td>
<td>Arranged</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Schedule</td>
<td>Type</td>
<td>In Person Learning</td>
<td>Notes</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------------------</td>
<td>------------------</td>
<td>-------------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>SECH_O 400-001</td>
<td>Applied Health Economics</td>
<td>001</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Thu 2:00 p.m. - 5:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>SECH_O 500-001</td>
<td>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: Third-year standing. Equivalence: MGMT 471.</td>
<td>001</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Thu 2:00 p.m. - 5:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 111-001</td>
<td>Introduction to Sociology</td>
<td>001</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed 2:00 p.m. - 3:30 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 111-002</td>
<td>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]</td>
<td>002</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed 6:30 p.m. - 8:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 209-001</td>
<td>Foundations of Sociological Thought</td>
<td>001</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon Wed 11:00 a.m. - 12:30 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 212-001</td>
<td>Sociology of Race and Ethnicity</td>
<td>001</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu 12:30 p.m. - 2:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 228-001</td>
<td>Theories and Interventions for Clinical Social Work</td>
<td>001</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Thu 9:30 a.m. - 11:00 a.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 249-001</td>
<td>Crime and Society</td>
<td>001</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri 3:30 p.m. - 5:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 291-001</td>
<td>Fundamentals of Sociological Research</td>
<td>001</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed Fri 2:00 p.m. - 3:30 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 309-101</td>
<td>Violence in Intimate Relations</td>
<td>101</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu 9:30 a.m. - 11:00 a.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 374-001</td>
<td>Sexuality, Law, and Society</td>
<td>001</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu 11:00 a.m. - 12:30 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 376-001</td>
<td>Classical Sociological Theory</td>
<td>001</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue Thu 9:30 a.m. - 11:00 a.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 395-201</td>
<td>Sociological Methods: Qualitative Research</td>
<td>201</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue 2:00 p.m. - 5:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 421-001</td>
<td>Sociology of Fear</td>
<td>001</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Fri 11:00 a.m. - 2:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 432-101</td>
<td>Sociology of Food</td>
<td>101</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Tue 2:00 p.m. - 5:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 456-001</td>
<td>Sociology of Elites</td>
<td>001</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Mon Wed 2:00 p.m. - 3:30 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCI_O 492-001</td>
<td>Surveillance and Society</td>
<td>001</td>
<td>Seminar</td>
<td>In Person Learning</td>
<td>Thu 12:30 p.m. - 2:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCW_O 511-001</td>
<td>An Introduction to Social Work</td>
<td>001</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Mon 11:00 a.m. - 2:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCW_O 511-002</td>
<td>Advances students' understanding of major theoretical frameworks and treatment modalities for clinical and direct social work practice and their relevance to and application within the planned change process. Prerequisite: Restricted to students in the M.S.W. program.</td>
<td>002</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Thu 2:00 p.m. - 5:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCW_O 512-001</td>
<td>Theories and Interventions for Clinical Social Work</td>
<td>001</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Tue 11:00 a.m. - 2:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCW_O 512-002</td>
<td>Theories and Interventions for Clinical Social Work</td>
<td>002</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Wed 11:00 a.m. - 2:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCW_O 514-001</td>
<td>Diversity and Critical Reflexion Practice</td>
<td>001</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Thu 2:00 p.m. - 5:00 p.m.</td>
<td></td>
</tr>
<tr>
<td>SOCW_O 514-002</td>
<td>Diversity and Critical Reflexion Practice</td>
<td>002</td>
<td>Lecture</td>
<td>In Person Learning</td>
<td>Thu 11:00 a.m. - 2:00 p.m.</td>
<td></td>
</tr>
</tbody>
</table>
SOCW O 517-001 SOCW O 001 Social Work and Indigenous Peoples in Canada WS 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 WS 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 WS 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 WS-2 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 WS 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 WS 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 WS 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 553-002 SOCW O 002 Research Knowledge and Evidence in Clinical Soc WS 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 Soc WS 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 WS Explore 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 WS Explore 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 WS Explore 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 WS-2 A scholarly paper in an area of interest that conforms to the demands of a peer-reviewed social work journal. Pass/Fail. Prerequisite: Restricted to students in the M.S.W. program. Independent Study In Person Learning Arranged Arranged

SOCW O 598-001 SOCW O 001 Graduating Paper WS 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 598-002 SOCW O 002 Graduating Paper WS 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 599-001 SOCW O 001 Thesis WS 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 599-003 SOCW O 003 Thesis WS 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 WS 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 (CEFRL). 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 WS 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 (CEFRL). 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 WS 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 (CEFRL). 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 WS 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 (CEFRL). 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 WS 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 (CEFRL). 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 WS 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 (CEFRL). 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 WS 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 (CEFRL). 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 WS 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 (CEFRL). 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 WS Grammar, introduction to composition, oral practice, and reading. Corresponds to the first half of level A2 of the Common European Framework of Reference for Languages (CEFRL). 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 WS Grammar, introduction to composition, oral practice, and reading. Corresponds to the first half of level A2 of the Common European Framework of Reference for Languages (CEFRL). 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.
SPAN_O 201-003  SPAN_O 003 Advanced Beginners’ Spanish I WS Grammar, 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 11:00 a.m. - 12:00 p.m.

SPAN_O 301-001  SPAN_O 001 Intermediate Spanish I WS Intermediate grammar, composition, oral practice, and reading. Corresponds to the first half of level B1 of the Common European Framework of Reference for Languages (CEFR). Prerequisite: SPAN 202. Lecture In Person Learning Mon Wed Fri 11:00 a.m. - 12:00 p.m.

SPAN_O 303-001  SPAN_O 001 Conversational Spanish WS Development of speaking and listening skills through active learning activities and discussions about a variety of topics that may include social media, streaming programs, movies, and current events. Corresponds to level B1 of the Common European Framework of Reference for Languages (CEFR). Prerequisite: SPAN 202. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

SPAN_O 410-001  SPAN_O 001 Advanced Spanish I WS Advanced grammar, composition, oral practice, and reading. Corresponds to level B2 of the Common European Framework of Reference for Languages (CEFR). Prerequisite: SPAN 301. Lecture In Person Learning Mon Wed Fri 9:30 a.m. - 11:00 a.m.

SPAN_O 419-001  SPAN_O 001 Introduction to Translation and Interpretation F WS General aspects of translation and interpretation. Theory and practice. Prerequisite: SPAN 301. Lecture In Person Learning Mon Wed Fri 12:30 p.m. - 2:00 p.m.

STAT_O 124-001  STAT_O 001 Business Statistics WS Introduction to surveys and simple sampling strategies; descriptive methods for one and two variables; frequency distributions; correlation and regression; descriptive methods for time series and index numbers; and probability and relationship to statistical inference. Good for CA, CMA credit. Credit will be granted for only one of STAT 121, STAT 124. [3-0-0] Prerequisite: One of Principles of Mathematics 11, Pre-Calculus 11, Foundations of Mathematics 12. Lecture In Person Learning Tue Thu 11:00 a.m. - 12:30 p.m.

STAT_O 203-001  STAT_O 001 Introduction to Probability WS Applied statistics for students with a first-year calculus background. Estimation and testing of hypotheses, problem formulation, models and basic methods in analysis of variance, linear regression, and non-parametric methods. Descriptive statistics and probability are presented as a basis for such procedures. [3-0-0] Prerequisite: One of MATH 101, MATH 103, MATH 142 and one of DATA 101, COSC 221. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

STAT_O 230-001  STAT_O 001 Introductory Statistics WS Multivariate probability distributions, moment and generating functions. [3-0-0] Prerequisite: All of MATH 200, STAT 201. Lecture In Person Learning Mon Wed Fri 2:00 p.m. - 3:30 p.m.

STAT_O 303-001  STAT_O 001 Intermediate Probability WS Development of broad guidelines for a comprehensive approach to data analysis with a focus on communicating statistical ideas from planning experiments to the presentation of results. Topics include criteria for selection of suitable methodologies, data preparation, outlier detection, and exploratory data analysis. Credit will be granted for only one of DATA 300 or STAT 400 when the subject matter is of the same nature. [3-0-0] Prerequisite: DATA 310. DATA 315 is strongly recommended. Lecture In Person Learning Mon Wed Fri 12:30 p.m. - 2:00 p.m.

STAT_O 400-001  STAT_O 001 Statistical Communication and Consulting WS Statistical concepts and methods in environmental science and management. Scientific problem-solving using statistical methods. Integration of the formulation of objectives, study design, and quantitative methods appropriate for the design. The role and use of statistical software packages. [3-0-0] Prerequisite: DATA 310. Lecture In Person Learning Tue Thu 2:00 p.m. - 3:30 p.m.

STAT_O 406-001  STAT_O 001 Envirometrics WS Development of broad guidelines for a comprehensive approach to data analysis with a focus on communicating statistical ideas from planning experiments to the presentation of results. Topics include criteria for selection of suitable methodologies, data preparation, outlier detection, and exploratory data analysis. Credit will be granted for only one of DATA 300 or STAT 400 when the subject matter is of the same nature. [3-0-0] Prerequisite: DATA 310. Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

STAT_O 547-I_001  STAT_O 001 Topics in Statistics WS Topics chosen from different areas within the field of statistics, such as time series, longitudinal and multi-level modelling, multivariate analysis, machine learning, resampling and permutation methods, smoothing and filtering, survival analysis, sports analytics and spatial statistics. Content will be determined as so to complement course offerings and meet the needs of the students. With the permission of the department head, this course may be taken more than once on a different topic. [3-0-0] Lecture In Person Learning Tue Thu 9:30 a.m. - 11:00 a.m.

STMIC_O 433-001  STMIC_O 001 Special Topics in Language Practice and Pedagogy WS Intensive language immersion course to enhance and improve proficiency, focused on language pertaining to a specific topic or language domain. The language of instruction is Spanish. May be offered on the land. Restricted to students in the Bachelor of SAr’ticmic Language Fluency program. [0-2-3] Prerequisite: STMIC 331. Lecture Online Learning Arranged Arranged

SUST_O 100-001  SUST_O 001 Sustainability: People, Place, and Process WS The concept of sustainability and its relationship to people and communities, the management and conservation of natural resources, land and flood 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 Mon Wed Fri 11:00 a.m. - 12:30 p.m.

SUST_O 104-101  SUST_O 011 Introduction to Environmental Humanities WS Explores the contribution of historical, philosophical, anthropological, and literary scholarship to elucidation and mitigation of a specific environmental issue. [3-0-0] Prerequisite: SUST 100 recommended. Lecture In Person Learning Tue Thu 3:30 p.m. - 5:00 p.m.

SUST_O 104-001  SUST_O 001 Introduction to Environmental Humanities WS Explores the contribution of historical, philosophical, anthropological, and literary scholarship to elucidation and mitigation of a specific environmental issue. [3-0-0] Prerequisite: SUST 100 recommended. Discussion In Person Learning Arranged Arranged

SUST_O 200-001  SUST_O 001 Application, Practice and Management Approach WS Concepts of governance, natural resource management, and economy-environment connections. Restricted to students in the Bachelor of Sustainability program. [3-0-0] Prerequisite: SUST 100. Lecture In Person Learning Mon Wed Fri 5:00 p.m. - 6:30 p.m.

SUST_O 201-003  SUST_O 003 Sustainability: People, Place, and Process WS Introduces 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. [2-0-0] Equivalency: GEOG 201 Lecture In Person Learning Mon Wed Fri 12:00 p.m. - 2:00 p.m.

SUST_O 201-001  SUST_O 001 Introduction to Research in Sustainability and GI WS Introduces 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. [2-0-0] Equivalency: GEOG 201 Discussion In Person Learning Mon Wed Fri 10:00 a.m. - 11:00 a.m.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Type</th>
<th>Title</th>
<th>Description</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUST_O 201-002</td>
<td>SUST_O</td>
<td>Introduction to Research in Sustainability</td>
<td>Introduces 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. [2.0-0-0] Prerequisite: GEOG 201</td>
<td>3.0</td>
</tr>
<tr>
<td>SUST_O 202-001</td>
<td>SUST_O</td>
<td>Community Service Learning</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>
<td>1.0</td>
</tr>
<tr>
<td>SUST_O 302-001</td>
<td>SUST_O</td>
<td>Community Service Learning</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>
<td>1.0</td>
</tr>
<tr>
<td>SUST_O 304-001</td>
<td>SUST_O</td>
<td>Community Service Learning</td>
<td>A physical approach to improvisation as it relates to the creation of live performance events. [3 hours/week studio]</td>
<td>3.0</td>
</tr>
<tr>
<td>SUST_O 304-002</td>
<td>SUST_O</td>
<td>Community Service Learning</td>
<td>A physical approach to improvisation as it relates to the creation of live performance events.</td>
<td>3.0</td>
</tr>
<tr>
<td>THTR_O 303-002</td>
<td>THTR_O</td>
<td>Theatre Appreciation: The Power of Live Perform</td>
<td>Explore various aesthetic, ritual, and everyday life performance practices. Credit will be granted for only one of THTR 303, ARTH 303, CULT 303, or FILM 303.</td>
<td>3.0</td>
</tr>
<tr>
<td>THTR_O 303-001</td>
<td>THTR_O</td>
<td>Narrative Film Production</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>
<td>3.0</td>
</tr>
<tr>
<td>THTR_O 104-001</td>
<td>THTR_O</td>
<td>The Art of Public Speaking</td>
<td>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.</td>
<td>3.0</td>
</tr>
<tr>
<td>THTR_O 180-001</td>
<td>THTR_O</td>
<td>Theatre Appreciation: The Power of Live Perform</td>
<td>Explore various aesthetic, ritual, and everyday life performance practices. Credit will be granted for only one of THTR 303, ARTH 303, CULT 303, or FILM 303.</td>
<td>3.0</td>
</tr>
<tr>
<td>VISA_O 090-001</td>
<td>VISA_O</td>
<td>VISA_O 090-007</td>
<td>VISA_O 090-008</td>
<td>VISA_O 090-008</td>
</tr>
<tr>
<td>VISA_O 090-002</td>
<td>VISA_O</td>
<td>VISA_O 090-002</td>
<td>VISA_O 090-002</td>
<td>VISA_O 090-002</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Lecture Type</td>
<td>Days</td>
<td>Time</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
<td>--------------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>VISA_O 102-001</td>
<td>Drawing and Two-Dimensional Art Practices I</td>
<td>Lecture</td>
<td>Wed</td>
<td>09:00 a.m. - 12:30 p.m.</td>
</tr>
<tr>
<td>VISA_O 102-002</td>
<td>Drawing and Two-Dimensional Art Practices I</td>
<td>Studio</td>
<td>Tue</td>
<td>10:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 102-003</td>
<td>Drawing and Two-Dimensional Art Practices I</td>
<td>Studio</td>
<td>Thu</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 104-001</td>
<td>Three-Dimensional Art Practices I</td>
<td>Lecture</td>
<td>Tue</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 104-002</td>
<td>Three-Dimensional Art Practices I</td>
<td>Studio</td>
<td>Wed</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 106-001</td>
<td>Introduction to Digital Media I</td>
<td>Lecture</td>
<td>Wed</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 106-005</td>
<td>Introduction to Digital Media I</td>
<td>Laboratory</td>
<td>Thu</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 106-006</td>
<td>Introduction to Digital Media I</td>
<td>Studio</td>
<td>Fri</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 117-001</td>
<td>Introduction to Art I</td>
<td>Lecture</td>
<td>Thu</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 211-001</td>
<td>Painting I</td>
<td>Lecture</td>
<td>Tue</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 215-002</td>
<td>Painting I</td>
<td>Lecture</td>
<td>Thu</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 222-001</td>
<td>Printmaking: Screenprinting I</td>
<td>Lecture</td>
<td>Wed</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 225-001</td>
<td>Sculpture I</td>
<td>Lecture</td>
<td>Thu</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 244-001</td>
<td>Photography I</td>
<td>Lecture</td>
<td>Wed</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 255-001</td>
<td>Introduction to Printmaking: Linocut and Letter</td>
<td>Lecture</td>
<td>Thu</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 261-001</td>
<td>Video I</td>
<td>Lecture</td>
<td>Fri</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 268-001</td>
<td>Strategies in Digital Art: Visual Communication</td>
<td>Lecture</td>
<td>Mon</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 268-002</td>
<td>Strategies in Digital Art: Visual Communication</td>
<td>Lecture</td>
<td>Tue</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 282-001</td>
<td>Drawing II</td>
<td>Lecture</td>
<td>Wed</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 300-W_001</td>
<td>Advanced Practice in Drawing</td>
<td>Lecture</td>
<td>Tue</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 312-001</td>
<td>Advanced Practice in Painting</td>
<td>Lecture</td>
<td>Thu</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 323-001</td>
<td>Advanced Practice in Sculpture</td>
<td>Lecture</td>
<td>Thu</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 336-001</td>
<td>Advanced Practice in Printmaking</td>
<td>Lecture</td>
<td>Wed</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>VISA_O 363-W_001</td>
<td>Advanced Practice in Photography</td>
<td>Lecture</td>
<td>Tue</td>
<td>09:00 a.m. - 12:00 p.m.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
<td>---------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>VISA_O 382-W_001</td>
<td>Advanced Practice in Media Arts</td>
<td>W1</td>
<td>Students work and learn in certain off-campus, art-related positions to receive credit toward the B.F.A. degree. The department head, the program coordinator, and the course instructor will determine if the activity meets the criteria to qualify for credit. Prerequisite: Completion of two 300-level VISA courses in the area of the proposed practicum activity. The credit value for this course will be determined in consultation with the student prior to the registration.</td>
<td></td>
</tr>
<tr>
<td>VISA_O 382-001</td>
<td>Advanced Art Practices I</td>
<td>W1</td>
<td>A studio course for graduate students in Visual Arts. The production of independent artwork and the critical analysis of that work. Students may work in any artistic discipline. Restricted to students in the M.F.A. program with specialization in Visual Arts, or with permission of the Department of Creative Studies.</td>
<td></td>
</tr>
<tr>
<td>WRLD_O 100-001</td>
<td>Introduction to Intercultural Communication</td>
<td>W1</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></td>
</tr>
<tr>
<td>WRLD_O 150-001</td>
<td>Introduction to Intercultural Communication</td>
<td>W1</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></td>
</tr>
<tr>
<td>WRLD_O 150-002</td>
<td>Introduction to Intercultural Communication</td>
<td>W1</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></td>
</tr>
<tr>
<td>WRLD_O 340-001</td>
<td>Tales of Resistance: Indigenous Voices in Central</td>
<td>W1</td>
<td>Indigenous literature (including oral traditions, myths, legends, stories, songs, testimonial narratives) from Indigenous nations in Southern Mexico and Guatemala. Students may be evaluated in Spanish with instructor’s permission. Available for credit towards a Minor in Spanish only for students evaluated in Spanish.</td>
<td></td>
</tr>
<tr>
<td>WRLD_O 351-001</td>
<td>Mediterranean World in Cinema and Literature</td>
<td>W1</td>
<td>Mediterranean World in Cinema and Literature. Credit will not be granted for both WRLD 351 and WRLD 399F. Prerequisite: Third-year standing. Changes depict the ancient Mediterranean world in media, such as novels, plays, paintings, movies, and television series. Credit will be granted for only one of ARTH 370, DHUJ 370, or WRLD 370. Prerequisite: Third-year standing. Equivalency: DHUJ 370.</td>
<td></td>
</tr>
</tbody>
</table>
| WRLD_O 370-001 | Mediterranean World in Cinema and Literature | W1 | Mediterranean World in Cinema and Literature. Credit will not be granted for both WRLD 351 and WRLD 399F. Prerequisite: Third-year standing. Changes depict the ancient Mediterranean world in media, such as novels, plays, paintings, movies, and television series. Credit will be granted for only one of ARTH 370, DHUJ 370, or WRLD 370. Prerequisite: Third-year standing. Equivalency: DHUJ 370.